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SEPTEMBER 7, 2025 - 11:00 AM

11:00 AM

Research Forum Exhibit Hall

RF1 Plenary 1

Room 1

Best Overall Abstract Award

1 Evaluating the Safety and Operational Impacts of Emergency Department Undertriage
D Sax, Kaiser Permanente, Oakland, CA

Best Early Career Abstract Award

2 Use of Mobile Cardiac Outpatient Telemetry in Geriatric Emergency Department Patients
R Nene, University of California San Diego, San Diego, CA

3 Reducing Radiographs In Low-Risk Infants With Bronchiolitis: A Quality Improvement Initiative
T. Phamduy, Dayton Children's Hospital, Dayton, OH

4 Wearable Biosensors Reliably and Remotely Monitor Patients Discharged from the Emergency Department
G Rovenolt, Virginia Tech Carilion School of Medicine, Roanoke, VA

5 Artificial Intelligence Model for Automated Assessment of Lung Ultrasound Image View Quality
A Chen, Philips, Cambridge, MA

RF2 Administration & Operations

Room 2

6 Preferred Language Is Associated With Length of Stay for Patients Admitted from the Emergency Department
T Zimmerman, University of Nebraska Medical Center, Omaha, NE

7 Outcomes of Implementing an Emergency Department-Based Intensive Care Unit: A Scoping Review
A Mohamadi, Northwell, New Hyde Park, New York, NY

8 Impact of a Patient-centered Medical Home on Emergency Department Utilization Among Patients With Sickle Cell Crisis
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

9 Electronic After-Visit Summaries: Useful or Useless?
B Connell, Icahn School of Medicine at Mount Sinai, New York, NY

10 Rates of Anticoagulation in Cirrhotic Atrial Fibrillation Patients
M Akhter, Penn State Health Milton S. Hershey Medical Center, Hershey, PA

11 Comparative Efficacy of Medications for Atrial Fibrillation Rate Control in Heart Failure
A Baghdadi, Henry Ford Hospital, Detroit, MI

RF3 Behavioral Health

Room 3

12 Antipsychotic Agents for Treatment of Schizophrenia in the Emergency Department
A Shehaj, Penn State College of Medicine, Hershey, PA

13 Emergency Department Utilization Prior to Suicide
E L. Simon, Cleveland Clinic Akron General, Akron, OH

14 Trends in U.S. Self-Harm Mortality, 1990–2021: Shifts in Method, Burden, and Demographic Disparities
M Aranibar, Mayo Clinic, Rochester, MN

15 Xylazine Exposure Among Emergency Department Patients With Opioid Overdose
D Sacco, Columbia University Irving Medical Center, New York, NY

16 National Trends and Clinical Characteristics of Emergency Department Visits for Suicide Attempts
V Shapovalov, Lehigh Valley Health Network, Allentown, PA

17 Association of Purpose in Life Scores and Emergency Department Visits for Diabetic Patients
J Hacnik, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

Poster 1

Poster Hall

389 The Novel Use of Video Review in Cardiac Arrest Resuscitation Research: A Scoping Review
M Ali, Touro College of Osteopathic Medicine, Middletown, NY

390 Emergency Department Utilization of Coronary CT Angiography
D Levy, Good Samaritan University Hospital, West Islip, NY

391 Emergency Department Visits for PSVT: An Analysis of the HCUP Nationwide Emergency Department Sample
G Fermann, HEOR Strategies, Boston, MA

392 Time to Mechanical Thrombectomy: Impact on Intermediate-Risk Pulmonary Embolism in the FLASH Study
L Stewart, Indiana University School of Medicine, Indianapolis, IN

393 Cocaine and Outcomes in Emergency Department Patients Presenting With Chest Pain: Real-World Data
M Borissov, University of Maryland Medical Center, Midtown Campus, Baltimore, MD

394 Discharge of Low-Risk Patients With Venous Thromboembolism: Real-World Practice Limitations
W Stubblefield, Vanderbilt University Medical Center, Nashville, TN

395 WITHDRAWN

396 High Blood Pressure Among Emergency Department Patients: Effects of an Educational Intervention
M Egner, Penn State College of Medicine, Hershey, PA

397[EMF] Adverse Effects of Adjuvant Heat Treatment for Catheter Salvage in CLABSI
K Muraglia, University of Michigan Medical School, Ann Arbor, MI

398 Delta High Sensitivity Cardiac Troponin Measures to Exclude Myocardial Infarction
B Hutchison, Wake Forest University School of Medicine, Winston-Salem, NC

SEPTEMBER 7, 2025 - 12:00 PM

RF4 Cardiovascular: Interventions and Delivery

Room 1

18 Large Language Models for Extracting Out-of-Hospital Cardiac Arrest Variables from Clinical Data
E Abbott, Icahn School of Medicine at Mount Sinai, New York, NY

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 7, 2025 - 12:00 PM —*cont'd*

19 Outcomes from an Emergency Department Discharge Pathway Utilizing Ambulatory Cardiac Monitoring
A Sharma, USF Health Morsani College of Medicine, Tampa, FL

20 Can the HEART Score Differentiate Type 1 from Type 2 Myocardial Infarction in a Multisite U.S. Cohort
N Ashburn, Wake Forest University School of Medicine, Winston-Salem, NC

21 Emergency Department Admissions and Health Care Costs Among Patient With Supraventricular Tachycardia
L Gailloud, The George Washington University School of Medicine and Health Sciences, Washington, DC

22 Sex Differences in Acute Chest Pain Care in a Multisite U.S. Cohort
R Jean-Louis, Atrium Health Wake Forest Baptist Medical Center, Winston-Salem, NC

23 Treatment Complications of Emergency Department Patients With DVT/PE Discharged Home With Direct Oral Anticoagulants
R Mohan, Summerville Medical Center, Summerville, SC

RF5 Critical Care: Airway and Ultrasound

Room 2

24 CT Perfusion Patterns and Neurological Recovery in Post-Cardiac-Arrest Brain Injury
W Lee, National Taiwan University Hospital, Taipei, TW

25 Impact of Emergency Department Pharmacists on Post-Intubation Sedation and Analgesia
A Cogan, Georgetown University School of Medicine, Washington, DC

26 The Association Between Hypoxia During Rapid Sequence Intubation With 30-Day Neurological Outcomes
A Bakhsh, King Abdulaziz University, Jeddah, SA

27 TEE-Guidance of Endovascular Procedures: A Resuscitative TEE Collaborative Registry (rTEECoRe) Study
C Owyang, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

28 WITHDRAWN

29 Predictors of Mortality in Vasopressor and Non-Vasopressor Dependent Sepsis Patients in the Emergency Department
M Arra, Washington University School of Medicine in St. Louis, St. Louis, MO

RF6 Diagnostics

Room 3

30 Differences of Adipokines in Older Emergency Department Patients With Sarcopenic Obesity and Sarcopenia
H Huang, Taipei Veterans General Hospital, Taipei, TW

31 Derivation of Prediction Model for Delayed Neutropenic Fever in Emergency Department Patients
T Rainer, The University of Hong Kong, Hong Kong, CN

32 A Novel Host-Response Tool for Risk Stratification in Adults With Suspected Sepsis: MeMed Severity
T Aufderheide, Medical College of Wisconsin, Milwaukee, WI

33 Rethinking D-Dimer: Optimal Cutoff Values for Venous Thromboembolism in End Stage Renal Disease
M Dotson, Charleston Area Medical Center Institute for Academic Medicine, Charleston, WV

34 Assessing the Diagnostic Utility of Procalcitonin in Diagnosing Serious Bacterial Infections
J Ju, University of Central Florida College of Medicine, Orlando, FL

35 Use of 3-Host-Protein Assay in Identifying Bacterial Infection in a Quaternary Emergency Department
K Mohammadzadeh, Cedars-Sinai Medical Center, Los Angeles, CA

Poster 2

Poster Hall

399[EMF] Epidemiology of Intracerebral Hemorrhage Associated With Anticoagulant and Antiplatelet Use
M Rech, Department of Veterans Affairs, Hines, IL

400 Association of Crystalloid Use and Favorable Neurologic Outcome After Out-of-Hospital Cardiac Arrest
G Wardi, University of California San Diego, Encinitas, CA

401 Targeted Temperature Management Device Type Over Time in an Ongoing Clinical Trial of Cardiac Arrest
J Hennessy, University of Michigan Medical School, Ann Arbor, MI

402 Risk Stratification Following PE in Patients With Cancer: How Do Current Tools Perform?
C Coyne, University of California San Diego, San Diego, CA

403 Management of Emergency Department Patients With Low-Risk Deep Vein Thrombosis in the United States
O Adeniran, Henry Ford Providence Southfield Hospital, Southfield, MI

404 Association of Troponin Delta With 30-Day Major Adverse Cardiovascular Events
J Emakhu, Henry Ford Hospital, Detroit, MI

405 Performance Errors in Hyperangulated Video Laryngoscopy
B Bayly, Albany Medical Center, Albany, NY

406 A Computational Model for Automated Blood Pressure Control in Critical Care
Y Hu, Duke University School of Medicine, Durham, NC

407 Pre-Arrest Left Ventricular Ejection Fraction and Coronary Artery Disease Burden in Out-of-Hospital Cardiac Arrest Patients
C Lien, National Taiwan University Hospital Hsin-Chu Branch, Hsinchu, TW

SEPTEMBER 7, 2025 - 1:00 PM

RF7 Education

Room 1

36 Just-In-Time Emergency Refresher Tool for Transvenous Pacemaker Placement Increases Performance
R Grill, Eastern Virginia Medical School at Old Dominion University, Norfolk, VA

37 Impact of a Structured Educational Program on Resident-Performed Resuscitative TEE
F Lazaro-Paulina, Mayo Clinic, Rochester, MN

38 Structured Training to Improve Blood Loss Estimation by Emergency Physicians
K Spencer, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 7, 2025 - 1:00 PM —*cont'd*

39 The Impact of Longitudinal Ultrasound Curricula on Medical Students: A National Examination
M Teixeira, University of Tennessee, Memphis, TN

40 Implementation of a Novel Fascia Iliaca Nerve Block Curriculum for Emergency Physicians
Z Grant, UT Southwestern Medical Center, Dallas, TX

41 Simulated Cranial Ultrasound for Longitudinal Learning
R Gupta, New York-Presbyterian Queens, Flushing, NY

RF8 EMS & Disaster

Room 2

42 Managing High-Profile Medical Emergencies: Lessons from the 2024 National Political Conventions
N Cozzi, Rush University Medical Center, Chicago, IL

43 Hazardous Chemical Accidents: A Data-Driven Study of Incidents in the United States During 2021-2024
E Lindemann, Corewell Health, Michigan State University, Grand Rapids, MI

44 Verbal De-Escalation Training for EMS Clinicians and the Prevention of Workplace Violence
S Johnson, Mayo Clinic Ambulance Service, Mankato, MN

45 Comparative Analysis of Health Impacts from Natural Versus Technological Disasters
H Shin, Soonchunhyang University Bucheon Hospital, Bucheon City, Gyeonggido, KR

46 Data-Driven Tactical Triage Optimization for High-Severity Terrorist Attacks
H Shin, Soonchunhyang University Bucheon Hospital, Bucheon City, Gyeonggido, KR

47 Physician-Led Emergency Training for Medical Volunteers at the Chicago Marathon
B Goldberg, Rush University Medical Center, Chicago, IL

RF9 Geriatrics & Palliative Care

Room 3

48 Rethinking Resuscitation: Insights on End-of-Life Care Practices in High Mortality Risk Patients
S Sanghvi, University of Texas Health Science Center, McGovern Medical School, Houston, TX

49 Effect of an Extubation Protocol on Palliative Extubation in the Emergency Department
R Moschella, Boston University, Newton, MA

50 Experiences of Patients and Care Partners With Emergency Department-Embedded Palliative Care: A Qualitative Study
S Pang, Massachusetts General Brigham, Boston, MA

51 Impact of High Sensitivity Troponin Assay on Patient Disposition in a Geriatric Emergency Department
L Dahlke, Cedars-Sinai Medical Center, Los Angeles, CA

52 Bimodal Advanced Care Planning Education for Emergency Medicine Residents
O Nkemakolam, NYU Grossman Long Island School of Medicine, Mineola, NY

53 Social Isolation Increases Emergency Department Use Among Older Adults
C Gettel, Yale School of Medicine, New Haven, CT

SEPTEMBER 7, 2025 - 2:00 PM

RF10 Global Health

Room 1

54 Emergency Medical Response Disparities Following the 2023 Al Haouz Earthquake in Morocco
A Rouchdy, Northshore University Hospital / Long Island Jewish Medical Center, Manhasset, NY

55 How Does the WHO Interagency Integrated Triage Tool Perform in a Rural Ugandan Setting?
O Nail, Medical University of South Carolina, Charleston, SC

56 A Review of Snakebite Envenoming at a Tertiary Referral Hospital Emergency Department in Guyana
B Song, Vanderbilt University School of Medicine, Nashville, TN

57 Evaluating a Longitudinal Multidisciplinary POCUS Program in The Gambia: A Mixed-Methods Study
C McBeth, University of California, Davis, Sacramento, CA

58 Bringing Low-Cost, Portable EKG Capabilities to Rural Uganda
C Milam, Medical University of South Carolina, Charleston, SC

59 International Initiative to Identify Prehospital and Trauma Needs Throughout Jamaica
R Seu, Jacobi and Montefiore Medical Center, Bronx, NY

RF11 Health Policy & Services

Room 2

60 Emergency Medical Treatment and Labor Act Cases Involving Disruptive Patient Conduct: Initial Review
Z Reichert, University of Southern California, Los Angeles, CA

61 You Don't Choose the Hospital—But It Chooses Your Bill: Trauma Charge Variation in Florida
A Kipust, University of Miami Leonard M. Miller School of Medicine, Miami, FL

62 Preliminary Post-Dobbs Trends in Emergency Department Visits for Early Pregnancy Conditions
E Ager, University of California San Francisco, San Francisco, CA

63 Analyzing the Relationship of Malpractice Date and Health Care Expenditure Through Longitudinal Data
M Zia, Valley Health System, Las Vegas, NV

64[EMF] The Impact of Ownership Structure in Emergency Medicine on Older Adults
A Friedman, University of Pennsylvania, Philadelphia, PA

65 Information Dissemination on Twitter/X About Eight COVID-19 Emergency Care Innovations
C Berdahl, RAND, Santa Monica, CA

RF12 Sepsis

Room 3

66 Hybrid Type 1 Pilot Trial on National Early Warning Score 2-guided Sepsis Hour-1 Bundle in the Emergency Department
R Lam, The University of Hong Kong, Hong Kong Special Administrative Region, Hong Kong, CN

67 Pilot Evaluation of a Host-Protein Test in Emergency Department Patients Who Trigger a Sepsis Alert
J Wilson, USF Health Morsani College of Medicine, Tampa, FL

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 7, 2025 - 2:00 PM —*cont'd*

68 Point-of-Care Presepsin and Procalcitonin to Rule-Out Sepsis in Patients With Infectious Symptoms
W Sams, Wake Forest University School of Medicine, Winston-Salem, NC

69 Lactylation of S100A9 Protein: A New Insight into Sepsis-Associated Lung Injury
X Zheng, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, CN

70 Investigation of the Effect of Implementing a Host Response Test on SEP-1 Compliance
H O'Neal, Our Lady of the Lake Regional Medical Center/LSU Health Sciences Center, Baton Rouge, LA

71 Barriers to and Facilitators of the Sepsis Hour-1 Bundle: A Mixed Methods Implementation Evaluation
R Lam, The University of Hong Kong, Hong Kong Special Administrative Region, Hong Kong, CN

Poster 3

Poster Hall

409 EMS Trainee Improvement in Identifying Lung Sliding on Ultrasound After a Brief Educational Video
K Leeson, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

410 Between the Crag and a Hard Place: How Prepared Are Outdoor Rock Climbers for Medical Emergencies?
C Ferguson-Dryden, Kaiser Permanente Bernard J. Tyson School of Medicine, Pasadena, CA

411 Geographical Analysis of Trauma Center Access from U.S. Passenger Rail Stations and Routes
R Leone, Columbia University Irving Medical Center, New York, NY

412 Outdoor Automated External Defibrillator Setting Shortens Delivery Time of AED
Y Chen, China Medical University Hospital, Taichung, TW

413 Older Adults Who Refuse Any EMS Assessment Differ from Those Treated and Released Against Medical Advice
R Barghout, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

414 Shifting Political Violence and Civilian Targeting in South Korea: Tactical Medicine Implications
H Shin, Soonchunhyang University Bucheon Hospital, Bucheon City, Gyeonggido, KR

415 EMS Clinician Perspectives on the Emergency Triage, Transport and Treat Deployment in New York State
E Solazzo, Icahn School of Medicine at Mount Sinai, New York, NY

416 Clinical Impressions That May Impact Capacity in Older Adults With Accepted Prehospital Refusals
R Barghout, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

417 Police Officers' Willingness as First Responders for OHCA: A Questionnaire Survey in Taiwan
Y Fu, Far Eastern Memorial Hospital, New Taipei City, TW

418 Intravenous Push Ketamine for Post-Intubation Sedation in the Prehospital Setting
A Berns, Children's National Medical Center, Washington, DC

SEPTEMBER 7, 2025 - 3:00 PM

RF13 Informatics & AI

Room 1

72 Application of Artificial Intelligence to Emergency Medicine in the United States: A Scoping Review
E Shin, UMass Chan Medical School, Worcester, MA

73 Does Artificial Intelligence Note Writing Affect Emergency Medicine Throughput and Billing Metrics?
N Kurtzman, Emory University School of Medicine, Atlanta, GA

74 The Promise and Pitfalls of Artificial Intelligence Literature Search Tools in Medicine
K Forman, Michigan State University College of Human Medicine, Grand Rapids, MI

75 Quality of Chat GPT Generated Review of Emergency Medicine Topics
J Hacnik, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

76 Use of Ambient AI Scribe Software in a Dedicated Pediatric Emergency Department: A Pilot Trial
N Atigapramoj, UCSF Benioff Children's Hospital, Oakland, CA

77 Comparative Analysis of an AI Chatbot Versus Physician Responses to Emergency Department Questions
R Allison, Loma Linda University Medical Center, Loma Linda, CA

RF14 Neurology

Room 2

78 Improving Stroke Detection in Patients Presenting With Dizziness, Vertigo, Ataxia, and Imbalance
J Bedolla, US Acute Care Solutions, Canton, OH

79 Enhancing Head Trauma Evaluation in Intoxicated Patients Using Blood Biomarkers
R Chandran, Abbott Laboratories, Abbott Park, IL

80 AI Detection of Nonconvulsive Status Epilepticus in a Community Hospital Emergency Department: Accuracy and Clinical Use
V Kumar, Trinity Health of New England, Hartford, CT

81 Evaluation of an Out-of-Catchment Ambulance Hyperacute FAST+ Bypass Pathway
A McCabe, Tallaght University Hospital, Dublin, IE

82[EMF] Andexanet Alfa Increases Thrombotic Events Versus 4F- PCC for fXa Inhibitor-Related Intracranial Hemorrhage in Veterans
M Rech, Edward Hines, Jr. VA, Hines, IL

83 Circadian Pattern for Stroke Presentations to the Emergency Department
M McPherson, Grand Strand Medical Center, Myrtle Beach, SC

RF15 Pain Management

Room 3

84 Impact of a Recovery-Promoting Intervention on Analgesic Use in Older Adults
M Casey, University of North Carolina at Chapel Hill, Chapel Hill, NC

85 Efficacy of Ketamine for Acute Trauma Pain in Emergency: A Systematic Review and Meta-Analysis
L Geraldini, Albert Einstein Hospital, Sao Paulo, BR

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SEPTEMBER 7, 2025 - 3:00 PM —*cont'd*

86 Pain Coach Education and Integrative Toolkit Program Qualitative Analysis of Patient Perspectives
P Hendry, University of Florida College of Medicine - Jacksonville, Jacksonville, FL

87 Inspired for Life? Long Term Practice of Ultrasound-Guided Nerve Blocks a Decade After Training
O Sayed, Mayo Clinic, Rochester, MN

88 Suprascapular Nerve Block for Analgesia in Traumatic Scapular Fractures: A Case Series
A Chanda, All India Institute of Medical Sciences, New Delhi, IN

89 Sex Differences in Medication Dosing During Procedural Sedation in the Emergency Department
A Bingham, Prisma Health - Upstate, Greenville, SC

Poster 4

Poster Hall

419 Bingo! A Multiplayer Synchronous Serious Game to Increase Weekly Conference Engagement and Learning
T Jagtiani, NewYork-Presbyterian Queens, Flushing, NY

420 Transforming CPR Education: Effectiveness of a Standardized Video-Based High School Curriculum
P Gaddipati, MedicZero, Hillsborough, NJ

421 Augmented Reality Immersive Learning Versus Face-to-Face Learning for Aerosol-Generating Procedures
R Lam, The University of Hong Kong, Hong Kong Special Administrative Region, Hong Kong, CN

422 Gamification to Improve EMS Knowledge of Medical Capacity Determination
N Motaghedi, University of Central Florida College of Medicine, Orlando, FL

423 Gaps in Documentation Training Highlight Need for Multimodal Emergency Medicine Curriculum
M Kahle, Creighton University School of Medicine, Phoenix, AZ

424 Improving Clinician Comfort and Knowledge With Facilitating Clinical Event Debriefs
S Duvidovich, Icahn School of Medicine at Mount Sinai, New York, NY

425 Educational Impact of Physicians-in-Triage: Characteristics of Patients Seen and Dispositioned
J Hill, University of Cincinnati, Cincinnati, OH

426 Development and Pilot Testing of a Novel Gamified Clinical Case Simulation Teaching Tool
S Crager, University of California Los Angeles, Los Angeles, CA

427 STAR-EM: Program Design and Five-Year Review of a Summer Research Program for Medical Students
S Friedman, University Health Network, University of Toronto, Toronto, Ontario, CA

428 Analysis of Proposed Emergency Medicine Program Changes in a Cohort of Special Operations Forces Medical Students
Z LeBlanc, West Virginia University School of Medicine, Morgantown, WV

SEPTEMBER 7, 2025 - 4:00 PM

RF16 EMF Showcase

Room 1

90[EMF] Expert Panel Research Priorities to Advance Diagnostic Excellence in Emergency Departments
C Berdahl, Cedars-Sinai Medical Center, Los Angeles, CA

91[EMF] Vaccine Knowledge and Uptake in Undocumented Latino Immigrants in the Emergency Department
K Reyes, University of California San Francisco, San Francisco, CA

92[EMF] Identifying Key Priorities for an Emergency Department Intervention for Youth With Substance Use
M Renny, Icahn School of Medicine at Mount Sinai, New York, NY

93[EMF] Feasibility and Acceptability of Oura Ring Sleep Monitoring for Older Adults Admitted from the Emergency Department
A Haimovich, Beth Israel Deaconess Medical Center, Boston, MA

94[EMF] Lipoprotein(a) Is Not Predictive of Cardiac Events in Patients Presenting With Acute Chest Pain
N Ashburn, Wake Forest University School of Medicine, Winston-Salem, NC

RF17 Teaching Fellowship

Room 2

95[TF] Improving Resident Feedback and Milestone Evaluation Through Implementation of EMMA
A Mizner, Allegheny General Hospital, Pittsburgh, PA

96[TF] Training Emergency Medicine Physicians to Provide Outpatient Procedural Sedation: A Pilot Project
R Pritchard, Virginia Tech Carilion, Roanoke, VA

97[TF] Mock Emergency Medicine Certifying Exam: An Innovative Simulation Course
P Patel, Loyola University Medical Center, Maywood, IL

98[TF] Longitudinal Gamification of Simulation in Emergency Medicine Education
C Yang, University of Missouri School of Medicine, Columbia, MO

99[TF] Exploring Pertinence
L Lamparter, University of California Irvine, Orange, CA

RF18 Pediatrics

Room 3

100 Enhancing Pediatric Emergency Medicine Training: Reframing Morning Report With Simulation
K Wong, Rutgers New Jersey Medical School, Newark, NJ

101 Incidence and Severity of Unanticipated Opioid Overdoses in Patients Younger than 5 Years of Age
S Gerard, Inova Fairfax Medical Campus, Falls Church, VA

102 Parent Perceptions of Cannabidiol Products May Put Children at Risk for Unintentional Exposure
M McFayden, Brody School of Medicine, East Carolina University, Greenville, NC

103 Perceived Facilitators and Barriers to Universal Adolescent Suicide Screening by Emergency Department Clinicians
H Vongsachang, Harbor-UCLA Medical Center, Los Angeles, CA

104 Improving Pediatric Residents' Confidence in Managing Neonatal Hypoglycemic Seizures
K Nawaz, UT Southwestern Medical Center, Dallas, TX

105 Investigating Adolescent Physical Activity Level of Medicaid Recipients at an Urban Pediatric Emergency Department
P Patel, University of Connecticut School of Medicine, Farmington, CT

Research Embargoed Until Date/Time of Presentation

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SEPTEMBER 8, 2025 - 8:00 AM

RF19 Public Health

Room 1

106 Comprehensive Outcomes of Cannabis Versus Cigarette Use for Emergency Department Patients
D Jehle, The University of Texas Medical Branch, Galveston, TX

107 WITHDRAWN

108 Crossover Arm Control: A Safe Restraining Technique in Resisting Subjects?
G Scuderi, Georgetown University, Washington, DC

109 The Real World of Universal Screening for Alcohol Use in Emergency Medicine
L Harrison, Northwell Health, New Hyde Park, NY

110 Standardizing and Normalizing Race Data in the Clinical Emergency Data Registry
D Sharma, American College of Emergency Physicians, Irving, TX

111 Streamlining Government Assistance Enrollment: Demographic Analysis of In-Person and Remote Models
T Scheinert, Hackensack Meridian School of Medicine, Nutley, NJ

RF20 Quality & Safety

Room 2

112 CHAPTER4: Challenging the 4-Hour Allergy Premedication Time in the ER, a Multicenter Study
C Shah, Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ

113 Patients' Experience of Restraints in the Emergency Department via Group Model Building Methodology
A Wong, Yale School of Medicine, New Haven, CT

114 Optimizing Emergency Department Flow: The Impact of a Split Flow Model on Efficiency Metrics
K Smith, Morristown Medical Center, Morristown, NJ

115 Impact of Universal, Opt-Out HIV Screening on Emergency Department Utilization in a Safety-Net Hospital
A Yaffee, Emory University School of Medicine, Atlanta, GA

116 Use of Epic Secure Chat Can Improve Antibiotic Administration Times in Emergency Department Patients With Sepsis
N Genes, NYU Langone Health, New York, NY

117 Impact of Secure Chat on Efficiency and Emergency Department Critical and Urgent Result Communication Rates
E Simon, Cleveland Clinic Akron General, Akron, OH

RF21 Resuscitation

Room 3

118 Optimal Chest Compressions May Lie 4 cm Left of the Sternum
L Martinez, USF Health Morsani College of Medicine, Tampa, FL

119 Endothelial Glycocalyx Shedding and Oxidative Stress as Prognostic Biomarkers After Cardiac Arrest
C Miranda, Ribeirão Preto School of Medicine, University of São Paulo, Ribeirão Preto, São Paulo, BR

120 Biphasic, Protracted, Fatal, and Near-Fatal Anaphylactic Reactions to Iodinated Contrast Media
H Gao, Mayo Clinic, Rochester, MN

121 Effect of High Versus Low Mean Arterial Pressure on Arrhythmias in a Model of Post-Arrest Shock
G Braybrooks, The MetroHealth System, Case Western Reserve University School of Medicine, Cleveland, OH

122 Diagnostic Accuracy of Ultrasound Blood Flow Patterns During Compression to Detect Return of Spontaneous Circulation
A Cohen, North Shore University Hospital, Manhasset, NY

123 Balanced Crystalloid Solution in Diabetic Ketoacidosis Does Not Improve Treatment Time
A Smith, Intermountain Health Park City Hospital, Park City, UT

Poster 5

Poster Hall

429 How I Met Your EMR: A Resident-Led EMR Training Session Pilot Study
E Syrjala, Wayne State University, Detroit, MI

430[EMF] Perspectives on Coaching Among Emergency Medicine Faculty and Key Stakeholders: A Qualitative Analysis
K Diercks, UT Southwestern Medical Center, Dallas, TX

432 Gender-Coded Language in Advertising Influences Emergency Physicians' Choices in Job Application
C Jeanmonod, Lafayette College, Easton, PA

433 Crash Course: A Critical Care Curriculum for PGY-1 Emergency Medicine Residents
T Jagtiani, NewYork-Presbyterian Queens, Flushing, NY

434 Training Efficacy for a Hands-on Infant Lumbar Puncture Model: A Resident-Guided Educational Study
E Davis, NewYork-Presbyterian Queens, Flushing, NY

435 Guess Who: Re-Purposing Childhood Nostalgia as a Gamified Teaching Tool
Z Ravnitzky, New York-Presbyterian Queens, Flushing, NY

436 An Analysis of the Impact of Financial Incentives on Faculty Attendance at Resident Didactics
A Howard, Medical University of South Carolina, Charleston, SC

437 Improving Retina Disorder Identification and Referral in the Emergency Department via Education
T Singer, PeerView Institute for Medical Education, Inc., New York, NY

438 Hemp Legalization and Pediatric Cannabis Exposures in Texas: A 10-Year Retrospective Study
R Hoffman, UT Southwestern Medical Center, Dallas, TX

SEPTEMBER 8, 2025 - 10:00 AM

RF22 Plenary 2

Room 1

124 Resident Physician Awareness of Barriers to Post-Discharge Care from the Emergency Department
S Farhat, Henry Ford Hospital, Detroit, MI

125 Contactless Assessment of Vital Signs Using Remote Photoplethysmography in the Emergency Department
R Lam, The University of Hong Kong, Hong Kong, CN

126[EMF] EchoNext: A Deep Learning Model to Identify Patients At-Risk for Structural Heart Disease
B Daniels, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 10:00 AM —*cont'd*

127 Outcomes and Etiologic Agents in Women With Lower Urinary Symptoms and Negative Urine Cultures in the Emergency Department
P Aguilera, Pontificia Universidad Catolica de Chile, Santiago, CL

128 A Natural Experiment Comparing Three-Year and Four-Year Training Models
J Hughes, Stanford Health Care, Palo Alto, CA

RF23 Health Policy and Quality Improvement

Room 2

129 Improving Emergency Department Care for Sexual Assault Patients: A 2-Part Quality Improvement Study
U Venkataramani, USF Morsani College of Medicine, Tampa, FL

130 Gender Bias in Emergency Physician's Assessment of the Likelihood of Pulmonary Embolism
A Vromant, Hôpital de la Pitié Salpêtrière, Paris, FR

131 "It Creates a Culture of Substandard Care": Evaluating Boarding's Impact on Physicians and Learners
M Skrabak, University of California San Francisco, San Francisco, CA

132 Left Without Being Seen, Against Medical Advice, and Before Treatment Complete in the Emergency Department, 2016-2022
N Jansen, Beth Israel Deaconess Medical Center, Boston, MA

133[EMF] Payer-Based Disparities in Length of Stay for Patients Discharged to Skilled Nursing Facilities
A Sabbatini, University of Washington, Seattle, WA

134 HIV/Syphilis Universal Screening in Emergency Departments: One-Year Implementation Review
C Stringfield, Dignity Health, Henderson, NV

RF24 Social Emergency Medicine

Room 3

135 Analysis of Social Determinants of Health in Medical Dramas to Enhance Emergency Medicine Training
A Johnson, Michigan State University College of Human Medicine, Grand Rapids, MI

136 A Health Coverage Screening and Enrollment Pilot in a Pediatric Emergency Department
T McGrew, University of Texas at Austin, Dell Medical School, Austin, TX

137 Social Work Consultations for Patients Screening Positive for Intimate Partner Violence
M St. Romain, University of California San Diego, San Diego, CA

138 Complex Care Needs of Congestive Heart Failure Patients Presenting to the Emergency Department
D Murtha, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY

139 Abdominal Pain + Vaginal Discharge: An Eye-Opening Simulation Case About Human Trafficking Education
N Exeni McAmis, Los Robles Regional Medical Center, Thousand Oaks, CA

140 Social Determinants of Health and Emergency Department Utilization: Insights from PRAPARE Screening
W Taylor, University of Alabama at Birmingham, Birmingham, AL

Poster 6

Poster Hall

439 The Impact of Urinalysis Turnaround Times on Patient Disposition in an Emergency Department Setting
P Hernandez, Massachusetts General Brigham, Boston, MA

440 Physician Assistant and Nurse Practitioner Utilization in U.S. Emergency Departments, 2018 to 2022
F Wu, UCSF Fresno, Fresno, CA

441 Fluid Conservation: A Systematic Emergency Department Approach to Fluid Shortages
O Xu, Oregon Health & Science University, Portland, OR

442 Leveraging Alternatives: An Emergency Department's Response to Catastrophic Flooding
T Amponsah, Rush University Medical Center, Chicago, IL

443 Emergency Department-Hospital Leadership Partnerships Reimagine Spaces to Safely Improve Patient Throughput
D Wein, USF Health Morsani College of Medicine, Tampa, FL

444 Impact of Performance Feedback on Emergency Department Laboratory Test Utilization and Cost Savings
B Godbout, Lenox Hill Hospital, New York, NY

445 Physician Orders Associated With an Emergency Department Telehealth Transitions of Care Program
A Kreshak, University of California San Diego, San Diego, CA

446 Equity-Driven Qualitative Evaluation of Emergency Department Discharge: Preliminary Insights from Patient Perspectives
L Jiang, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

447 Impact of Insurance Network Narrowing at a Neighboring Health System on Emergency Department Volume
A You, UC San Diego Health, San Diego, CA

448 Electronic After Visit Summary Decreases Emergency Department Length of Stay in Rural Hospital
B Garrity, Prisma Health - Upstate, Greenville, SC

SEPTEMBER 8, 2025 - 11:00 AM

RF25 Substance Use Disorder Treatment

Room 1

141 Low-Dose Buprenorphine for Acute Pain Management in the Emergency Department: A Prospective Observational Study
T Ahern, Stanford University School of Medicine, Palo Alto, CA

142 Alternatives to Opioids Program Decreased Overall Emergency Department Opioid Use
P Moschella, Prisma Health - Upstate, Greenville, SC

143 Naloxone Requirements in Emergency Department Patients With Confirmed Protonitazene Overdose
S Shastry, Icahn School of Medicine at Mount Sinai, New York, NY

144 The Prognostic Nutritional Index: Assessing Correlations in Alcohol Withdrawal Syndrome
M Wank, Central Michigan University College of Medicine, Mount Pleasant, MI

145 Characteristics of Adolescents and Young Adults Who Died of Overdose: Opportunities for Intervention
C Buresh, University of Washington, Seattle, WA

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 11:00 AM —*cont'd*

146 Implementation of Weight-Based Front-Loaded Phenobarbital Protocol for Alcohol Withdrawal
A Porta, University of Cincinnati Medical Center, Cincinnati, OH

RF26 Telemedicine and Wellness - 12:00 pm

Room 2

147 Reducing Virtual Urgent Care High Utilization Through Provider-Focused Interventions
B Roberts, NYU Langone Health, New York, NY

148 Factors Correlating With Emergency Department Provider Retention: A National Analysis
K Sokol, Kaweah Health Medical Center, Visalia, CA

149 Bridging Gaps in Rural Emergency Care: Analysis of a Novel Tele-EMS Network and Paramedic Engagement
M Carr, Emory University School of Medicine, Atlanta, GA

150 Strategies for Successful Implementation of Mobile Integrated Health and Virtual Care Globally
R Mukherjee, Rutgers Robert Wood Johnson Medical School, Piscataway, NJ

151 Emergency Department Telehealth Follow-Up Visits' Impact on 30-day Hospitalizations
N Kahl, University of California San Diego, San Diego, CA

152 Virtual Provider in Triage: Transforming the Emergency Department Arrival Workflow for Enhanced Efficiency and Quality
M Bartman, Medical University of South Carolina, Charleston, SC

RF27 Trauma

Room 3

153 Intestinal Cooling Prevents Sepsis Without Coagulopathy During REBOA Management of Hemorrhage
B Hu, University of California San Diego, La Jolla, CA

154 Derivation and Validation of a Clinical Prediction Model for ICU Utilization at Trauma Intake
M Makutonin, Yale University, New Haven, CT

155 Impact of Aspirin Use on the Management of Mild Low-Risk Traumatic Brain Injury
R Nene, University of California San Diego, San Diego, CA

156 Brain Injury Guidelines Implementation: Analysis of Emergency Department Barriers and Facilitators
A Kay, Intermountain Health Intermountain Medical Center, Murray, UT

157 Go Big AND Go Home: Implementation of the Brain Injury Guidelines in the Emergency Department
A Kay, Intermountain Health Intermountain Medical Center, Murray, UT

158 Prehospital Whole Blood Administration and its Impact on Calcium Levels and Outcomes in Trauma
G Rogers, Eastern Virginia Medical School at Old Dominion University, Norfolk, VA

Poster 7

Poster Hall

449 Civil Monetary Penalties from EMTALA Violations Where EMS Responded to Patients Outside an Emergency Department
S Simmons, University of Southern California, Los Angeles, CA

450 Characteristics of Civil Monetary Penalties Resulting from Violations of EMTALA Involving EMS
A Fedigan, University of Southern California, Los Angeles, CA

451 Airway Outcomes and High-Dose Nitroglycerin in Prehospital Decompensated Heart Failure
C Harris, Community Medical Center - RWJBarnabas Health, Toms River, NJ

452 Insurance Status and Emergency Department Length of Stay for Psychiatric Patients With Involuntary Detention Orders
K Spencer, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

453 Mortality of Patients Presenting With Heat Stroke in Phoenix, Arizona: A Retrospective Review
M McElhinny, Valleywise Health, Phoenix, AZ

454 Housing Status Data in EMS Patients: Accuracy of Emergency Department Electronic Medical Records and Self-Report
T Abramson, Los Angeles General Medical Center, Los Angeles, CA

455 Evaluation of Mental Health Co-Response Models: A Scoping Review
E Ulrich, Michigan State University College of Human Medicine, Grand Rapids, MI

456 Evaluating Junctional Tourniquet Training in Civilian Medical Personnel: A Quasi-Experimental Study
D Goff, New York Medical College, Valhalla, NY

457 Stop the Bleed®: A Resident-Run, Community Engagement Workshop Impacting Spanish Speaking Population
R Ortiz-Loubriel, Reading Hospital, Tower Health, West Reading, PA

458 Impact of Prehospital Vascular Access on Survival Outcomes in Out-of-Hospital Cardiac Arrest
C Chien, Ton Yen General Hospital, Zhubeu City Hsinchu County, TW

SEPTEMBER 8, 2025 - 12:00 PM

RF28 Ultrasound

Room 1

159 Interrater Agreement of Lung Ultrasound Scoring in a Large Multicenter Cohort
A Chen, Philips, Cambridge, MA

160 TEE Evaluation of Shock: An Analysis of the Resuscitative TEE Collaborative Registry
F Teran, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

161 The Accuracy of S Prime and TAPSE for Diagnosing Right Ventricular Dysfunction
P Khurana, North Shore University Hospital, Manhasset, NY

162 An Intact Curtain Sign Has a High Negative Predictive Value for Pleural Effusion
K Nix, University of Louisville, Louisville, KY

163 TAPSE Is Not Predictive of Deterioration in Emergency Department Patients With Pulmonary Embolism
J Berger, Virginia Commonwealth University Health System, Richmond, VA

164 Determining Cardiac Function With and Without an Artificial Intelligence Tool by Trainees
J Bowling, Allegheny Health Network, Pittsburgh, PA

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 12:00 PM —*cont'd*

RF29 Wellness

Room 2

165 Emergency Department Staff Awareness and Preference for Chaplain Services for Themselves or Patients
L Hackshaw, Mayo Clinic, Rochester, MN

166 Medical Device Innovation as a Tool for Physician Wellness
W Banfield, University of Baltimore, Baltimore, MD

167 Emergency Medicine Resident-Led Clinical Event Debriefing: Outcomes and Perspectives on Wellness
K Hon, New York University, New York, NY

168 Compassion Satisfaction, Burnout, and Secondary Traumatic Stress in Emergency Physicians
T Vo, St. Luke's University Health Network, Bethlehem, PA

169 IGNITE: Increasing Community Amongst Mid-Career Emergency Physicians
J Bailitz, Northwestern University, Chicago, IL

170 Interdepartmental Olympics for the Win! Friendly Competition as a Team-Building Opportunity
E Mendelow, NYU Grossman Long Island School of Medicine, Mineola, NY

RF30 Boarding, Crowding and Throughput

Room 3

171 Streamlining Inpatient Discharge Processes to Reduce Emergency Department Boarding
A Siniscal, Intermountain Health, Murray, UT

172 Enhancing Emergency Department Efficiency Through Machine Learning-Based Wait Time Prediction
K Lizardo, John Peter Smith Hospital, Fort Worth, TX

173 Stuck in the Emergency Department: Quantifying the Impact of Boarding on Patient Experience and Throughput
S Sondheim, Icahn School of Medicine at Mount Sinai, New York, NY

174 Large Academic Enterprise Load Balancing: Emergency Department Patient Transfers to Regional Hospitals
M Shah, University of Rochester School of Medicine & Dentistry, Rochester, NY

175 Evaluating the Impact of Operational Interventions on Emergency Department Crowding and Capacity
B Cohen, Vanderbilt University Medical Center, Nashville, TN

176 Forecasting Emergency Department Waiting Room Volumes Using Machine Learning: A Pilot Study
J Theiling, Duke University School of Medicine, Durham, NC

Poster 8

Poster Hall

408 Diagnosis of Pulmonary Embolism Based on a Single Question: Is it the Most Likely Diagnosis?
M Roussel, Univ Rouen Normandie, CHU Rouen, Rouen, FR

459 Identifying Demographic and Diagnostic Characteristics of High-Risk Patients in Emergency Departments
Z Hancock, University of Missouri School of Medicine, Columbia, MO

460 Emergency Physician and Nurse Estimates of Weight for Patients With a High Prevalence of Obesity
J Hacnik, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

461 A Pilot Study: Using a Novel Behavioral Assessment to Predict Agitation
N Ceraolo, Cleveland Clinic Akron General, Akron, OH

462 Fear and Uncertainty: Along the Path to Deimplementation
D Suarez, Washington University School of Medicine, St. Louis, MO

463 Prescription Antipyretics to Decrease Unscheduled Return Visits in a Pediatric Emergency Department
S Shulhan, The University of Texas at Austin, Dell Medical School, Austin, TX

464 What Factors Are Associated With Short-Term Revisit to Hospital Following Giving Birth?
K Zabinski, Staten Island University Hospital, Staten Island, NY

465 Characterization of Latent Safety Threats from a Multidisciplinary In Situ Simulation Program
N Seidel, Washington University School of Medicine in St. Louis, St. Louis, MO

466 A Novel Electronic Health Record-Integrated Clinical Pathway for Nephrolithiasis
R Sangal, Yale School of Medicine, New Haven, CT

467 Emergency Department Vital Sign Trajectories to Predict Revisits: Development and Validation Study
C Tsai, National Taiwan University Hospital, Taipei, TW

SEPTEMBER 8, 2025 - 1:00 PM

RF31 Cardiovascular: Clinical Decision Making

Room 1

177 Outcomes of Patients With Atrial Fibrillation Undergoing Cardioversion in the Emergency Department
V Shapovalov, Lehigh Valley Health Network, Allentown, PA

178 External Validation of the Canadian Syncope Risk Score in Patients With Presyncope or Syncope
M Probst, Columbia University Irving Medical Center, New York, NY

179 Are Emergency Physicians Biased in Estimating Syncope Risk?
E Rogers, Columbia University Irving Medical Center, New York, NY

180 Predicting Syncope Outcomes: Correlating Real-Time Outpatient Arrhythmias With FAINT and CSRS
L Honeycutt, Virginia Tech Carilion School of Medicine, Roanoke, VA

181 Utility of Routine Echocardiogram for Syncope Evaluation in an Emergency Department Observation Unit
J Krauss, University of Michigan Medical School, Ann Arbor, MI

182 A Novel Scoring System for CCU Patients: Merging SAPS 2 and Troponin I for Improved Prognostication
M Alam, Aligarh Muslim University, Aligarh, IN

RF32 Education

Room 2

183 Primary Care Curriculum for Emergency Medicine Residents Enhances Knowledge, Changes Practice
J Lykins, Boston University, Chobanian & Avedisian School of Medicine, Boston, MA

184 When to Call It: A Look at Resident Remediation and Termination
M Alexeeva, Kaweah Health Medical Center, Visalia, CA

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SEPTEMBER 8, 2025 - 1:00 PM —*cont'd*

185 Palliative Care for Emergency Medicine Residents: Assessing End-of-Life Simulation-Based Cases
T Pham, University of California San Francisco, San Francisco, CA

186 Improving Emergency Department Sepsis Education Through Resident Case Review
O Xu, Oregon Health & Science University, Portland, OR

187 Effects of Hot Debriefing on Emergency Department Staff Confidence Levels in Cardiac Arrest Management
B Tabata, Loyola University Chicago Stritch School of Medicine, Maywood, IL

188 Adapting American End-of-Life Care Training for Emergency Physicians in Japan: A Qualitative Study
K Numata, Brigham and Women's Hospital, Boston, MA

RF33 EMS

Room 3

189 The Impact of Community-Based Crowdsourcing for Responder CPR: Urban Versus Rural Differences in Taiwan
L Cheng, Tungs' Taichung Metroharbor Hospital, Taichung, TW

190 Emergency Medical Services Prehospital Antibiotic Protocol for Sepsis Performance Characteristics
S Lopez, Memorial Healthcare System, Pembroke Pines, FL

191 Post-9/11 Medical Burden by Terror Type: Tactical Insights from the Global Terrorism Database
H Shin, Soonchunhyang University Bucheon Hospital, Bucheon City, Gyeonggido, KR

192[EMF] Evaluating the Impact of Vital Sign Criteria Change in Prehospital Trauma Triage
E Larson, Johns Hopkins University School of Medicine, Baltimore, MD

193 Impact of an Advance Life Support First Response on Patients With Primary Impression of Chest Pain
T Hunt, University of Arizona College of Medicine - Tucson, Tucson, AZ

194 Outcomes of Barriers Assessment in Telecommunicator Cardiopulmonary Resuscitation (T-CPR) in Bangkok
K Pongvirat, Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, TH

Poster 9

Poster Hall

469 Sepsis Resuscitation: Uncovering Patterns, Identifying Barriers, Driving Ultrasound Adoption
L Hagberg, Washington University School of Medicine in St. Louis, St. Louis, MO

470 The Impact of an Assigned Primary Care Physician on Return Visits to the Emergency Department
J Marshall, Oregon Health & Science University, Portland, OR

471 Impact of Order Changes on Utilization of Lactated Ringer Solution in an Urgent Care Network
P Willis, Intermountain Health, Murray, UT

472 Implementing an Opt-Out HIV and Hepatitis C Screening Program in the Emergency Department: Early Lessons and Strategies
E Sizemore, Emory University School of Medicine, Atlanta, GA

473 Impact of the "Sepsis Timer" EPIC Alert on Emergency Department Triage and Resuscitation
R Farber, SUNY Upstate Medical University, Syracuse, NY

474 Can an Emergency Department-Led Acute Care Clinic Increase Primary Care Access and Improve Crowding?
Z Davidson, Hennepin Healthcare, Minneapolis, MN

475 Calibrating Diagnostic Errors: The Emergence of a Diagnostic "Gray" Zone
S Pavuluri, Yale School of Medicine, New Haven, CT

476 In-Person Interpreters Associated With Decreased CT Utilization for Spanish-Speaking Patients
M Wilbanks, University of Alabama at Birmingham, Birmingham, AL

477 Multicenter Validation of the Emergency Department Trigger Tool: Evaluation of Preventable Harm
R Griffey, Washington University School of Medicine in St Louis, St Louis, MO

478 Efficacy of Compulsory Telemedicine Utilization to Reduce EMS Response to 911 Calls
R Munn, University of Arizona College of Medicine - Tucson, Tucson, AZ

SEPTEMBER 8, 2025 - 2:00 PM

RF34 Pediatrics and Diagnostics

Room 1

195 Evaluate the Relationship Between Venous Excess Ultrasound Score and Central Venous Pressure
E Solomon, North Shore University Hospital, Manhasset, NY

196 Saline Visualization Time as a Screening Tool to Evaluate for Right Ventricular Dysfunction
P Khurana, North Shore University Hospital, Manhasset, NY

197 Assessing the Risk of Group A Streptococcus Pharyngitis in Febrile Child With and Without Cough
D Mendez, The University of Texas Medical Branch, Galveston, TX

198 Hypokalemia Rates Do Not Improve With Balanced Crystalloid Solution in Diabetic Ketoacidosis
A Smith, Intermountain Health Park City Hospital, Park City, UT

199 Long-Term Cognitive and Neurodevelopmental Outcomes of Pediatric Sepsis: A Scoping Review
S Guderyan, University of Calgary, Calgary, AB, CA

RF35 Health Policy & Services

Room 2

200 Costs of Emergency Department Observation Care for Ambulatory and Emergency Care Sensitive Conditions
C Gettel, Yale School of Medicine, New Haven, CT

201 Access to Emergency Services: Assessing Potential Impact of Multiple Simultaneous Hospital Closures
K Zachrison, Massachusetts General Hospital, Boston MA

202 Trends in Mobile Health Technology Access Among Latino Patients at an Urban Safety-Net Hospital
J Yu, University of Southern California, Los Angeles, CA

203 Variation in EMTALA Complaint Reporting Accessibility by State
N Vontela, University of Southern California, Los Angeles, CA

204 Prevalence and Outcomes of Assault Cases Reported in Hospitals in Polk County, Iowa
B Madden, Des Moines University, Wes Des Moines, IA

205 Pricing Trends of Imaging Services Across Trauma Centers in Texas
G Gomber, The University of Texas at Austin, Dell Medical School, Austin, TX

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 2:00 PM —*cont'd*

RF36 Infectious Disease

Room 3

206 Ambient Artificial Intelligence Versus Human Scribes in the Emergency Department
D Jones, Mayo Clinic, Rochester, MN

207 This Title Was Enhanced by ChatGPT: Provider Insights on Using AI to Write Discharge Instructions
G Han, Columbia University Irving Medical Center, New York, NY

208 Artificial Intelligence for Diagnosing Common Skin Disorders in the Emergency Department
D Jehle, The University of Texas Medical Branch, Galveston, TX

209 Automating Treatment Team Interactions in the Emergency Department Using Real-Time Location Systems
D Jones, Mayo Clinic, Rochester, MN

210 The Future of Work in Emergency Medicine: Susceptibility of Physician Tasks to AI Automation
E Molins, Stanford University School of Medicine, Palo Alto, CA

211 Impact of the Revised Diabetic Ketoacidosis Diagnostic Criteria on Patient Classification
D Groat, Intermountain Health, Murray, UT

Poster 10

Poster Hall

479 Comparative Analysis of Point-of-Care and Lab Troponin Testing: A Review of Time and Outcomes
C Dean, St. Matthew's University School of Medicine, West Bay, KY

480 Triage Point-of-Care Ketone Measurements: Association With Diabetic Ketoacidosis and Severity
D Suarez, Washington University School of Medicine in St. Louis, St. Louis, MO

481 Studying Resuscitation Resource Utilization for Isolated Hypotension
B Semak, Hackensack Meridian Health, Hackensack, NJ

482 Expedited Discharge System Implementation for Syncope Patients in an Emergency Department Observation Unit
T Donoghue, Rutgers New Jersey Medical School, Newark, NJ

483 Non-Mydriatic Ocular Fundus Imaging on Consecutive Emergency Department Neurologic and Neurosurgical Patients
A Pendley, Emory University School of Medicine, Atlanta, GA

484 Comparison of Procedural Duration Between Ultrasound-Guided IVs, Midline Catheters, and CVCs
E Schaefer, Albany Medical Center, Albany, NY

485 Clinical Decision Support Tool Impact on Emergency Return in Low-Income Atrial Fibrillation Patients
M Strusinska-Thayer, Oregon Health & Science University, Portland, OR

486 Gender Bias in Opioid Use in Acute Back Pain: Retrospective Study in 17 French Emergency Departments
H Bannelier, Hôpital de la Pitié Salpêtrière, Paris, FR

487 Association of 29-mRNA Blood Test With Survival in Patients With Suspected Infection or Sepsis
N Whitfield, Inflammatix, Sunnyvale, CA

488 Emergency Department Length of Stay Before and After Fluid Restrictive Strategy Due to IV Fluid Shortage
C Hall, University of Michigan Health West, Wyoming, MI

SEPTEMBER 8, 2025 - 3:00 PM

RF37 Informatics & AI

Room 1

212 Overtreatment of Bacterial Vaginosis in the Emergency Department
B Chinnock, University of California San Francisco, Fresno, CA

213 Screening and Linkage to HIV Preventive Services for At-Risk Young Adults in a Safety-Net Pediatric Emergency Department
S Terp, University of Southern California, Los Angeles, CA

214 Missed Opportunities for the Diagnosis of Syphilis in the Emergency Department
F Uddin, University of South Carolina School of Medicine, Greenville, SC

215 A Brief Education Module's Impact on Syphilis Co-Testing in Emergency Department Pregnant Patients
B Rutland, Cleveland Clinic Lerner College of Medicine, Cleveland, OH

216 Syphilis Screening in the Emergency Department: Racial Disparities Underscored
A Saeed, University of Alabama at Birmingham, Birmingham, AL

217 Neighborhood Socioeconomic Disadvantage and STI Positivity Among Emergency Department Patients in New York City
R Merchant, USF Health Morsani College of Medicine, Tampa, FL

RF38 Neurology: Basic Science and Early Clinical Research

Room 2

218 WITHDRAWN

219 Tanruprubart (ANX005) Targeted Therapy Reduces Ventilation Requirements in Guillain-Barré Syndrome
H Kroon, Annexon Biosciences, Brisbane, CA

220 Targeted Intestinal Cooling Offers Superior Brain Protection in the Mouse Stroke Model
B Hu, University of California San Diego, La Jolla, CA

221 Role for Metabolomic Biomarkers in Stroke Patients With Unknown Time of Onset: A Case-Control Study
T Rainer, The University of Hong Kong, Hong Kong, CN

222[EMF] N-Acetylcysteine Glucose-Dendrimer Nanoparticles Affect Behavior in Intracerebral Hemorrhage in Mice
A Shi, Massachusetts General Brigham, Boston, MA

223[EMF] Biomarkers Predicting Functional Outcomes in Patients With Ischemic Stroke Requiring Thrombectomy
S Camp, University of Maryland School of Medicine, Baltimore, MD

RF39 Pain Management, Procedures, and Simulation

Room 3

224 Can Emergency Department-Initiated Acupuncture Promote Lasting Pain Relief and Improvement in Function?
V Ravishankar, Cook County Health, Chicago, IL

225 Pediatric Intraosseous Line Placement: A Simulation-Based Study on Skill Acquisition and Retention
Y Liverant, Goryeb Children's Hospital at Morristown Medical Center, Atlantic Health System, Morristown, NJ

226 Pericapsular Nerve Group Block Versus Fascia Iliaca Compartment Block for Hip Fracture Analgesia
M Kongkatong, University of Virginia Health System, Charlottesville, VA

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 3:00 PM —*cont'd*

227 Feasibility of Ultrasound-Guided Nerve Block for Distal Radius Fracture Reductions
O Sayed, Mayo Clinic, Rochester, MN

228 Patient-Reported Outcomes Following Transcutaneous Electrical Nerve Stimulation
P Moschella, Prisma Health - Upstate, Greenville, SC

229 Team-Based Agitation Management Simulation Training Program in the Emergency Department
A Wong, Yale School of Medicine, New Haven, CT

Poster 11

Poster Hall

489[EMF] Assessing Microvascular Flow in Sepsis Using Diffuse Correlation Spectroscopy
J Lee, Beth Israel Deaconess Medical Center, Boston, MA

490[EMF] Time to Hemostatic Agent Increases Mortality in Veterans With Factor Xa Inhibitor-Related ICH
M Rech, Edward Hines, Jr. VA, Hines, IL

491 Blowhole Incision for Subcutaneous Emphysema: A Novel Approach With Negative-Pressure Wound Therapy
S Brown, Pacific Northwest University of Health Sciences, Yakima, WA

492 Glargine as an Adjunct to Standard Therapy for Managing Diabetic Ketoacidosis: A Randomized Trial
A CK, All India Institute of Medical Sciences, New Delhi, IN

493 Dementia Increases Rates of Intracranial Hemorrhage in Geriatric Emergency Department Head Trauma Patients
C Roycraft, Alabama College of Osteopathic Medicine, Dothan, AL

494 Human Neutrophils Display Rhythms in Cell Metabolism and Inflammatory Response
M Arra, Washington University School of Medicine in St. Louis, St. Louis, MO

495 Platelet Count to Spleen Diameter Ratio for Predicting Esophagogastric Varices
M Freudiger, UT Southwestern Medical Center, Dallas, TX

496 Study of Multidisciplinary Rehabilitation Management for Organophosphorus Poisoning Patients
C Guojun, Chongqing Hospital of Jiangsu Province Hospital, Chongqing, CN

497 IV Fluid Optimization (IV FLO): A Comparision of Three Pressurization Methods
Y Maher, NYU Langone Hospital Long Island, Mineola, NY

498 Evaluation of the Analytical Performance of the LIAISON® MeMed BV® Assay at a Tertiary Cancer Center
K Jani, Memorial Sloan Kettering Cancer Center, New York, NY

SEPTEMBER 8, 2025 - 4:00 PM

RF40 Pediatrics

Room 1

230 Evaluating Pediatric Behavioral Health Emergency Visits Before and After the COVID-19 Pandemic
A Al-Hage, Henry Ford Health, Wyandotte, MI

231 Applying a Hierarchy of Needs Model to Improve Pediatric Readiness Scores at a Large Public Hospital
A Monroe, Emory University School of Medicine, Atlanta, GA

232 The Incidence and Characteristics of C-Spine Injuries in Young Children in Community Hospitals
Z Alazawi, Kaiser Permanente Modesto Medical Center, Modesto, CA

233 Respiratory Viral Infections and Risk of Group A Streptococcus Pharyngitis in Pediatric Patients
D Mendez, The University of Texas Medical Branch, Galveston, TX

234 Utilizing a Novel Methodology to Identify Emergency Department Patients With Diabetic Ketoacidosis
D Groat, Intermountain Health, Murray, UT

235 Effect of Social Determinants on Emergency Visits and Admission Rates in Pediatric Bronchiolitis
M Tandy, The MetroHealth System, Case Western Reserve University School of Medicine, Cleveland, OH

RF41 Public Health and Geriatrics

Room 2

236 Feasibility of a Falls Reduction Program in the Emergency Department: A Randomized Controlled Trial
K Pongvirat, Fauculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, TH

237 Emergency Department Boarding for Older Adults: The Impact of Geography, Temporal Trends, and Dementia Status
S Lee, University of Iowa Carver College of Medicine, Iowa City, IA

238 Type and Severity of Hemorrhage in Older Adults Presenting to the Emergency Department
A Kirk, University of North Carolina School of Medicine, Chapel Hill, NC

239 Minor Head Injury in the Older Adult: Do All Patients Greater Than 65 Years Old Require Head CT?
N Liogas, William Beaumont University Hospital, Corewell Health East, Royal Oak, MI

240 72-Hour Returns for Falls Amongst Oldest-Old Patients in a Large Academic Center, 2002-2022
M Skaggs, Beth Israel Deaconess Medical Center, Boston, MA

241 Rising Burden of Fall-Related Traumatic Brain Injury in Older Adults in United States, 2015 to 2024
V Kan, UMass Chan Medical School, Worcester, MA

RF42 Quality & Safety

Room 3

242 Improving CMS Compliance Improves Mortality for Sepsis Patients
J Feldman, Morristown Medical Center, Morristown, NJ

243 Reducing Unnecessary Cervical Spine CTs in Elderly Trauma Patients With a Nursing-Driven Protocol
M Bisgaier, WellSpan York Hospital, York, PA

244 Does an Emergency Department Geriatric Hip Alert Protocol Improve Patient Care?
J Ladde, Orlando Health, Orlando, FL

245 Comparison of Single-Lumen Midline Catheters to Long Peripheral Intravenous Lines in the Emergency Department: A Randomized Controlled Trial
E Schaefer, Albany Medical Center, Albany, NY

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 8, 2025 - 4:00 PM —*cont'd*

246 Improving Outcomes in Sepsis Utilizing Standardized Care Process Metrics
J Morrison, Cleveland Clinic, Cleveland, OH

247 Clinical Factors Associated With "Failed" Observation Unit Stays for Patients With Cellulitis
S Gamez, Maine Medical Center, Portland, ME

Poster 12

Poster Hall

499 Implementation of an Emergency Department-Based HIV Comprehensive Prevention Service Program
G Huckins, Prisma Health - Upstate, Greenville, SC

500 Breaking the Silence: Addressing Therapy Stigma in Emergency Medicine Residency
R Samuels, University of Louisville, Louisville, KY

501 Coaching and Navigation by CHWs-led Telehealth for High-Risk Hypertension (CONNECT HTN Intervention)
J Razzak, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

502 Pediatric Psychiatric Boarding: Is it Exacerbating Disease?
M Makutonin, Yale University, New Haven, CT

503 Patients Using CBD Products May Be Unaware of Potential Interactions With Prescription Medications
S Holmes, Brody School of Medicine, East Carolina University, Greenville, NC

504 Rethinking Patient Education to Reduce Pediatric Emergency Department Overutilization
D Kanning, Michigan State University, East Lansing, MI

505 Emergency Department Screening for Social Determinants and Health Care Usage Behavior: A Pilot Study
A McGettigan, Loyola University Chicago Stritch School of Medicine, Maywood, IL

506 Evaluating Variables that Influence Discharge Delay for Emergency Department Patients Requiring Physical Therapy
N Patel, Hackensack Meridian Health, Hackensack, NJ

507 From the Emergency Department to HIV Prevention: Evaluating CPS Linkage Strategies in Vulnerable Populations
O Hood, University of Washington, Seattle, WA

508 Temporal Trends in Use of Social Determinants of Health Diagnoses in Emergency Department Patients
G Mirabal, Henry Ford Providence Southfield Hospital, Southfield, MI

SEPTEMBER 9, 2025 - 8:00 AM

RF43 Substance Use Disorder Treatment

Room 1

248 At Risk and Ready: Emergency Department Patient Interest and Concerns Around Medication for Alcohol Use Disorder
E Johnson, Los Angeles General Medical Center, Los Angeles, CA

249 An Emergency Department-Based Peer Model for Patients With Substance Use Disorder
W Miller, University of Alabama at Birmingham, Birmingham, AL

250 Social Determinants of Health Assessment Among SBIRT Participants in a Southern US Hospital
A Pham, Prisma Health, University of South Carolina, Greenville, SC

251 Perspectives on Emergency Department Opioid Use Disorder Care Guide Quality Improvement Intervention
K Hawk, Yale School of Medicine, New Haven, CT

252 Emergency Department Prescribing Patterns of Medication-Assisted Therapy for Opioid Use Disorder
C Springman, University of Kansas School of Medicine, Kansas City, KS

253 Implementation Facilitation Improves Readiness for Buprenorphine Initiation in Opioid Use Disorder
T Strout, Maine Medical Center, Portland, ME

RF44 Trauma

Room 2

254 Perspectives on Peer Support Workers for Behavioral Crisis Management in the Emergency Department
B Nath, Yale School of Medicine, New Haven, CT

255 Assessing Emergency Clinicians' Needs from Trauma Clinical Guidance: A Mixed-Methods Study
L Fountain, University of Colorado School of Medicine, Aurora, CO

256 Incidental Findings Identified by Universal Screening for BCVI Using CT Angiography
M Manka, State University of New York at Buffalo, Buffalo, NY

257 A Pilot Study: The Duration of Sexual Assault Nurse Examinations in an Emergency Setting
M Zawoy, University of Florida College of Medicine, Gainesville, FL

258 How Important Is Time to Angiography in Isolated Liver Injuries?
E Rogers, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

259 Hypocalcemia as a Predictor of Mortality and Need of Blood Transfusion in Major Trauma Patients
A Chanda, All India Institute of Medical Sciences, New Delhi, IN

RF45 Ultrasound

Room 3

260 Ultrasound-Guided Transgluteal Sciatic Nerve Hydrodissection for the Treatment of Acute Sciatica
G Rose, Kaiser Permanente San Diego, San Diego, CA

261 Venous Excess Ultrasound Score Predicts Outcomes and Disposition in Suspected Heart Failure Patients
G Siegel, Denver Health, Denver, CO

262 Can Emergency Phyisicians Identify Frozen Tissue on Ultrasound?
J Gardecki, Jefferson Einstein Montgomery Hospital, East Norriton, PA

263 Duration and Frequency of Methamphetamine Use and Associated Reduced Cardiac Ejection Fraction
M Nashu, University of California Irvine, Orange, CA

264 Comparison of the Static and Dynamic Paramedian Ultrasound-Guided Approaches for Lumbar Puncture
G Bhargava, University of Virginia Health System, Charlottesville, VA

265 Saline Standoff Pads: A Practical Method for Ultrasound Visualization of Superficial Structures
C Awad, The Ohio State University, Columbus, OH

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 9, 2025 - 8:00 AM —*cont'd*

Poster 13

Poster Hall

509 Impact of the Mortality Surprise Question on Emergency Department Clinician Behavior
M Dilip, Columbia University Irving Medical Center, New York, NY

510 Sudden Death in Young Adults: A Retrospective Trend Analysis in the Pre-COVID and Post-COVID Era
K Bhojwani, The Aga Khan University Hospital, Karachi, PK

511 Evaluating a Clinical Decision Support Tool for Sepsis Management for Evidence of Intrinsic Bias
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

512 Clinical Profile of Patients With Malignancy Presenting to the Emergency Department
S Kathimanda, All India Institute of Medical Sciences, New Delhi, IN

513[EMF] Perceptions of a Deep Learning Model for Identifying Patients At Risk for Structural Heart Disease
B Daniels, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

514 Navigating the Research Landscape: A Study of AI Search Tools With Literature Mapping Capabilities
J Jones, Michigan State University College of Human Medicine, Grand Rapids, MI

515 Missed Opportunities for STI Diagnosis in the Presence of Newly Diagnosed HIV
D Hudon, Prisma Health - Midlands, Columbia, SC

516 Validation of an AI-Based Automated Detection of Zone and Key Organs During the Abdominal FAST Exam
G Ghoshal, Philips, Cambridge, MA

517 Artificial Intelligence-Powered Clinical Narratives for Optimizing Emergency Patient Disposition
M Huang, MacKay Memorial Hospital, Taipei, TW

518 WITHDRAWN

SEPTEMBER 9, 2025 - 9:00 AM

RF46 Imaging and Decision Support

Room 1

266 Relationship Between Advanced Image Ordering and Emergency Physician Risk Tolerance: A Pilot Study
M Zwank, Regions Hospital, St. Paul, MN

267 Impact of an Alert Review Initiative on Utilization of Interruptive Clinical Decision Support Tools
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

268 Translating Digital Support Tools from Academic to Community Hospital Systems
W Klotzbier, Mercy Medical Center, Merced, CA

269 Use of Coronary CT Angiography to Reduce Length of Stay in Patients With Moderate Risk Chest Pain
J Milligan, University of Cincinnati Medical Center, Cincinnati, OH

270 Leveraging Aggregated Computed Tomography Indications to Reduce Utilization in a Quaternary Hospital
M Ostreicher, Northwell, Cedarhurst, Manhasset, NY

271 Optimizing Emergency Department CT Scan Turnaround Times: A Process Improvement Initiative
J Jones, Intermountain Health, Murray, UT

RF47 Education

Room 2

Best Resident Abstract Award

272 Trends in Lumbar Puncture Performed by Emergency Medicine Providers: A 2013–2023 Retrospective Study
A Hussain, The George Washington University School of Medicine and Health Sciences, Washington, DC

273 Educational Factors and Prescribing Patterns Among Emergency Medicine Providers in an Academic Health System
T She, NYU Grossman School of Medicine, New York, NY

274 Enhancing Clinical Decisionmaking Through Outdoor Experiential Learning: A Novel Approach
S Petelinsek, University of Utah, Spencer Fox Eccles School of Medicine, Salt Lake City, UT

275 Pericardiocentesis Training: Spaced Repetition and Simulation With Cost-Effective Model for Emergency Medicine Resident
C Salter, University of South Alabama Whitton College of Medicine, Mobile, AL

276 Provider Education on Contraception Counseling and Initiation from the Emergency Department
P Rattner, Icahn School of Medicine at Mount Sinai, New York, NY

277 GO SPLINT EM: Gamified Orthopedic Simulated Procedural Learning INTervention for EM Residents
K Hon, New York University, New York, NY

RF48 EMS & Disaster

Room 3

278 Designing for the Unpredictable: Assessing Emergency Preparedness Using Simulation Event Modeling
E Leise, CannonDesign, St. Louis, MO

279 Women Fare Better Than Men After Cardiac Arrest Secondary to Pulseless Electrical Activity
N Persaud, Orlando College of Osteopathic Medicine, Winter Garden, FL

280 Disaster Core Competencies: A Re-Evaluation for a New Decade
J Cadet, University of Southern California, Los Angeles General Medical Center, Los Angeles, CA

281 Expanding Stroke Screening for EMS Patients With Altered Mental Status: A Predictive Model Analysis
J Joseph, Community Medical Center - RWJBarnabas Health, Toms River, NJ

282 A Prehospital Geriatric Trauma Alert to Improve Evaluation of Traumatic Brain Injuries
Z Hassouneh, Orlando Regional Medical Center, Orlando, FL

283 Pre-hospital Paramedic Point-of-Care Ultrasound Utilization Based on Distance to Hospital
M Arends, Madigan Army Medical Center, Tacoma, WA

Poster 14

Poster Hall

519 Adding a Physician Assistant as Champion for Emergency Department Alternative to Opioids Program
J Ibarra, Prisma Health - Upstate, Greenville, SC

520 Adoption of Guidelines for Physician Pregnancy, Parental Leave, and Lactation in Emergency Medicine
L Shepherd, Vanderbilt University Medical Center, Nashville, TN

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 9, 2025 - 9:00 AM —*cont'd*

521 The "Thank a Lifesaver" Initiative: Enhancing Staff Well-Being
J Goebel, Huntington Health | Northwell Health, Huntington, NY

522 A Comparison of Headache Treatment on Pain Score and Time Spent in the Emergency Department
L Stacey, University of South Dakota Sanford School of Medicine, Vermillion, SD

523 Low Versus High-Fidelity Simulation for Fascia Iliaca Blocks: Considering Cost in Competency Training
A Malak, Morristown Medical Center, Morristown, NJ

524 Habits and Hobbies of Emergency Physicians
T Vo, St. Luke's University Health Network, Bethlehem, PA

525 Enhanced Prearrival Communication for Emergency Departments
J Goebel, Huntington Health | Northwell Health, Huntington, NY

526 Impact of Career Development Panels on Professional Growth
J Goebel, Huntington Health | Northwell Health, Huntington, NY

527 Lack of a Lactation Space: Current Lactation Barriers and Their Impact on Emergency Department Staff
S Smith, Morristown Medical Center, Morristown, NJ

528 Adverse Effects of Ketamine in Acute Trauma Pain in Emergency: A Systematic Review and Meta-Analysis
L Geraldini, Albert Einstein Hospital, Sao Paulo, BR

SEPTEMBER 9, 2025 - 10:00 AM

RF49 Plenary 3

Room 1

284[EMF] Rates and Impact of Race and Ethnicity Discordance in a Large National Database
R Salhi, Massachusetts General Hospital, Boston, MA

285 Enhancing Operational Efficiency and Staff Well-Being Through the Pebbles Project
D Reens, Huntington Health | Northwell Health, Huntington, NY

286 Validation of the Caregiver-Reported Outcome Measure for Emergency Care Transitions (COMET) Tool
C Gettel, Yale School of Medicine, New Haven, CT

Best Medical Student Abstract Award

287 From Noise to Clarity in Emergency Department Predictions: Diffusion Models for Unprecedented Prognostic Accuracy
O Haggaz, Sam Houston State University College of Osteopathic Medicine, Conroe, TX

288 Atrial Fibrillation in Rural Uganda: A Retrospective Analysis of Patients Presenting to Triage
K Koval, Medical University of South Carolina, Charleston, SC

RF50 Geriatrics & AI

Room 2

289 Machine Learning-Based Prediction of Medical Admissions in Geriatric Behavioral Health Emergency Department Patients
D Jones, Mayo Clinic, Rochester, MN

290 Artificial Intelligence Is Capable of Accurately Detecting OMI in the Emergency Department
P Tipperaju, Albany Medical Center, Albany, NY

291 CliniKiosk: An Innovative Technology to Expand Health Care Access
E Adhikari, Basis Oro Valley High School, Oro Valley, AZ

292 Are Multi-Day Outpatient Emergency Department Treatments Feasible? Remdesivir for COVID-19
S Shah, Good Samaritan University Hospital, West Islip, NY

293 Post Emergency Department Home Visits: Perspectives of Health Care Personnel from the SCOUTS Program
L Abbate, Rocky Mountain Regional VA Medical Center, Aurora, CO

294 Nationwide Survey of Emergency Department Palliative Care in Asian Culture
H Hsieh, Chi-Mei Medical Center, Tainan, TW

RF51 Infectious Disease

Room 3

295 Who Gets Funded? Emergency Medicine Underrepresented in NIH-Funded Sepsis Research
J Ford, University of California San Diego, San Diego, CA

296 Impact of Clinical Pharmacy Specialist-Led Stewardship Program on Antibiotic Appropriateness
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

297 Predictive Modeling of Hospital Course for Emergency Department Patients With Skin and Soft Tissue Infections
N Lund, Corewell Health, Michigan State University, Grand Rapids, MI

298 Does Viral Infection Reduce the Risk of Group A Streptococcus Pharyngitis in Adults?
O Akinwande, The University of Texas Medical Branch, Galveston, TX

299 Host-Protein Test in Routine Emergency Department Practice: Impact on Antibiotic Prescription, Admission, and Emergency Department Return
A LoVerde, Maimonides Medical Center, New York, NY

300 Prevalence and Screening Outcomes in a Psychiatric Emergency Department for HCV, HBV, and HIV
J Moore, University of Kentucky, Lexington, KY

Poster 15

Poster Hall

529 Characteristics of Thoracic Trauma in Elderly Asian Population
J Er, SingHealth, MOHH Holdings, Singapore, SG

530 Comparison of Firearm-Related YPLL and State Preemption Laws
B DeYoung, Kansas City University College of Osteopathic Medicine, Kansas City, MO

531 Iatrogenic Risk of Tube Thoracostomy: A Retrospective Trauma Database Analysis
B Tarantino, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

532 External Validation and Extended Application of Four Clinical Decision Rules in Minor Head Injuries
K Kimoto, Tochigi Prefectural Emergency and Critical Care Centre, Imperial Foundation Saiseikai Utsunomiya Hospital, Tochigi, JP

533 Geriatric Trauma: Age as a Criterion for Trauma Activation
M Skaggs, Beth Israel Deaconess Medical Center, Boston, MA

534 The Left InterScapular Approach View: A Novel Way to Use POCUS to Evaluate for Aortic Pathology
A Daves, MountainView Hospital, Las Vegas, NV

535 Effect of BMI on EFAST Imaging Quality
M Scarbrough, University of Arkansas for Medical Sciences, Little Rock, AR

536 Point-of-Care Ultrasound in Triage for Critical Diagnoses: A Retrospective Pilot Study
M Youngman, The MetroHealth System, Cleveland Clinic, Cleveland, OH

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 9, 2025 - 10:00 AM —*cont'd*

537 Utility of Point-of-Care Ultrasound Assisted Reduction of Long Bone Fracture Compared to Usual Care
A Gnanasekaran, All India Institute of Medical Sciences, New Delhi, IN

538 POCUS and Time to Definitive Imaging and Reperfusion Therapy for Patients With Pulmonary Embolism
P White, Prisma Health - Upstate, Greenville, SC

SEPTEMBER 9, 2025 - 11:00 AM

RF52 Quality Improvement

Room 1

301 A Content Analysis of Alcohol Consumption Trends Among Youth Using Social Media
L Dean, Michigan State University College of Human Medicine, Grand Rapids, MI

302 Effectiveness of an Emergency Department Pulmonary Embolism Pathway in Reducing Admissions: A Multicenter Analysis
E Simon, Cleveland Clinic Akron General, Akron, OH

303 Process to Improve Door-In-Door-Out Time for STEMI Patients at a Hospital Without PCI Capability
E Power, The University of Texas Health Science Center at Houston, McGovern Medical School, Houston, TX

304 Improving Pediatric Emergency Department Throughput and Provider Satisfaction With a Novel Waiting Room Workflow
E Kim, University of California San Francisco, San Francisco, CA

RF53 Pediatrics

Room 2

305 Opt-Out Human Immunodeficiency Virus Testing in Pediatric Emergencies Links Adolescents to Care
L Middlebrooks, Emory University and Children's Healthcare of Atlanta, Atlanta, GA

306 Creation of a Protocol for the Treatment of Adolescent Opioid Use Disorder in the Emergency Department
S Sandelich, Penn State Health Milton S. Hershey Medical Center, Hershey, PA

307 Right Care, Right Patient, Right Time: Reducing Urgent Pediatric ICU Transfers of Emergency Department Admissions
R Warchock, Vanderbilt University Medical Center, Nashville, TN

308 Impact of Neighborhood Opportunity on Asthma-Related Emergency Department Visits in Children
S Bains, Valley Children's Hospital, Madera, CA

309 Teaching an Adapted Pediatric Advanced Life Support Course in a Low-Resource Setting
S Langer, Icahn School of Medicine at Mount Sinai, New York, NY

310 Language Barriers and Pain Management for Children With Long Bone Fractures
L Lin, Good Samaritan University Hospital, West Islip, NY

RF54 Quality & Safety

Room 3

311 Electronic Medical Record Workplace Violence (WPV) Documentation and Automation Increases WPV Capture
S McGuire, Mayo Clinic, Rochester, MN

312 Increasing Donation Through Early Alert to LifeSource: Project IDEAL
J Schupbach, Mayo Clinic, Rochester, MN

313 Defining Diagnostic Excellence for the Emergency Department: Results from a Modified RAND/UCLA Panel
C Berdahl, Cedars-Sinai Medical Center, Los Angeles, CA

314 The Humanistic Charting Tool: Incorporating Person-Centered Care into the Electronic Health Record
N Garg, University of California San Francisco, San Francisco, CA

315 The Psychological Effects Secondary to Violence Against Healthcare Workers in Emergency Departments
N Samoylova, Orlando College of Osteopathic Medicine, Winter Garden, FL

316 Patient Narratives in the Emergency Department: Enhancing Empathy, Holistic Care, and Well-Being
C Leigh, Cleveland Clinic Akron General, Akron, OH

Poster 16

Poster Hall

431 Improving Patient-Centered Communication of Incidental Findings in the Emergency Department
A Saklecha, Northwestern University Feinberg School of Medicine, Chicago, IL

539 Medical Students as BLS Instructors: Assessment of Long-Term Retention in Infants Caregivers
C Bueno, University State of Para- Maraba, MARABá, BR

540 Call Your Consultants
S Shulimson, Georgetown University, MedStar Health, Washington, DC

541 Procedural Proficiency While Performing Fiberoptic Intubation as a Function of Post-graduate Year
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

542 SCULL: Simulated Cranial Ultrasound for Longitudinal Learning - A Simulated Task Trainer
A Mohammed, New York-Presbyterian Queens, Flushing, NY

543 Sonographer and Radiologist Agreement for DVT and Gallbladder Ultrasound in the Emergency Department
R Saba, Henry Ford Providence Southfield Hospital, Southfield, MI

544 Study of the Impact of Virtual Simulation on Umbilical Vein Catheterization Among Emergency Medicine Residents
A Khattab, Henry Ford Health, Detroit, MI

545 Firsekibart in Acute Gouty Arthritis: A Randomized, Double-Blind, Active-Controlled Study
Y Xue, Huashan Hospital, Shanghai, CN

546 InSitu Tabletop Simulation to Identify Latent Safety Threats in Emergency Department Workflow Change
D Suarez, Washington University School of Medicine in St. Louis, St. Louis, MO

547 Optimizing the FAST Exam in Pediatric Abdominal Trauma Through POCUS Stewardship
K Montoya, Massachusetts General Hospital, Boston, MA

SEPTEMBER 9, 2025 - 12:00 PM

RF55 Ultrasound

Room 2

317 Artificial Intelligence for Ultrasound Nerve Block Training Among Emergency Medicine Clinicians
P Hernandez, Cleveland Clinic Akron General, Akron, OH

Research Embargoed Until Date/Time of Presentation

SEPTEMBER 9, 2025 - 12:00 PM —*cont'd*

318 Utilizing Artificial Intelligence to Aid the Classification of Venous Excess Ultrasound Score Images
G Siegel, Massachusetts General Brigham, Boston, MA

319 A Novel Ultrasound Device to Detect Distal Extremity Fractures in Emergency Department Patients
C Thom, Denver Health, Denver, CO

320 iHEART-PE: Intelligent HEART Analysis for Pulmonary Embolism
S Adhikari, University of Virginia Health System, Charlottesville, VA

321 Transthoracic Echocardiography for Predicting Fluid Responsiveness: A Systematic Review
M Gattu, University of Arizona College of Medicine - Tucson, Tucson, AZ

322 Effectiveness of a Do-It-Yourself Dog Bone/Meat Model for Ultrasound-Guided Knee Arthrocentesis
S Schulwolf, All India Institute of Medical Sciences, New Delhi, IN

RF56 Administration and Operations, Observation Medicine

Room 2

323 The Halo Effect of an Emergency Department-Run Observation Unit on Hospital-Wide Throughput
A Gopalsami, Cedars-Sinai Medical Center, Los Angeles, CA

324 Correlation of Hospital Outcomes With Emergency Department Observation Unit Use: A Retrospective Cross-sectional Study
M Carr, Emory University School of Medicine, Atlanta, GA

325 Impact of Patient-Centered Medical Home on Admission Rates Among Patients With Sickle Cell Disease
E Boccio, Memorial Healthcare System, Pembroke Pines, FL

326 A Description of Short-Stay Admissions from the Emergency Department Among a Managed Care Population
M Baniqued, University of California San Diego, San Diego, CA

327 Impact of a Transition of Care Clinic on Emergency Department and Inpatient Utilization: A 12-Month Pilot Study
J Garrett, Baylor Scott & White Medical Center - McKinney, McKinney, TX

328 The Emergency Department Observation Unit's Effect on Inpatient Efficiency
P Grace, University of Kentucky, Lexington, KY

RF57 Education

Room 3

329 Factors That Influence Career Choice in Emergency Medicine Residents Over Time
J Jordan, Oregon Health & Science University, Portland, OR

330 Procedural Competency in Academic Emergency Medicine Attendings: Strategies for Skill Retention
M Rockwell, Penn State College of Medicine, Hershey, PA

331 Not a Disaster, Just a Monday: Teaching Emergency Department Awareness via Tabletop Triage Exercise
J Joseph, Community Medical Center - RWJBarnabas Health, Toms River, NJ

332 Careers in Academic Medicine: A Novel Elective Series for Emergency Medicine Interns
E Garcia, Stanford University, Palo Alto, CA

333 Educational Impact of a Dedicated Emergency Medicine Teaching Attending Shift
T Santos, Northwell Health, Long Island, NY

334 A Curriculum to Prepare Residents for Clinical and Educational Leadership in the Emergency Department
J Cambron, Texas A&M CHRISTUS Spohn Health System, Corpus Christi, TX

Poster 17

Poster Hall

548[EMF] White-Board Style Explainer Video Enhances Knowledge of Buprenorphine in People Who Use Drugs
K Panthagani, Yale School of Medicine, New Haven, CT

549 Improving SUD Patient Discharge and Reducing Readmissions
J Bernard, Hackensack Meridian Health, Edison, NJ

550 Comfort With and Barriers to Medication-Assisted Therapy Initiation in the Emergency Department
W Osterhage, University of Kansas School of Medicine, Kansas City, KS

551 Racial and Ethnic Differences in Emergency Department Treatment Coordination Preferences for Opioid Use Disorder
E Coupet Jr., Yale School of Medicine, New Haven, CT

552 Technology Engagement and Trust in Health Care: Health Literacy and Language Are Key Factors
J Garcia, University of Southern California, Los Angeles, CA

553 Outcomes of Emergency Department-Initiated Buprenorphine for Adolescents With Opioid Use Disorder
C Poyorena, University of Washington, Seattle, WA

554 Long-Term Outcomes of Emergency Department Patients With Hallucinogen Use
K Paul, The University of Texas Medical Branch, Galveston, TX

555 Non-Psychostimulant Medication and Subsequent Intoxication in Patients With Stimulant Use Disorder
M Tandy, The MetroHealth System, Case Western Reserve University School of Medicine, Cleveland, OH

556 Precipitated Withdrawal Following Emergency Department-Initiated Buprenorphine
D Gingold, University of Maryland School of Medicine, Baltimore, MD

557 A Randomized Study Comparing Rapid Versus Standard Induction to Buprenorphine Extended-Release Injection
S Strafford, Indivior Inc., Richmond, VA

SEPTEMBER 9, 2025 - 1:00 PM

RF58 EMS & Disaster

Room 1

335 The Impact of Prehospital Blood Transfusion on Time to Blood Administration in Urban Trauma Patients
K Murray, David Geffen School of Medicine at UCLA, Los Angeles, CA

336 Enhancing Far-Forward Resuscitation: An Analysis of Blood Warmers Used in Austere Environments
M Tovar, Naval Medical Center, Portsmouth, VA

337 The Rapid Infusion of Crystalloids for Sepsis in the Prehospital Setting: A Before-After Analysis
T Zitek, Kaiser Permanente Modesto Medical Center, Modesto, CA

Research Embargoed Until Date, Time of Presentation

SEPTEMBER 9, 2025 - 1:00 PM —*cont'd*

338 Assessing Blood Product Readiness for Mass Casualty Events in a Large Urban Trauma System
K Murray, David Geffen School of Medicine at UCLA, Los Angeles, CA

339 Prehospital Sepsis Recognition and Antibiotic Administration: A Retrospective Analysis
T Zitek, Kaiser Permanente Modesto Medical Center, Modesto, CA

340 Impact of Prehospital Antibiotic Administration Protocol for Sepsis on EMS Scene and Transport Times
S Lopez, Memorial Healthcare System, Pembroke Pines, FL

RF59 Infectious Disease

Room 2

341 Impact of a Host-Protein Test on Antibiotic Use and Healthcare Costs in LRTI: JUNO RCT Sub-Analysis
A Singer, Stony Brook University Hospital, Stony Brook, NY

342 Missed Opportunities for Diagnosis of Early Mpox: Retrospective Analysis During NYC's 2022 Outbreak
R Merchant, USF Health Morsani College of Medicine, Tampa, FL

343 Mobile Phone Auscultation Analysis to Accurately Diagnose Pneumonia: A Prospective Cohort Study
M Huecker, University of Louisville, Louisville, KY

344 Differentiating Bacterial Versus Viral Infections in Elderly Patients With Suspected UTI: A Pilot Study
A Singer, Renaissance School of Medicine at Stony Brook University, Stony Brook, NY

345 The Risk Between Cough and GAS Pharyngitis in Adults: A 15-Year Retrospective Analysis
O Akinwande, The University of Texas Medical Branch, Galveston, TX

346 Returning to SCUBA Diving After COVID-19
E Beaubien, Divers Alert Network, Durham, NC

RF60 Ultrasound

Room 3

347 Predictors of Echocardiography Findings in Older Adults With Syncope: Validating the ROMEO Score
J DeAngelis, University of Rochester, Rochester, NY

348 Ultrasound Evaluation in Pulmonary Embolism: Point-of-Care Versus Consultative Echocardiography
A Thomas, Vanderbilt University Medical Center, Nashville, TN

349 The Role of Racial Bias in the Utilization of Bedside Ultrasound in the Emergency Department
M Edwards, Virginia Commonwealth University Health System, Richmond, VA

350 Transesophageal Lung Ultrasound in Circulatory Shock
D Strama, Advocate Christ Medical Center, Oak Lawn, IL

351 Sound Methodology? Evaluation of the Top-Cited Studies in Diagnostic Point-of-Care Ultrasound
T Gaeta, NewYork-Presbyterian Brooklyn Methodist Hospital, Brooklyn, NY

352 Analysis of Intra-Articular Versus Interscalene Regional Anesthesia for Anterior Shoulder Dislocations
C O'Meara, Crozer-Chester Medical Center, Upland, PA

Poster 18

Poster Hall

468 Pregnancy Hypertension Alert System to Reduce Morbidity from Hypertensive Disorders of Pregnancy
J Amoako, Yale New Haven Hospital, New Haven, CT

558[EMF] Functional and Cognitive Outcomes After Emergency Department Visits Among Older Adults With Dementia
M Lin, Stanford University, Palo Alto, CA

559 Board Prep to Bedside: Navigating Hard Conversations for Emergency Medicine's New Certifying Exam
C Davis, The MetroHealth System, Cleveland Clinic, Cleveland, OH

560 Impact of Junior Physicians' Mass Resignation on Outcomes of Out-of-Hospital Cardiac Arrest
D Lee, Kyungpook National University School of Medicine, Daegu, KR

561 Intra-Arrest Arterial Line Placement Is Associated With High Success Rate: Video Review-Based Study
M Akerman, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY

562 Increasing PrEP Awareness Through Outreach for Patients in an Emergency Department
A Maheswaran, University of Illinois at Chicago, Chicago, IL

563 Incidence of Heat-Related Illness in the Emergency Department: A Comparative Analysis
S Heath, Baylor Scott & White Medical Center - Temple, Temple, TX

564 Older Adults Board Longer in the Emergency Department After Admission Longer than Younger Adults
T Rosen, NewYork-Presbyterian/Weill Cornell Medical Center, New York, NY

565 Feasibility of Tools to Assess Stress Levels in Care-partners of Persons Living With Dementia
A Ghahramani, Penn State Health Milton S. Hershey Medical Center, Hershey, PA

566 Mild Head Trauma in Older Adults: When to Scan?
E Arana-Arri, Osdakidetza-Basque Health Service, Barakaldo, Bizkaia, ES

SEPTEMBER 9, 2025 - 2:00 PM

RF61 Quality & Safety

Room 1

353 High Rates of Avoidable Computed Tomography Angiography for Pulmonary Embolism Exclusion
K Mantha, HCA Florida Orange Park, Orange Park, FL

354 Premedication Administration Time and Likelihood of an Iodinated Contrast Hypersensitivity Reaction
E Boccio, Memorial Healthcare System, Hollywood, FL

355 Subcutaneous Opioid Administration in the Emergency Department Improves Adverse Effects
M Dilip, Columbia University Irving Medical Center, New York, NY

356 Association Between Emergency Medicine Residency and Diagnostic Efficiency for Pulmonary Embolism
W Kantrales, HCA Florida Orange Park, Orange Park, FL

357 Hypoglycemic Events in a Subcutaneous Insulin Protocol for the Treatment of Diabetic Ketoacidosis
A Norse, University of Florida College of Medicine - Jacksonville, Jacksonville, FL

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358 Code Strepsis: A Multicenter Study on the Effect of Emergency Department Stroke Alert on Sepsis Care
J Smith, HCA Florida Orange Park, Orange Park, FL

RF62 Improving Patient Flow

Room 2

359 Cost-Effective Automated Assistant for Emergency Department Flow Improvement
S Yin, Southwest Healthcare MEC, Temecula, CA

360 Impact of a Limb Preservation Pathway on Emergency Department Patient Flow and Care
J Agraz, UVA Health, Charlottesville, VA

361 Quantifying Changes in Daily Census Across Emergency Departments in 2018 and 2023: A Call to Action
V Al Karaki, Henry Ford Hospital, Detroit, MI

362 Using Split-Flow Methodology to Mitigate Lost Emergency Department Space During Planned Construction
E Carlin, Long Island Jewish Valley Stream, Valley Stream, NY

363 Operational Challenges and Strategies in Emergency Departments During the 2022 Tripledemic: A Qualitative Analysis
N Davis, Baylor College of Medicine, Texas Children's Hospital, Houston, TX

364 An Innovative Staffing-Neutral Flow Model Reduces Rates of Leaving Without Being Seen
D Shanin, Brown University, Providence, RI

RF63 Cardiovascular

Room 3

365 Mobile Phone Auscultation to Determine VO2Max: Implications for Emergency Medicine and Telehealth
M Huecker, University of Louisville, Louisville, KY

366 Validation of a Deep Learning Model to Predict Echocardiography Findings Using an EKG in Syncope
M Probst, Columbia University Irving Medical Center, New York, NY

367 Comparison of Platelet Response to Aspirin in Patients Receiving Morphine, Fentanyl, or No Narcotic
M Hysell, Corewell Health - South/Lakeland, St Joseph, MI

368 Hypertension Severity and Indeterminate High-Sensitivity Cardiac Troponin
K Hawatian, Henry Ford Hospital, Detroit, MI

369 Characterizing Patients With Cold Drink-Triggered Atrial Fibrillation: A Mixed-Methods Study
D DiLena, Kaiser Permanente Division of Research, Pleasanton, CA

370 Kinetic Changes in High-Sensitivity Troponin for Risk Stratification of Emergency Department Chest Pain Patients
L Mills, John Peter Smith Hospital, Fort Worth, TX

Poster 19

Poster Hall

567 Palliative Care in a Brazilian Emergency Department Reduces Futile Resuscitation in Poor-Prognosis Patients
T dos Santos, Ribeirão Preto School of Medicine, University of São Paulo, Ribeirão Preto, São Paulo, BR

568[EMF] The Impact of Race and Ethnicity on Early Do Not Attempt Resuscitation Order Placement and Survival
C Raymond-King, Yale University, New Haven, CT

569 From the Frontlines: Insights into Improving TBI Outcomes in LMICs
K Kumar, The Aga Khan University, Karachi, PK

570 Basic Emergency Care: Clinical Implementation in Belize
K Hill, Baylor College of Medicine, Houston, TX

571 Stroke Admission Delays at Bernard Mevs Hospital in Haiti: Associated Factors and Outcomes
D Lebrun, University Notre Dame of Haïti, Port-au-Prince, Ouest, HT

572 Automated Sampling of Arterial Blood Pressure Waveforms During Cardiopulmonary Resuscitation
T Wang, Far Eastern Memorial Hospital, New Taipei City, TW

573 Characterizing the Epidemiology and Injury Severity of Road Traffic Injuries in Kandy, Sri Lanka
P Acker, Stanford University School of Medicine, Palo Alto, CA

574 Managing Cosmetic Surgery Complications in a Miami Emergency Department and Trauma Center
J Nelson, University of Miami Leonard M. Miller School of Medicine, Miami, FL

575 A Descriptive Study of a Urine Reflex to Culture System at an Academic Medical Emergency Department
R Childers, University of California San Diego, San Diego, CA

576 Evaluating a Blended Emergency Medicine Training Diploma Certificate Program in Vietnam
J Gerardo, UC Davis Medical Center, Sacramento, CA

SEPTEMBER 9, 2025 - 3:00 PM

RF64 EMS & Disaster

Room 1

371 Trends in Emergency Medical Services Closures: Impact of Ownership, Geography, and Service Type
E Kurkurina, Frank H. Netter MD School of Medicine at Quinnipiac University, North Haven, CT

372 Talk It Out: The Impact of Physician-Patient Communication on High-Risk EMS Refusals
D DiCesare, Orange County EMS System, Orlando, FL

373 Resource Use When Psychiatric Patients are Treated by Community Paramedics in a Prehospital Setting
C Sobolewski, Atrium Health Wake Forest Baptist Medical Center, Winston-Salem, NC

374 EMS Clinician Perspectives on Writing Involuntary Psychiatric Holds
T Alamin, University of California San Francisco, San Francisco, CA

375 EMS Through Their Eyes: A Thematic Analysis of Experiences of Persons Experiencing Homelessness
T Abramsom, Los Angeles General Medical Center, Los Angeles, CA

376 Predicting Emergency Department Arrivals by Ambulance Versus Walk-In for Patients After Sexual Assault, 2022-2024
N Jansen, Beth Israel Deaconess Medical Center, Boston, MA

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SEPTEMBER 9, 2025 - 3:00 PM —*cont'd*

RF65 EMS & Disaster: **Research Forum Exhibit Hall**

Room 2

377 Impact of an ECPR Program on Out-of-Hospital Cardiac Arrest Ambulance Arrivals to the Emergency Department
M Self, University of California San Diego, San Diego, CA

378 The Missing Skill: Prehospital Chest Tube Placement by EMS – A 10-Year Retrospective Study
M Jabaay, Mayo Clinic, Rochester, MN

379 Maintaining Continuity: A Framework for Emergency Department Lab Operations During Prolonged Downtime
J Thorndike, Emory University School of Medicine, Atlanta, GA

380 Non-Trauma Centers as Primary Buffer for Caring Victims in Civilian Protests
A Savia, Instituto Quirúrgico del Callao, Buenos Aires, AR

381 Leveraging an Emergency Department Observation Unit in a Pandemic: A Retrospective Difference-in-Difference Study
M Carr, Emory University School of Medicine, Atlanta, GA

382 Global Analysis of Melee-Based Attacks: Patterns, Lethality, and Regional Disparities
V Shapovalov, Lehigh Valley Health Network, Allentown, PA

RF66 Quality

Room 3

383 Educational Intervention Improves Anticoagulation Reversal in Life-Threatening Bleeding
Z Crenshaw, University of Missouri School of Medicine, Columbia, MO

384 Sepsis Heart Rate Trigger in Atrial Fibrillation Patients
M Akhter, Penn State College of Medicine, Hershey, PA

385 3122 Quality Improvement Project
J Goebel, Huntington Health | Northwell Health, Huntington, NY

386 Impact of High-Sensitivity Troponin Assay on Hospital Resources and Emergency Department Discharges
K Dsouza, HCA Florida Orange Park, Orange Park, FL

387 Impact of an Emergency Department Agitation Scoring and Intervention Program on Physical Restraints
M Osborn, Intermountain Health Utah Valley Hospital, Provo, UT

388 Improving SEP-1 Bundle Compliance Across an Academic Hospital System
J Champion, Vanderbilt University Medical Center, Nashville, TN

Poster 20

Poster Hall

577 Quality Improvement in Simulated Handoffs Optimizes Safety and Informs Pediatric Trauma Team Training
L Cruz, Carolinas Medical Center, Charlotte, NC

578 Enhancing Emergency Department Efficiency: Introducing the Post Discharge Results Now Program
J Goebel, Huntington Health | Northwell Health, Huntington, NY

579 Communicating Crowding Status: Developing and Validating a Traffic Light Framework for Surge Scores
N Jayaprakash, Henry Ford Health, Detroit, MI

580 Expedited Final Radiology Reads: A Virtual Pathway to Streamline Trauma Care
S Kakaria, SUNY Upstate Medical University, Syracuse, NY

581 Factors Influencing Patient Decision Regarding Transfer to Sister Community Hospitals for Capacity
D Shaher, Loyola University Chicago Stritch School of Medicine, Maywood, IL

582 Feasibility of Implementation of Tiered STEMI Activation in an Academic Safety Net Hospital
E Johnson, Los Angeles General Medical Center, Los Angeles, CA

583 How Often Do Patients Not Meeting Laboratory Criteria for DKA Actually Have DKA?
D Suarez, Washington University School of Medicine in St. Louis, St. Louis, MO

584 Multi-Disciplinary Pathway Creation for Transferring Veterans to a VA Hospital
J Koehler, Ann Arbor VA Healthcare System, Ann Arbor, MI

585 Waterfall Schedule and Modified Physician-in-Triage to Reduce Left-Without-Being-Seen Rates
B Burns, Oregon Health & Science University, Portland, OR

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Research Embargoed Until Date/Time of Presentation

From the American College of Emergency Physicians
2025 Research Forum
September 7-10, 2025
Salt Lake City, UT

The following Abstracts were withdrawn or removed in advance of the 2025 *Research Forum*:
28; 42; 69; 76; 107; 113; 182; 218; 229; 254; 327; 336; 395; 427; 435; 458; 496; 501; 507; 518; 522; 545; 569

1 Evaluating the Safety and Operational Impacts of Emergency Department Undertriage

Sax D, Warton E, Mark D, Reed M/The Permanente Medical Group, Kaiser Permanente Division of Research, Oakland, California

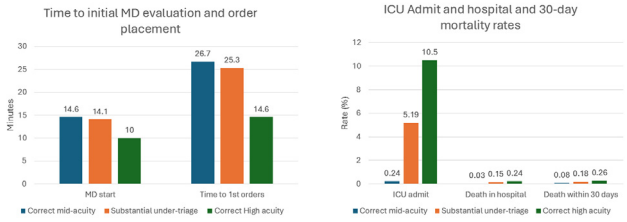
Study Objectives: Using operational measures of mis-triage that incorporate occurrence and timing of critical emergency department (ED) interventions and resource use to determine triage accuracy, we previously estimated that one third of adult ED patient encounters were mis-triaged using the Emergency Severity Index (ESI), Version 4, and the sensitivity to identify a critically ill patient using ESI was only 65% among adult patients. In this study, our objective was to broadly assess the association between undertriage and timeliness of care and post-ED outcomes.

Methods: We conducted a retrospective cohort study among all patients aged ≥ 18 years who had an ED visit between January 1, 2016, and December 31, 2020, across the 21 EDs in Kaiser Permanente Northern California (KPNC). KPNC is an integrated healthcare delivery system that provides comprehensive medical care for more than 4.5 million patients with approximately 1.2 million ED visits per year. ESI is used at all EDs. We defined 'substantial' undertriage if the patient was assigned an ESI III, IV, or V but had a critical event occur during the ED stay, including use of resuscitative medications, significant blood products, invasive or non-invasive ventilation, or urgent catheterization lab, intensive care unit, or operating room admission. We compared substantially undertriaged patients to true mid-acuity patients, defined as assigned ESI III and no critical events occurred, and true high-acuity patients, defined as assigned ESI I or II and a critical event occurred. The primary outcomes were time to provider evaluation and initial orders, and ICU admission rates, in-hospital mortality rates, and 30-day mortality rates. We adjusted for multiple patient and visit characteristics, including sociodemographic data, presenting ED vital signs, co-morbid illness burden, high-risk medication use, and time, day, month, site of visit. We used generalized estimating equations to account for multiple encounters by the same patient and report least means squares estimates from the fully adjusted models.

Results: There were 2,461,141 patient encounters in this study; 56,169 were classified as 'substantially undertriaged,' 108,367 were classified as true high-acuity and 2,296,605 patients were classified as true mid-acuity. The median age was 56, 58% were female, and 11.7%, 13.3%, 45.8%, 20.9%, and 8.3% were Asian, Black, Non-Hispanic White, Hispanic, and Other, respectively. Compared to both true mid- and true high-acuity patients, the undertriaged patients had greater use of high-risk medications, higher co-morbidity burdens, and higher rates of recent (30-day) ED and inpatient use. As seen in the **Figure (panel a)**, in the adjusted models, the undertriaged patients had delays in initial provider evaluation and order placement compared to true high-acuity patients. The undertriaged patients had post-ED outcome rates between those of mid- and high-acuity patients.

Conclusions: Patients who were substantially undertriaged had small but significant delays in initial ED care. Their relatively high ICU admission rates and in-hospital and 30-day mortality rates suggest these patients warrant early identification and timely ED care. Identification of high-risk characteristics at triage, including co-morbidity burden, recent healthcare utilization, and use of high-risk medications may help prioritize these patients for rapid ED evaluation and treatment.

Figure: Comparison of ED process measures and post-ED patient outcomes among substantially undertriaged patients, true mid-acuity patients, and true high-acuity patients



Notes: p values for all outcome comparisons were < 0.001.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

2 Use of Mobile Cardiac Outpatient Telemetry in Geriatric Emergency Department Patients

Nene R, You A, Kreshak A, Tolia V/UCSD, San Diego, California

Study Objectives: Patients over the age of 65 years present to the emergency department (ED) for a myriad of cardiovascular complaints, such as chest pain, palpitations, and syncope/near syncope. For those without a clear diagnosis, determining an appropriate disposition can be challenging, particularly given the well-documented low utility of admission for nonspecific symptoms in seniors, even when they have cardiovascular risk factors. Mobile cardiac outpatient telemetry (MCOT) can be provided to patients upon ED discharge to help with the diagnosis and management of arrhythmias and other cardiac conditions. The purpose of this study was to evaluate the use of MCOT in senior patients discharged from the ED.

Methods: This was a retrospective review of all ED patients from two urban academic centers who were discharged with an MCOT patch device from October 2021 – September 2024. Patient disposition and decision to provide MCOT was at the discretion of the emergency physician. The devices were capable of continuous monitoring and transmission of data for 14 days. Patients were also able to trigger events when symptomatic, which were correlated with the underlying cardiac rhythm. Compliance metrics and arrhythmia information were collected from the online device management suite. Significant arrhythmias were defined as ventricular tachycardia (VT) ≥4 beats, supraventricular tachycardia (SVT) ≥4 beats, ≥3 second pause, 2nd degree Mobitz II, 3rd degree AV block, atrial fibrillation, or ventricular fibrillation. The electronic medical record was queried to calculate the rates of admission for chest pain, palpitations, and syncope prior to (October 2018) and after (October 2024) the availability of the MCOT device at ED discharge.

Results: Over the 3-year study period, 819 geriatric patients were discharged from the ED with an MCOT device. The mean age was 75 years. The most common indications included syncope and collapse (22.2%), palpitations (19.7%), chest pain (8.5%), unspecified atrial fibrillation (7.3%), and bradycardia (5.5%). Patient compliance with device wear time was 98.6%, for a median of 13.7 days. 93.3% of patients were found to have an arrythmia, and 34.6% had multiple arrythmias. 2.2% of patients with reported symptoms had no arrythmia detected. The most common arrhythmias observed were SVT ≥4 beats (81.2%), VT ≥4 beats (28.0%), atrial fibrillation (16.6%), sinus pause >3 seconds (5.1%), and high-grade atrioventricular block (2.0%). The average duration until the first event was 3.0 days with a max duration until first event of 13.6 days. The availability of these MCOT devices was associated with a decrease in admission rate of 12.7% for chest pain, 19.2% for palpitations, and 16.5% for syncope. There were no reported deaths in patients discharged while wearing an MCOT device.

Conclusions: For geriatric patients discharged from the ED, MCOT device usage demonstrated high diagnostic yield, increased detection of actionable arrythmias, and reduced hospital admissions. Given the average duration to first symptomatic event was 3 days, this emphasizes the importance of newer MCOT devices rather than traditional 24-48 hour Holter monitors or even short hospitalizations for telemetry monitoring. Safety and resource utilization are dueling factors of particular concern to the geriatric population, and this clinical workflow allows for more efficient referrals to cardiology while enhancing emergency physician confidence to safely discharge these patients.

Yes, authors have interests to disclose

Disclosure: iRhythm

Vaishal Tolia

Honoraria

iRhythm

3 Reducing Radiographs In Low-Risk Infants With Bronchiolitis: A Quality Improvement Initiative

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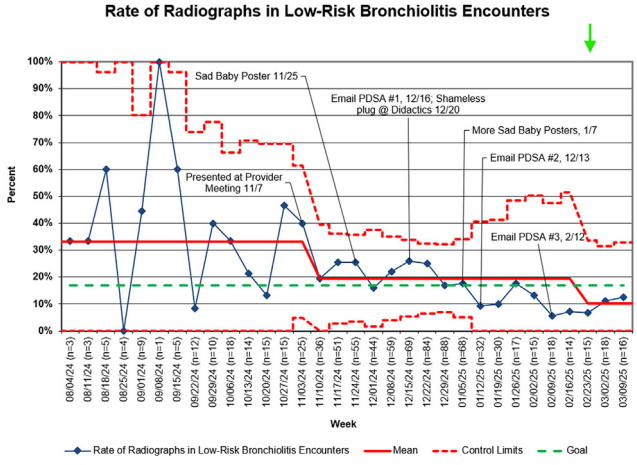
Introduction: Chest radiographs (CXRs) are frequently overused in children with bronchiolitis, despite the American Academy of Pediatrics' Choosing Wisely campaign advising against routine imaging in uncomplicated cases. Unnecessary CXRs can contribute to increased healthcare costs, expose patients to avoidable radiation, and lead to misdiagnoses that may, in turn, result in unwarranted antibiotic use.

Study Objectives: To reduce the rate of CXR use in low-risk infants with bronchiolitis in a pediatric emergency department (ED) using quality improvement (QI) initiatives.

Methods: Data were collected retrospectively and prospectively at a freestanding, tertiary-care children's hospital using the hospital's quality dashboard and reviewed biweekly. Low-risk bronchiolitis was identified as infants aged 1–24 months with International Classification of Diseases-coded acute bronchiolitis, excluding those with intensive care unit admission, complex chronic conditions, emergency severity index 1 presentations, or those with diagnoses of asthma, pneumonia, or croup. The primary outcome was the proportion of CXRs per total low-risk bronchiolitis visits, presented as an average centerline. Quality improvement initiatives were conducted using Plan-Do-Study-Act (PDSA) cycles. A multidisciplinary team—including physicians, advanced practice providers, nurses, utilization management staff, and family council members—identified key drivers of CXR overuse: provider support, data transparency, care standardization, and family confidence. Interventions included provider education, promotion of clinical pathways, individualized feedback, public anonymized peer comparisons via bubble/pareto charts, and family surveys. Balancing measures included ED revisit rates within seven days of the index visit as well as subsequent hospital admissions. Fisher's exact test was used to compare rates of balance measures before and during QI interventions.

Results: Over the four months of our study period, there were 729 low-risk bronchiolitis encounters, with a total of 138 CXRs performed. Baseline CXR use averaged 33.1% in the three months preceding implementation of QI initiatives. One month post-intervention, the average centerline shifted to 19.6%, despite increasing bronchiolitis volumes. Following individual feedback and data transparency interventions, the weekly CXR rate remained at or below 26.1% with a subsequent shift of the average centerline to 10.2% by the fourth month of the QI initiative. ED revisit rates before and during the QI intervention showed no significant difference (26.5% vs 16.7%, respectively; $p = 0.27$). Among patients who returned, the rate of subsequent admission was also not significantly different before and during the intervention period (50.0% vs 44.4%, respectively; $p = 1.00$). Additionally, during the period of QI interventions, no acute findings were identified on CXRs obtained in those who had radiographs performed during their return ED visits.

Conclusion: Targeted QI interventions significantly and sustainably reduced unnecessary CXR use in bronchiolitis without compromising patient safety. This project highlights the effectiveness of multidisciplinary collaboration, structured provider education, data transparency, and timely feedback in improving evidence-based practice in pediatric emergency care. Future directions include electronic medical record-based decision support tools, waiting room education posters, and expanded parental surveys.



No, authors do not have interests to disclose

4 Wearable Biosensors Reliably and Remotely Monitor Patients Discharged from the Emergency Department

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Objectives: Home monitoring, an established strategy in disease management, often requires advanced systems. New wearable biosensor devices may increase the ease of remote patient monitoring. Little is known about patient monitoring from emergency department (ED) discharge directly to home. We investigate the feasibility of a wearable monitoring device, wirelessly connected to the patient smartphone,

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initiated in the ED to understand vital sign data integrity and characterize patient interactions as a potentially low-cost and simple-to-use solution for home monitoring.

Methods: This pilot study of discharged patients at an Urban, 90,000 volume, Level 1 Trauma Center enrolled patients aged ≥50 who owned a smartphone with an active cellular data plan, had a history of any chronic cardiopulmonary disease, and were discharged from the ED to home per standard of care for any presenting complaint. A biosensor capturing vital signs (VS) HR, BP, RR, O2 saturation, and temperature was secured to their chest and connected to the virtual monitoring platform via a smartphone app. It was programmed to capture VS every 15 minutes and device connectivity was set for five calendar days post-discharge (Day 0). Subjects provided demographic survey data. Follow-up phone calls occurred on Days 1, 3, and 5.

Results: We enrolled 27 patients, average age 65 years (50-83). 52% of patients' education was high school or less with a median annual income of $23,500. 30% live outside of US Census Bureau designated urban areas. Initiation of monitoring took 14 minutes, on average, post-consent. 21 subjects completed 5 full days of monitoring. Six subjects ended the monitoring early due to premature battery failure (4) or non-serious skin irritation (2). A total of 2,231 patient hours were monitored, and 13,615 individual VS measurements were obtained. Accounting for early discontinuation, 81% of hours where subjects were wearing the device were monitored. Overall, reported patient satisfaction and ease of use were high, with a 93% survey completion rate. 100% of devices were returned to the research team.

Conclusion: A simple biosensor combined with a patient's smartphone appears to be quick, reliable, and a potentially low-cost system for home monitoring of VS following ED discharge. The device was successfully utilized by patients with differences in education level, economic status, and geographic location.

No, authors do not have interests to disclose

5 Artificial Intelligence Model for Automated Assessment of Lung Ultrasound Image View Quality

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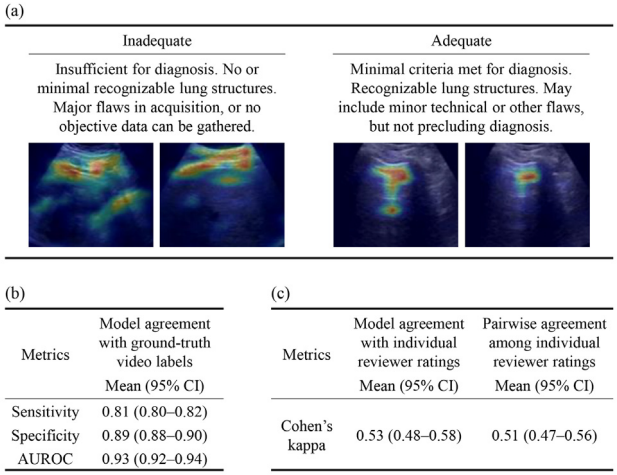
Study Objectives: Lung ultrasound (LUS) is increasingly utilized for evaluating lower respiratory infections and acute lung injury. However, accurate clinical interpretation requires high-quality image acquisition. This study aimed to develop and evaluate an artificial intelligence (AI) model for automated, standardized assessment of LUS image view quality.

Methods: Prospective LUS data were collected from adult patients with respiratory symptoms due to suspected infection and/or inhalational lung injury across 12 medical centers. Ultrasound acquisition followed a standardized 14-zone protocol, including two anterior, two lateral, and three posterior zones per hemithorax. Videos (3–6 seconds) were captured in sagittal and transverse orientations using a handheld ultrasound system with curvilinear, sector, and linear transducers. Nineteen LUS-trained physicians participated in image review and grading. Each LUS video was independently graded by at least two reviewers for image quality using a binary scale ("adequate" or "inadequate") adapted from American College of Emergency Physicians (ACEP) guidelines. Ground-truth video labels were determined by majority vote among reviewers. A lightweight deep learning AI model was developed to generate frame-level image quality confidence scores, with video-level classification derived by averaging the frame-level scores. Model performance was assessed using eight-fold cross-validation with 70/20/10% train/validation/test splits and subject-wise separation. Sensitivity, specificity, and area under the receiver operating characteristic curve (AUROC) were calculated by comparing model predictions with ground-truth labels on the video level. Model agreement with individual reviewer ratings was evaluated using Cohen's kappa.

Results: A total of 13,789 videos from 426 subjects were graded, with 13% of videos classified as "inadequate" quality. The AI model achieved a cross-validation mean test sensitivity of 0.81 (95% CI: 0.80–0.82), specificity of 0.89 (95% CI: 0.88–0.90), and AUROC of 0.93 (95% CI: 0.92–0.94) compared to ground-truth video labels. Model agreement with individual reviewer ratings, as measured by Cohen's kappa, was comparable to the interrater agreement among reviewers. Gradient class activation maps showed the model primarily focused on the pleural line and intercostal regions for image quality classification.

Conclusion: This study demonstrates the feasibility of an AI model for automated LUS image view quality assessment, potentially enhancing diagnostic confidence and facilitating use by less-experienced operators.

Acknowledgments: The study was partially funded by the U.S. Department of Health and Human Services (HHS); Administration for Strategic Preparedness and Response (ASPR); Biomedical Advanced Research and Development Authority (BARDA), under contract number 75A50120C00097. The contract and federal funding are not an endorsement of the study results, product, or company.



(b)

Metrics	Model agreement with ground-truth video labels Mean (95% CI)
Sensitivity	0.81 (0.80–0.82)
Specificity	0.89 (0.88–0.90)
AUROC	0.93 (0.92–0.94)

(c)

Metrics	Model agreement with individual reviewer ratings Mean (95% CI)	Pairwise agreement among individual reviewer ratings Mean (95% CI)
Cohen's kappa	0.53 (0.48–0.58)	0.51 (0.47–0.56)

Figure 1: (a) Lung ultrasound image quality grading scale (inadequate/adequate) adapted from ACEP guidelines, with examples of AI model class activation maps. (b) Model agreement with ground-truth video labels determined by majority vote among reviewers (n=13,789 videos from 426 subjects, 13% "inadequate" quality). (c) Model agreement with individual reviewers compared to the average pairwise inter-rater agreement among 19 reviewers.

No, authors do not have interests to disclose

6 Preferred Language Is Associated With Length of Stay for Patients Admitted From the Emergency Department

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Study Objectives: The primary objective of this study was to assess the association between patients' preferred language (PL), length of stay (LOS), and resource use.

Methods: This retrospective chart review included 11,000 adult patients (5,000 English PL, 5,000 Spanish PL, and 1,000 non-English/non-Spanish PL) evaluated in a tertiary academic emergency department (ED) with approximately 62,000 annual visits from January 1, 2017, to January 1, 2019, and January 1, 2022, to December 31, 2023. The Kruskal-Wallis test was used to compare median LOS between the three groups. If statistically significant, pairwise comparisons between groups were adjusted using Dwass, Steel, Critchlow-Fligner (DSCF) multiple comparison analysis. Specific tests (resources) were categorized based on number of tests ordered (0, 1, 2, or >2) and the distribution was compared between the groups using Chi-square test. If statistically significant, pairwise comparisons were adjusted using a Bonferroni adjustment. Analysis was done using SAS version 9.4. A p-value <0.05 was considered statistically significant.

Results: Among all ED patients (admitted and discharged), there was a statistically significant difference in ED LOS. Patients with a non-English/non-Spanish PL had the longest ED LOS (median: 4.69 hours, IQR: 3.18–6.78), followed by Spanish PL (median: 4.37 hours, IQR: 2.83–6.37), and English PL (median: 3.88 hours, IQR: 2.38–5.85) (p<0.0001). Based on their PL, patients admitted to the hospital from the ED had a statistically significant difference in their system LOS. English PL patients had a significantly longer hospital LOS (median: 65.07 hours, IQR: 32.07–121.52) than Spanish PL patients (median: 55.33 hours, IQR: 27.71–102.22), while non-English/non-Spanish PL patients had a hospital LOS of 62.77 hours (IQR: 32.85–111.48, p <0.0001). Resource testing use was defined by counts of ordered scans (CT), ultrasounds (US), plain film x-rays (XR), magnetic resonance imaging (MRI), and a complete blood count (CBC) was used as a surrogate for lab tests ordered. Patients discharged from the ED had a statistically significant association between language group and orders for XR (p=0.0045), CT (p=0.03), ultrasound (p <0.001), and CBCs (p <0.001). For patients admitted to the hospital and tests ordered during their inpatient stay, there was a statistically significant association between language groups and orders for XR (p=0.02) and ultrasound (p=0.005).

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Specifically, English PL was associated with less resource use in discharged and admitted patients. Admission rates and hospital discharge services had statistically significant associations with language preference. Non-English/non-Spanish PL patients had an admission rate of 30.1%, Spanish PL patients 25.4%, and English PL patients had an admission rate of 28% (p=0.0013). Spanish PL patients were significantly more likely to be discharged home without services (94.5%), compared to English and Non-English/non-Spanish PL patients (87% and 90%, respectively, p <0.0001 and p=0.14).

Conclusion: Patients who preferred English had a shorter ED LOS, less ED testing resource use, and when admitted-had the longest hospital LOS. Patients who preferred Spanish had the shortest hospital LOS and were most likely to be discharged home with no services. Non-English/non-Spanish languages had the longest ED LOS and highest admission rates and had similar resource use as patients who preferred Spanish. Our retrospective study identified significant associations between a patient's PL and hospital through-put and resource use. Future studies should layer other aspects influencing a patient's decision to access acute medical care.

No, authors do not have interests to disclose

7 Outcomes of Implementing an Emergency Department-Based Intensive Care Unit: A Scoping Review

De Mel S, Valentin J, Rolston D, Shawl A, Hahn B, Plann-Curley B, Mohamadi A/Staten Island University Hospital, Staten Island, New York

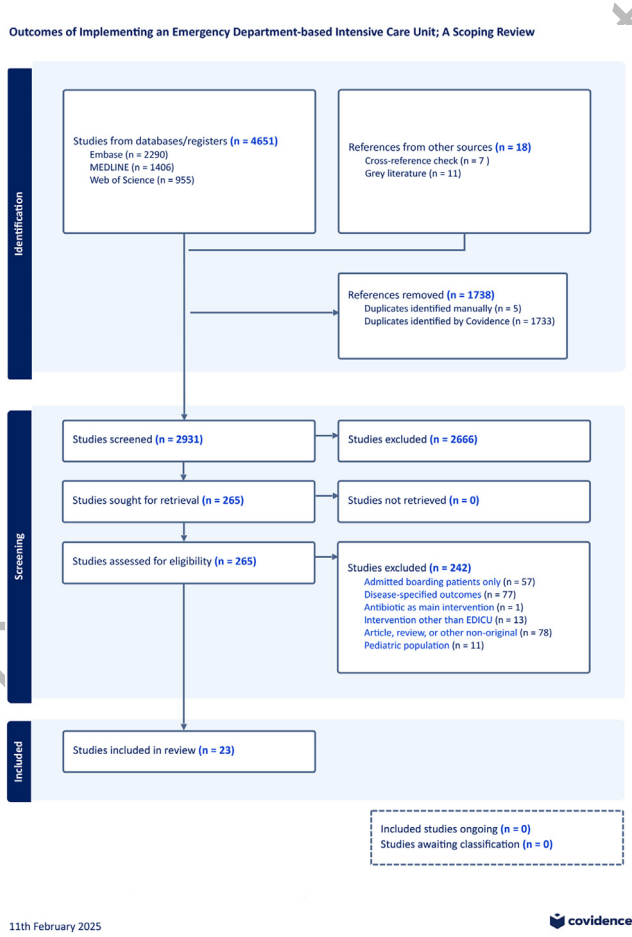
Introduction: There is an international shortage of intensive care unit (ICU) bed availability, intensivist physicians, and a simultaneous increase in patient acuity at presentation to the emergency department (ED). This trend has caused a greater demand for both the delivery of critical care and a significant increase in critically ill patients boarding in the ED. In addition, many patients in critical condition can be treated within an ED-based intensive care unit (EDICU) and, following stabilization, can be discharged home or admitted to a regular hospital ward. In response, some hospitals have implemented an EDICU to optimize triage and prompt delivery of critical care to patients outside of the ICU. However, the data on the implementation of the EDICU on patients' outcome or hospital operational metrics is scarce.

Study Objectives: Conduct a scoping review to systematically summarize the data on implementation of the EDICU on patients' outcome or hospital operational metrics.

Methods: A protocol was created using the Preferred Reporting Items for Systematic Reviews and Meta-analysis protocols, PRISMA Extension for Scoping Reviews (PRISMA-ScR) and was registered at Open Science Framework (DOI: https://doi.org/10.17605/OSF.IO/CS6KR). We electronically searched three databases of Medline, Web of Science and Embase using emergency department, critical care, resuscitative units and their synonyms from inception to November 2024. All records were entered into Covidence, a systematic review software, (Veritas Health Innovation, Melbourne, Australia) for screening and abstraction. The inclusion criteria were original studies (retrospective or prospective) reporting outcomes of implementation of the EDICU. Studies reporting exclusively on the pediatric population or on admitted adult ICU patients boarding within the ED were excluded (Figure. PRISMA Flowchart). We abstracted outcomes data including mortality, length of stay, complication rates, and revenue production.

Results: We included 23 original studies, of which 47% were pre-post retrospective analyses that compared patient outcomes before and after the creation of an EDICU. Nine studies were retrospective cohort studies that studied characteristics of patients who were admitted to an EDICU, and one study was a retrospective economic study. 11 hospital systems worldwide including USA, Turkey, France, Japan, Taiwan, and South Korea published outcomes of such implementation. There is not a unique terminology for the concept of the EDICU, with titles ranging from the "hybrid ER" to the "Emergency Critical Care Center (EC3)" within published studies. Some studies focused on the impact of the EDICU on specific pathologies including upper gastrointestinal bleeding, diabetic ketoacidosis, stroke, intracranial hemorrhage, and poisoning. Of the eight studies that used ICU length of stay (LOS) as an outcome, 62% found a decreased LOS in the patients who were initially managed in the EDICU. All of the studies that used "admission to ICU" as an outcome found that patients who were initially managed in the EDICU were less likely to be admitted to the inpatient ICU. 36% of the studies that used "inpatient mortality" as an outcome found that EDICU admission decreased mortality. The economic analysis found that the creation of an EDICU did not increase the cost per ED encounter and generated more revenue for the hospital.

Conclusion: There is limited information currently available regarding the novel EDICU. The current evidence does show significant improvements to patient mortality, avoidance of ICU admission, and decreasing LOS all without significantly impacting cost when prompt critical care is provided to patients in the ED. Given that this concept currently exists at few locations, more research should be done into the current models to determine whether this model of care should be implemented and standardized across healthcare systems.



No, authors do not have interests to disclose

8 Impact of a Patient-centered Medical Home on Emergency Department Utilization Among Patients With Sickle Cell Crisis

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Study Objectives: Emergency departments (EDs) commonly serve as the initial care setting for patients experiencing sickle cell disease (SCD)-related complications, however, prolonged wait times and untimely administration of analgesics make care in the ED suboptimal. Strategies to improve the appropriate outpatient management of acute SCD-related complications are necessary to reduce the burden of disease, improve patient-centered outcomes, and ensure efficient utilization of healthcare services. The primary objective was to assess the impact of a patient-centered medical home (PCMH) on ED utilization rates among patients treated for vaso-occlusive crisis.

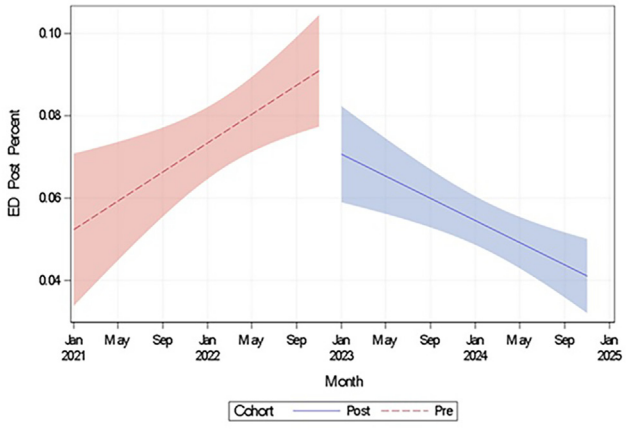
Methods: An outpatient PCMH specializing in the individualized management of acute sickle cell crisis was opened in December 2022. A quasi-experimental study involving the retrospective review of a consecutive sample of administrative records was performed. All patients with SCD presenting across the healthcare system during a 47-month period were screened. Patients presenting during the 23-month period prior to the PCMH (January 2021 – November 2022) were assigned to the pre-intervention

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cohort while those which presented during the 23-month period following (January 2023 – November 2024) were assigned to the post-intervention cohort. The primary outcome was the percentage of patients who presented to the ED within 24 hours following a visit to the PCMH. Univariate analysis of the mean ED presentation rate between the pre- and post-intervention cohorts was performed using a student's t-test. Additionally, a single-group interrupted time series analysis was performed to compare level and slope changes of the linear regression curves modeling ED presentation rate and time before and after implementation of the PCMH. All statistical analyses were performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at 0.05.

Results: A total of 634 patients were included across the study period, and 276 (43.5%) patients were categorized into the pre-intervention group. The mean ED presentation rates in the pre- and post-intervention cohorts were 7.2% (95% CI: 6.1-8.3%) and 5.6 (95% CI: 4.8-6.4%), respectively, and the difference was statistically significant (p=0.02). The beta coefficients of the pre- and post-intervention linear regression models for ED presentation rate were β_0=0.051 and β_1=0.002 and β_0=-0.072 and β_1=-0.001, respectively, and the change in slope was statistically significant (p=0.005). There was a 1.9% decrease in ED presentation rate immediately following the intervention, and the change in level was statistically significant (p <0.001).

Conclusion: A PCMH specializing in the management of acute sickle cell crisis is feasible and resulted in a decrease in ED utilization rate among treated patients. Further research investigating patient satisfaction, provider experience, and program cost-effectiveness is warranted.



No, authors do not have interests to disclose

9 Electronic After-Visit Summaries: Useful or Useless?

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Study Objectives: After an emergency department (ED) visit, patients receive a printed after-visit summary (AVS) describing diagnoses, results, prescriptions, follow-up referrals, guidance, and return precautions. Despite the theoretical benefits of this documentation, little is known regarding utility and engagement. To improve patient engagement, and to limit our environmental footprint, we enabled patients to view their AVS via our online patient portal and opt out of receiving it on paper. We hypothesized that patients would prefer and engage with electronic AVSs.

Methods: In this prospective cohort analysis of a single, very high-volume, urban, academic ED, patients were asked at discharge whether if preferred a paper copy of their AVS. Upon discharge, the AVS was made available to all patients through our electronic health record patient's portal (MyChart, Epic Systems). Patients opting for traditional paper AVSs were also given printed copies, while patients opting for electronic AVSs were counseled to view them via MyChart and were not provided with paper copies. Patient preferences and electronic AVS views were tracked. 30 continuous days of data from February 2025 to March 2025 were reviewed.

Results: Over the 30-day period analyzed, 3,731 discharged encounters included a response to the AVS screening question (paper vs electronic), representing >99.8% of all discharged patients. Of these responses, 540 (14.5%) were for an electronic-only AVS At the time of this review, the overall viewing rate of the paperless AVS was 6.8%. 9 of the 540 patients requesting paperless had viewed their AVS in MyChart within 72 hours of discharge (1.7% of electronic AVS requests), whereas 246 patients from the paper AVS group viewed their electronic AVS within 72 hours of discharge (7.7% of the paper AVS requests). When comparing the 72-hour electronic AVS view rates, those requesting a paper copy were 4.5 times as likely to view the electronic AVS within 72 hours of discharge as those requesting paperless ($p < 0.0001$, chi squared = 25.54, df = 1).

Conclusion: Our results indicate that a minority of patients opted for an electronic AVS, and among those who did, very few viewed the AVS Those requesting paper copies were surprisingly much more likely to view the paperless AVS Further efforts are needed to identify and mitigate underlying barriers, which could include low patient-perceived utility of the AVS (whether electronic or paper), perceived difficulties in accessing the AVS electronically, and/or a bias towards the status quo. Increasing the use of electronic AVSs may require stronger measures, such as defaulting to an electronic AVS and requiring opt-in for a paper copy. It is clear that transitioning to paperless AVS without intervention is likely to yield poor patient engagement. These findings highlight a significant opportunity to increase patient engagement with ED after-care and potentially yield cost savings from decreased paper and printing.

No, authors do not have interests to disclose

10 Rates of Anticoagulation in Cirrhotic Atrial Fibrillation Patients

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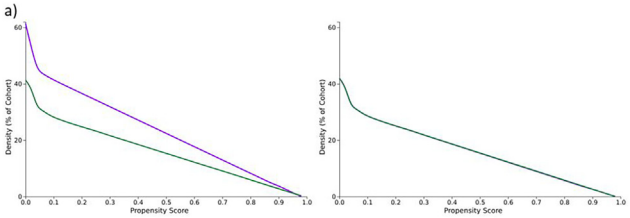
Study Objectives: Historically, patients with cirrhotic liver disease had been considered as anticoagulated due to prolonged prothrombin (PT) and activated partial thromboplastin (aPTT) times. However, more current data describe cirrhotic patients as being in hemostatic balance as a result of destruction of pro- and anti-coagulant influences which then leads to both bleeding and thrombotic events in these patients. Furthermore, cirrhotic patients are at an increased risk for developing atrial fibrillation (AF). Evidence of anticoagulant benefit for cirrhotic patients with AF is limited due to consistent exclusion from clinical trials due to bleeding concerns; however, the American Gastroenterological Association Institute guidelines recommend anticoagulation over no anticoagulation due to point estimates that suggest improved mortality and decreased nonfatal stroke risk, in particular in cirrhotic patients with higher CHA2DS2-VASC scores. Yet providers are often hesitant to anticoagulate patients who have liver disease. We sought to identify the discrepancy in anticoagulation between cirrhotic AF patients and non-cirrhotic AF patients.

Methods: A retrospective analysis was conducted using the TriNetX health research network. TriNetX is a global research network with data from hundreds of health care organizations. The database was queried for patients since January 1, 2024 with ICD-10 diagnoses of AF (I48) and liver cirrhosis (K74) as well as for patients with AF without cirrhosis. These cohorts were balanced using propensity match for confounders including but not limited to age, thromboses, and major bleeding. Outcome was the likelihood – based on relative risk (of patients with AF with cirrhosis vs AF without cirrhosis) – of receiving apixaban, enoxaparin, and/or warfarin.

Results: A total of 1,020,401 patients had an AF diagnosis (without cirrhosis) since January 1, 2024 and 25,043 had both AF and cirrhosis. Confounders were well balanced after propensity matching (**Figure**). After matching, AF patients with cirrhosis were more likely to be administered and/or prescribed apixaban (p 0.002) as well as enoxaparin ($p < 0.001$) than those without cirrhosis. There was no significant difference in warfarin use. 54.2% (95% CI 53.5–54.8%) of AF patients with cirrhosis received at least one of the three anticoagulants compared to 47.2% (95% CI 46.6–47.9%, $p < 0.0001$) of AF patients without cirrhosis.

Conclusion: While experience suggests that cirrhosis patients with AF are anticoagulated less frequently than AF patients without cirrhosis, our findings surprisingly suggest the opposite. This is important, as meta-analyses show a prevalence of AF of 5% in all cirrhotic patients and 7.4% in those awaiting transplants. Furthermore, there is significantly increased mortality risk in patients with cirrhosis and AF. While we accounted for multiple confounders, the retrospective nature of study means there could still be an unaccounted-for imbalance between the two cohorts. We also focused on three common anticoagulants and the data may be different for other blood thinners; however, our results were similar when we analyzed the general anticoagulation code within TriNetX. Of note, the direct oral anticoagulant apixaban is now recommended as first line since data suggest that cirrhosis AF patients have lower rates of major bleeding with apixaban compared to warfarin or rivaroxaban.

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b)

Anticoagulant	RR (cirrhosis/no cirrhosis)	95% CI
apixaban	1.04	(1.02,1.07)
enoxaparin	1.47	(1.41,1.54)
warfarin	1.03	(0.96,1.11)

Figure 1. Propensity differences before and after matching cohorts (a). Relative risk of anticoagulation in AF patients with cirrhosis compared to AF patients without cirrhosis.

Yes, authors have interests to disclose
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Murtaza Akhter
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Pfizer
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11 Comparative Efficacy of Medications for Atrial Fibrillation Rate Control in Heart Failure

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Study Objective: Atrial fibrillation (Afib) and heart failure (HF) frequently coexist in patients with longstanding cardiovascular disease. In emergency settings, rapid ventricular response (RVR) requires timely rate control to prevent worsening cardiac function. Current guidelines lack clarity regarding the optimal pharmacologic strategy for patients with both Afib and HF. This study compares the efficacy and safety of rate-controlling medications in this population.

Methods: We conducted a retrospective cohort study of adult emergency department (ED) patients diagnosed with Afib with RVR and HF from 2019–2023. Data were extracted from the electronic medical record by trained chart abstractors. The primary outcome was rate control, defined as heart rate (HR) <110 bpm at 6 hours post-ED admission. Secondary outcomes included adverse events (composite of death, mechanical support, vasopressor use, mechanical ventilation, myocardial infarction, worsening HF, or severe bradycardia). HF was classified as reduced ejection fraction (HFrEF) if EF was ≤40%. The analysis included univariate and multivariable logistic regression adjusted for age, baseline HR, and HFrEF.

Results: 312 patients (mean age 71.4 ± 12.9 years, 53.9% female) were included. Baseline HR averaged 136.7 ± 27.5 bpm. First-line medications included metoprolol (48.7%), diltiazem (27.2%), and amiodarone (8.7%), with 69.6% requiring multiple doses and 21.8% receiving a combination of diltiazem and metoprolol. At 6 hours, 179 patients (57.4%) achieved rate control, and 28.7% converted to sinus rhythm. Rate control rates were similar between metoprolol (55.3%) and diltiazem (60.7%, p=0.637) but significantly lower for amiodarone (33.3%, p=0.002). Patients with HFrEF had significantly lower odds of control (OR 0.51, 95% CI 0.32 to 0.81). Adjusted analysis confirmed comparable efficacy between metoprolol and diltiazem, while amiodarone was associated with significantly lower odds of rate control (aOR 0.30, 95% CI 0.12–0.77, p=0.002). Adverse event rates did not significantly differ between medication groups (metoprolol 21.2%, diltiazem 27.1%, amiodarone 14.8%, p=0.303). Adverse event rates in patients receiving a combination of metoprolol and diltiazem (10/68, 14.7%) were not statistically lower (OR 0.57, 95% CI 0.27 – 1.18) than those receiving one drug class (57/244, 23.4%).

Conclusion: Metoprolol and diltiazem demonstrated similar efficacy in achieving rate control in Afib with RVR and HF. Amiodarone had lower numerical rates of adverse events, though this difference did not reach statistical significance. Amiodarone was less effective for rate control, suggesting a need for further evaluation of its role in this population.

No, authors do not have interests to disclose

12 Antipsychotic Agents for Treatment of Schizophrenia in the Emergency Department

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Study Objectives: Schizophrenia is a chronic psychiatric disorder with a global prevalence of 0.32%. Patients with schizophrenia often present to the emergency department (ED), particularly in cases of severe agitation, combativeness, or psychosis. First-generation antipsychotics (FGAs) and second-generation antipsychotics (SGAs) in the ED setting are frequently employed. Parenteral antipsychotics have demonstrated benefits in reducing psychiatric hospitalizations and improving adherence. The effectiveness and side effect profile among ED patients is unknown. This study aims to explore return to the ED, mortality, and side effect profiles of parenteral or oral antipsychotics in the ED for the treatment of acutely combative patients.

Methods: *Study Population and Outcome Variables*: Study data were obtained from the TriNetX United States Collaborative Network, a globally federated health research database providing access to EMRs from large healthcare organizations. Inclusion criteria included ED patients (18 years or older) with schizophrenia diagnosis, violent behavior, and received relevant pharmacologic agents. FGAs included haloperidol and fluphenazine; SGAs included quetiapine, olanzapine, and risperidone. Outcomes assessed within 10 days to 6 months post-ED visit included return to ED, mortality, neuroleptic malignant syndrome, dystonia, tardive dyskinesia, akathisia, neutropenia, type II diabetes, hypercholesterolemia, hyperlipidemia, QT prolongation, and Torsades de pointes.

Data and Statistical Analysis: Propensity score matching was applied to all demographic characteristics to ensure equivalent cohorts. Baseline characteristics were evaluated using descriptive statistics, with means and standard deviations reported for continuous variables and frequencies calculated for categorical variables. The primary outcome of interest was repeat ED visits. Odds ratios were calculated for all outcome variables. Prism GraphPad and TriNetX were used for all data representation and statistical analyses.

Results: *Demographics and presenting characteristics:* Demographics are shown after post–propensity score matching. For the FGA analysis (n=2,162 per group), the mean age ± SD in years was 43 ± 15 (parenteral) and 43 ± 15 (oral); females comprised 33% and 32%, respectively. Racial breakdown for parenteral: 40% White, 45% Black or African American, 4% Asian; for oral: 40% White, 46% Black or African American, 4% Asian. In the SGA analysis (n=439 per group), the mean age in years ± SD was 44 ± 15 (parenteral) and 44 ± 15 (oral); females made up 33% in both groups. Racial breakdown for parenteral: 42% White, 51% Black or African American, 2% Asian; for oral: 1% White, 52 Black or African American, 2% Asian. Regionally, patients were from the Northeast (20%), Midwest (19%), South (40%), and West (21%).

First- and Second-generation Antipsychotics Outcomes: The analyses comparing parenteral to oral formulations did not demonstrate any difference between groups regarding return to the ED, with odds ratios (95% CI) of 1.042 (0.924, 1.174) and 1.180 (0.904, 1.539) for the FGAs and SGAs analyses, respectively. All other outcomes, including mortality and common side effects, were not significantly different between groups. Odds ratios for all outcome variables are displayed in the Figure.

Conclusion: In the acute ED setting, parenteral and oral formulations of FGAs and SGAs were associated with similar rates of return to the ED and comparable incidences of side effects in patients with schizophrenia presenting with combative behavior.

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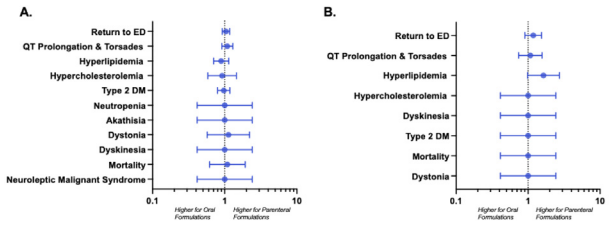


Figure 1. FGA and SGA analysis odds ratios. The figure includes the analysis groups compared against each other. Figure 1A compares FGA parenteral to oral formulations, and Figure 1B compares SGA parenteral to oral formulations. The figure depicts the outcome variables on the y-axis. Odds ratios and 95% CI on the x-axis. Outcomes with zero patients were incalculable and excluded from the figure. Outcomes analyzed include return to ED, mortality, neuroleptic malignant syndrome, dystonia, traditive dyskinesia, akathisia, neutropenia, Type II Diabetes Mellitus, hypercholesterolemia, Hyperlipidemia, QT prolongation, and Torsades de pointes within 10 days - 6 months after their initial ED visit.
Abbreviations: first-generation antipsychotic (FGA), second-generation antipsychotic (SGA).

No, authors do not have interests to disclose

13 Emergency Department Utilization Prior to Suicide

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Study Objectives: Suicide is a leading cause of preventable death in the United States, with an estimated 49,000 deaths and 1.6 million attempts in 2022. Many individuals experiencing suicidal ideation seek care in emergency departments (EDs), making them critical points of intervention. However, it is unknown how frequently those who die by suicide had prior ED encounters in the days and weeks preceding their death. This study aims to assess ED utilization within seven and 30 days of suicide.

Methods: This retrospective cohort study analyzed all suicides within an urban county from 2018 to 2022. The medical examiner provided demographic information, the mechanism of suicide, and the date and location of death. Researchers from the two large urban healthcare systems in the county identified ED encounters within seven and 30 days of suicide using electronic medical records. Data extracted included patient demographics, chief complaints, diagnoses, and disposition. Visits were assessed to determine if they were related to behavioral health or substance use disorder concerns.

Results: During the study period, 423 suicide deaths occurred. Of these, 60 patients (14%) had an ED encounter within seven days of death, and 16 (27%) of those encounters were the fatal suicide attempts. None of the ED visits in the seven-day window were related to behavioral health or substance use-related concerns. Additionally, 25 patients (6%) visited the ED visit within 30 days of suicide, with only seven involving behavioral health concerns - four leading to admission and three resulting in discharge.

Conclusion: ED visits for behavioral health or substance use disorder concerns were rare in the seven- and 30-days preceding suicide. These findings highlight the need for broader mental health interventions and expanded access to low-cost, low-barrier mental health resources that could help to identify and support at-risk individuals before a crisis occurs. Further research should explore alternative healthcare touchpoints outside of the ED to identify individuals at heightened risk for suicide.

No, authors do not have interests to disclose

14 Trends in U.S. Self-Harm Mortality, 1990–2021: Shifts in Method, Burden, and Demographic Disparities

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Study Objectives: Emergency physicians routinely manage patients at acute risk for self-harm, yet national trends by method and burden remain underexplored. We aim to analyze long-term changes in self-harm mortality and burden using updated Global Burden of Disease (GBD) data, focusing on the method (firearm vs non-firearm) and identifying disparities by state, sex, and age group. Our goal is to understand better how self-harm patterns have changed and what that means for emergency department (ED) care.

Methods: We conducted a retrospective trend analysis using GBD 2021 data from the Institute for Health Metrics and Evaluation. Age-standardized mortality rates (ASMRs), disability-adjusted life years (DALYs), and years of life lost (YLLs) were extracted for the U.S. from 1990 to 2021, stratified by self-harm method (firearm vs non-firearm), sex, age group, and state. Trends were visualized nationally and by state. Percentage changes over time were calculated, and all metrics were reported per 100,000 population with 95% uncertainty intervals (UIs).

Results: From 1990 to 2021, the national ASMR for self-harm increased by 10.4%, from 11.79 (11.61–11.96) to 13.02 (12.59–13.43). Over the same period, age-standardized DALYs and YLLs for self-harm each increased by 11%, reflecting a growing overall burden. This shift was driven by a 36.7% rise in non-firearm-related mortality (from 5.00 to 6.83), while firearm-related mortality declined by 8.8% (from 6.79 to 6.19). DALYs for non-firearm self-harm rose from 255.0 (249.5–260.4) to 355.1 (342.7–367.4), surpassing firearm-related DALYs, which declined from 318.9 to 283.7. YLLs showed nearly identical trends: a 40% increase in non-firearm YLLs (from 244.5 to 342.9) and an 11% decrease in firearm-related YLLs (from 318.7 to 283.6). In 2021, the highest self-harm burden was observed in Alaska, Montana, and New Mexico, each reporting over 22 deaths and more than 1,100 DALYs per 100,000 population. Age-specific mortality remained highest among adults aged 45–64 and those over 85, with increasing divergence between age groups over time. Sex-specific mortality remained consistently higher among males compared to females, with rates approximately four times greater across both time points, and the highest rates concentrated in the same high-burden western states. The overall national trend was driven largely by the persistently elevated burden in men.

Conclusion: The burden of self-harm in the U.S. has grown substantially over the past three decades, driven by a marked rise in non-firearm-related mortality, DALYs, and YLLs. By 2021, non-firearm self-harm accounted for a larger share of the overall burden, reflecting changing patterns in risk and lethality. These updated, method-specific estimates from the GBD study—stratified by age, sex, and state—highlight a growing disparity across demographic and geographic lines. Emergency departments may need to adapt triage, screening, and follow-up protocols to address the increasing complexity and distribution of self-harm presentations. Public health systems should align interventions to support high-burden populations, particularly older adults, males, and residents in disproportionately affected states.

No, authors do not have interests to disclose

15 Xylazine Exposure Among Emergency Department Patients With Opioid Overdose

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Study Objectives: We sought to determine the frequency of xylazine exposure using xylazine test strips and a liquid chromatography-mass spectrometry (LC-MS) assay among patients presenting to the emergency department (ED) with opioid overdose. We evaluated differences in clinical variables and disposition among opioid overdoses that involved xylazine versus those that did not.

Methods: ED patients with presumed opioid overdose were enrolled. Demographic and clinical information was collected, including initial vital signs, glucose levels, and disposition from the ED (ie, admitted, discharged). Urine samples were tested with xylazine test strips (sensitivity 500 ng/ml) and using LC-MS (sensitivity 0.1 ng/ml). Urine samples were also tested for the presence of other illicit substances. Fisher's exact test and t-tests were used to compare variables between the xylazine positive and xylazine negative groups.

Results: We enrolled 25 participants (mean age=45.4, 88% male, 56% Hispanic/Latino) with presumed opioid overdose. Among those who tested positive for opioids (n=23), 35% (8/23) were positive for urinary xylazine based on test strips, and 65% (15/23) had a xylazine level above 40 ng/ml (range 42.1 – 14,098.3 ng/ml). There were no significant differences in blood pressure, heart rate, and glucose levels between those with opioid overdose who were exposed to xylazine compared to those not exposed, as defined by quantitative testing. Among participants who were not exposed to xylazine, 62% (5/8) were admitted to the hospital vs 20% (3/15) of those exposed to xylazine, though this was not statistically significant (p=0.07). Among those with opioid overdoses, 96% (22/23) had urine samples positive for other substances, including 74% positive for cocaine (17/23), and 43% (10/23) positive for benzodiazepines.

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Conclusions: Quantitative xylazine testing identified many more cases of xylazine exposure among patients with opioid overdose as compared to xylazine test strips, suggesting that this is a more accurate way to test for xylazine exposure. Xylazine is commonly found in patients presenting with suspected opioid overdose and does not appear to alter hemodynamics beyond the effects of opioids. Most patients with opioid overdose had exposure to other substances as well.

No, authors do not have interests to disclose

16 National Trends and Clinical Characteristics of Emergency Department Visits for Suicide Attempts

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Study Objectives: A suicide attempt is defined as intentional self-harm with the intent to end one's life that does not result in death. This study aims to utilize a national database to examine patient demographics, emergency department (ED) visit characteristics, trends, and disposition among adults presenting to the ED for suicide attempts.

Methods: This retrospective study utilized data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) spanning from 2016 to 2022. Adult patients aged 18 years and older presenting to the ED with a reason-for-visit code indicating a suicide attempt (5820, 5820.0) were identified. We analyzed NHAMCS variables to assess patient demographics, including age, sex, race, insurance status, and ED visit characteristics, including mode of arrival, geography, payment method, resource utilization/diagnostic service use, presence of alcohol intoxication, Emergency Severity Index (ESI) score at triage, reported pain level, and disposition status (admission vs discharge). Out of an estimated 778,389,229 total ED visits from 2016 to 2022, 2,377,376 visits were attributed to patients presenting for reasons related to suicide attempts.

Results: Among these visits, the mean patient age was 37 ± 15 years; 56.1% were female, 8.0% identified as Hispanic, 17.4% as Black, and 71.0% as White. Fifty-five percent of patients arrived via Emergency Medical Services (EMS). The geographic distribution of visits was as follows: 14% in the Northeast, 25% in the Midwest, 33% in the South, and 28% in the West. Regarding housing status, 88% of patients resided in a private residence, while 4% were unhoused. Insurance coverage included 24.6% with private insurance, 10.6% with Medicare, 39.5% with Medicaid/CHIP or other state-based programs, and 7.8% were self-pay. In terms of behavioral health and comorbidities, 19% of patients had documented alcohol use, or dependence, 33% had substance use or dependence, and 63% had an established diagnosis of depression. At presentation, pain levels were reported as follows: 73.1% reported no pain, 7.5% reported mild to moderate pain (1–5), and 19.4% reported severe pain ($\geq$6) ($p < 0.04$). Triage acuity was reported as 3.6% ESI 1, 76% ESI 2, and 19% ESI 3. Regarding utilization of diagnostic services, such as CBC, CMP, toxicology screening, and blood alcohol concentration tests were ordered for 83%, 70%, 74%, and 42% of patients, respectively. X-ray was performed on 23% of patients, while 13% of patients received at least one CT scan, and 46% of patients received IV fluids. An average of 6 total diagnostic services were ordered or provided per patient, and an average of 2 medications were given in the ED. In terms of patient disposition, 72% were discharged from the ED and 28% were admitted to the hospital. 77% of patients boarded in the ED for more than 2 hours while awaiting inpatient bed availability.

Conclusion: This national analysis highlights the significant burden of suicide attempt-related ED visits. Patients were predominantly young adults, and females, with over half arriving via EMS. These findings underscore the importance of early identification, triage accuracy, and follow-up planning for this high-risk population in the ED setting.

No, authors do not have interests to disclose

17 Association of Purpose in Life Scores and Emergency Department Visits for Diabetic Patients

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Study Objectives: Previously, investigators have observed an association between depression and frequency of diabetic related presentations to the emergency department (ED). The Purpose in Life Test (PIL) is a validated survey that measures how much meaning and purpose a person feels in their life. Patients with higher PIL scores tend to have lower levels of anxiety, depression, and greater resilience after exposure to negative events. We sought to evaluate the relationship between PIL scores and the frequency of ED visits for patients with diabetes.

Methods: We prospectively enrolled a convenience sample of a cohort of adult, stable, oriented, diabetic ED patients at an urban, teaching hospital. They provided written answers to demographic questions and the 20-question PIL. The PIL questions are based on a 5-point Likert scale with higher answers reflecting higher sense of purpose. Scores above 113 indicate high purpose, 92-112 indicate medium purpose, and below 92 indicate low purpose. Subsequently, study authors conducted a structured EMR review to identify the number of ED visits by each patient over the prior 24-month period. The dependent variable was the number of ER visits. A negative binomial model was used, as the variable was a non-negative integer and skewed. In addition to bivariate analyses, a multivariate analysis was performed to control for the confounding of sociodemographics.

Results: 102 patients were in the study group; 48% female, 34% age >65, 63% Hispanic, 70% household income < $30,000, 52% high school or lower education, 36% disabled, 19% unemployed, and mean PIL 76+/-16. Within bivariate analysis, higher PIL scores (p=0.01), income range $30,000-$50,000 (p=0.02), income > $50,000 (p=0.03), and disability (p=0.001), respectively, were associated with fewer ED visits. Age, gender, race, and education were not associated with the number of ED visits. Within multivariate analysis, PIL (p=0.01) and disability (p=0.01) remained significantly associated with fewer ED visits.

Conclusion: Within our diabetic cohort, patients with higher PIL scores had less frequent ED visits within the past 24-months. Within the context of growing annual ED visits by diabetics in the U.S., further research is warranted to examine mental health factors that are associated with utilization and interventions that might reduce such visits.

No, authors do not have interests to disclose

18 Large Language Models for Extracting Out-of-Hospital Cardiac Arrest Variables from Clinical Data

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Study Objectives: Out-of-hospital cardiac arrest (OHCA) affects over 400,000 individuals annually in the U.S., with survival rates consistently below 10%. OHCA research traditionally relies on registry datasets, which provide critical pre-hospital variables but present significant limitations, including high costs, labor-intensive data collection, geographic constraints, and limited linkages to hospital variables and long-term outcomes. Large language models (LLMs) offer a potential solution by automating clinical data extraction from unstructured electronic health records; however, their accuracy and reliability in extracting OHCA-related variables remain largely untested. This study sought to test the accuracy and limitations of high-parameter LLMs compared to manual abstraction for automated clinical data extraction from identified OHCA patient cohorts.

Methods: We retrospectively identified a cohort of 3,498 potential OHCA cases from Mount Sinai Health System (2015–2022) using ICD-10 coding and SQL-based queries of electronic health records. From this cohort, 180 patient charts were randomly selected for validation. Three trained abstractors and one emergency physician manually abstracted demographic data, pre-hospital resuscitation and standardized OHCA Utstein variables, hospital interventions, and patient outcomes from unstructured EMS reports, emergency department documentation, and inpatient records. Inter-rater reliability was independently verified using Cohen's Kappa statistic and percent agreement calculated from a randomly selected 25% subsample. Subsequently, two high-parameter LLMs (LLAMA-70B, GPT-4o) were evaluated using a zero-shot prompting approach on the same set of unstructured clinical records. Model outputs were compared to manually abstracted data (gold standard) to assess extraction accuracy at the variable level.

Results: Of the 180 manually abstracted charts, 169 had complete data suitable for analysis. Human abstractors demonstrated high inter-rater reliability (88.4% overall agreement; Cohen's Kappa=0.69). Across 33 analyzed variables, core OHCA variables

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were extracted consistently by LLMs (LLAMA-70B: 75.2%, GPT-4o: 73.7%), with high accuracy observed specifically for witnessed arrest status (78.8–79.4%), arrest location (75.6–81.3%), and initial cardiac rhythm (65.2–70.5%). Procedural documentation, including airway management (77.4–78.2%) and defibrillation attempts (76.3–88.3%), also showed strong model performance. Conversely, temporal variables posed significant extraction challenges, with both models achieving accuracy below 41%.

Conclusion: LLMs demonstrated promising accuracy for extracting core OHCA variables from clinical documentation, comparable to manual abstraction for reliably documented metrics. Significant challenges remain, particularly in accurately capturing temporal data. Future studies should explore advanced LLM architectures and retrieval-augmented generation (RAG) techniques combined with domain-specific fine-tuning. These findings support the potential usage of LLMs into OHCA research, particularly for the purposes of extraction of standardized clinical variables.

No, authors do not have interests to disclose

19 Outcomes From an Emergency Department Discharge Pathway Utilizing Ambulatory Cardiac Monitoring

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Study Objectives: Patients presenting to the emergency department (ED) with palpitations or syncope are often discharged without a definitive diagnosis. To improve diagnostic yield, our institution implemented an ED discharge pathway incorporating ZioPatch®, a 14-day single-lead continuous cardiac monitor, along with cardiology referral. Previously, we reported a major arrhythmia detection rate of 31.6%. This study evaluates ZioPatch return rates, arrhythmia detection, outpatient follow-up, and subsequent medical interventions.

Methods: We retrospectively analyzed all patients discharged via the ZioPatch pathway from our large academic ED between November 2021 and March 2024. Eligible patients were ≥18 years old, presented with palpitations or syncope, and were deemed low to moderate risk based on a reassuring ED workup, a Canadian Syncope Score ≤2 (for syncope), and provider judgment. Demographics, ED evaluation, ZioPatch reports, and follow-up data were collected. Descriptive statistics, Pearson chi-square/Fisher's exact tests, and Student's/Welch's t-tests were performed. A composite outcome, "medical intervention," included new medications, cardiac imaging, catheterization, and surgical procedures.

Results: A total of 730 patients were included (mean age 38.4 years, 37.7% male). ZioPatch return rate was 79.6%, with 29.0% demonstrating an arrhythmia. Of the 420 patients (57.5%) who followed up with an outpatient provider regarding their ZioPatch results, 21.5% underwent medical intervention, including echocardiography (n=110), cardiac MRI (n=10), new medication prescriptions (n=77), cardiac catheterization (n=8), and surgical interventions (n=8). Specific surgical procedures included ablation (n=5), patent foramen ovale (PFO) closure (n=1), pacemaker placement (n=1), implantable cardioverter-defibrillator (ICD) placement (n=1), and right heart catheterization (n=1). Additionally, 1 patient received an internal loop recorder, and 27 were referred to electrophysiology. Medical intervention was significantly associated with palpitations versus syncope ($p=0.015$) and arrhythmia detection ($p<0.01$).

Conclusions: An ED discharge pathway incorporating ZioPatch monitoring and cardiology follow-up led to a high return rate, significant arrhythmia detection, and medical interventions, including new medications and procedures. Patients presenting with palpitations were more likely to require intervention than those with syncope, reinforcing the importance of targeted outpatient management. Further research should be done to evaluate the long-term impact of arrhythmia detection, intervention, and ER utilization in this population.

No, authors do not have interests to disclose

20 Can the HEART Score Differentiate Type 1 From Type 2 Myocardial Infarction in a Multisite U.S. Cohort

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Study Objectives: Distinguishing type 1 from type 2 myocardial infarction (MI) in emergency department (ED) patients with non-ST-elevation myocardial infarction (NSTEMI) is challenging but is key for driving appropriate treatment. This study aims to determine if the HEART (History, Electrocardiogram, Age, Risk factor, and Troponin) score can aid ED clinicians in differentiating MI type.

Methods: We conducted a secondary analysis of the STOP-CP prospective multisite U.S. cohort. Adults with possible acute coronary syndrome without evidence of STEMI were enrolled from eight U.S. emergency departments (1/2017-9/2018). All patients had at least one high-sensitivity cardiac troponin T (hs-cTnT; Roche, Basel, Switzerland) measure and a HEART score determined by the treating clinician. Three expert adjudicators used the Fourth Universal Definition of MI to determine the occurrence of MI and its type. The rule-in rate, sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV), and negative and positive likelihood ratios (-LR and +LR) for type 1 MI with associated 95% confidence intervals (95% CI) were assessed at each HEART score cut-point, including at the traditional high-risk cut-point of ≥7. An optimal HEART score cut-point was also determined for identifying type 1 MI, which was defined as the cut-point with the highest PPV.

Results: Among the 118 STOP-CP patients with an adjudicated diagnosis of index MI, 30.5% (36/118) were female, 60.2% (71/118) were White, and the mean age was 61.4 ± 11.6 years. Among patients with an MI, 55.9% (66/118) were type1 and 44.1% (52/118) were type 2. The traditional high-risk HEART score cut-point of ≥7 ruled-in type 1 MI in 38.1% (45/118) patients, yielding a PPV and +LR for index type 1 MI of 64.4% (95%CI: 48.8-78.1%) and 1.43 (95%CI: 0.88-2.33), respectively. The optimal HEART score cut-point was ≥8, which ruled-in 18.6% (22/118) for type 1 MI and had a PPV of 72.7% (95%CI: 49.8%-89.3%) and +LR of 2.10 (95%CI: 0.89-4.99). The **Table** describes full test characteristics for a range of HEART score cut-points.

Conclusion: Among ED patients with NSTEMI, a HEART score ≥8 ruled-in type 1 MI with moderate PPV. This suggests that clinicians may be able to use a high HEART score to help differentiate MI type.

Table 1. HEART score performance for Type 1 MI

HEART Score	Type 1 Rule-in Rate (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	-LR (95% CI)	+LR (95% CI)
≥ 4	0.924 (0.86,0.965)	0.909 (0.813,0.966)	0.058 (0.012,0.159)	0.550 (0.452,0.646)	0.333 (0.075,0.701)	1.576 (0.414,6.002)	0.965 (0.871,1.068)
≥ 5	0.839 (0.760,0.900)	0.833 (0.721,0.914)	0.154 (0.069,0.281)	0.556 (0.452,0.655)	0.421 (0.203,0.665)	1.083 (0.470,2.497)	0.985 (0.841,1.154)
≥ 6	0.729 (0.639,0.807)	0.727 (0.604,0.830)	0.269 (0.156,0.410)	0.558 (0.447,0.665)	0.438 (0.264,0.623)	1.013 (0.558,1.839)	0.995 (0.798,1.242)
≥ 7	0.381 (0.294,0.475)	0.439 (0.317,0.567)	0.692 (0.549,0.813)	0.644 (0.488,0.781)	0.493 (0.374,0.613)	0.810 (0.612,1.072)	1.428 (0.875,2.332)
≥ 8	0.186 (0.121,0.269)	0.242 (0.145,0.364)	0.885 (0.766,0.956)	0.727 (0.498,0.893)	0.479 (0.376,0.584)	0.856 (0.724,1.013)	2.101 (0.885,4.990)
≥ 9	0.051 (0.019,0.107)	0.045 (0.009,0.127)	0.942 (0.841,0.988)	0.500 (0.118,0.882)	0.438 (0.344,0.534)	1.013 (0.930,1.103)	0.788 (0.166,3.744)

HEART – History, Electrocardiogram, Age, Risk factor, Troponin; PPV – positive predictive value; NPV – negative predictive value; LR – likelihood ratio

Yes, authors have interests to disclose

Disclosure: Roche Diagnostics

Nicklaus Ashburn, Brandon Allen, Anna Snavely, Simon Mahler, R. Gentry Wilkerson, Bryn Mumma, Robert Christenson

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21 Emergency Department Admissions and Health Care Costs Among Patients With Supraventricular Tachycardia

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Study Objectives: Supraventricular Tachycardia (SVT) is a broad term for tachyarrhythmias that originate above the ventricular electrical conduction system. We aim to analyze patient characteristics and associated healthcare cost for emergency department (ED) visits due to SVT.

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Methods: We performed a retrospective study utilizing the Healthcare Cost and Utilization Project's (HCUP) National Emergency Department Sample (NEDS) database in the U.S. from 2016 to 2021. Emergency department visits among adult patients who have ICD-10 billing codes related to SVT in the US were analyzed. Patient demographics, including age, sex, race, household income, and hospital settings, were analyzed. Descriptive analyses and time series with linear trend analyses were utilized to assess patient characteristics, trend of annual costs of care.

Results: Our study population comprised of 1,721,858 patients who presented to the ED with SVT. The mean age was 63 (±18), and 42% were male. Of those patients, 55% lived in areas where median household income was in the 50th percentile or less for that year. The insurance status of the patients showed that approximately 12% had Medicaid, 28% had private insurance, 5% were uninsured and most individuals (54%) were with another insurance, including Medicare. About 43% of patients were discharged from the ED, in comparison to about 53% that were admitted to inpatient. 3.5% were either transferred or left against medical advice. The average cost for an SVT patient's ED services was $3,923, with that number increasing to $63,790 if the patient was admitted. Linear time series analyses showed that total number of patients with SVT increased over years. While both number of patients with SVT in the 0-25th income quartile and total costs increased, the total costs of care increased at a much steeper slope than trend of number of patients in the lowest income quartile.

Conclusion: Our findings highlight the significant socioeconomic burden associated with the care of patients with SVT. There are important public health implications, as the number of low-income patients and the total cost of care continue to rise—outpacing the costs incurred within the emergency department. Further research and targeted interventions are needed to improve access to care, address disparities, and reduce the financial strain on both patients and the healthcare system.

No, authors do not have interests to disclose

22 Sex Differences in Acute Chest Pain Care in a Multisite U.S. Cohort

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Study Objectives: Sex-based differences are well known in cardiovascular care delivery. However, multisite studies examining differences in emergency department (ED) cardiovascular testing and outcomes based on sex are limited. The objective of this analysis is to compare cardiovascular testing and safety outcomes in women vs men in a large multisite U.S. cohort of patients with acute chest pain.

Methods: We conducted a multisite observational study using registry data from a large health system in the southeastern U.S., including patients ≥18 years old who presented with acute chest pain. Patients were accrued from January 1 to December 31, 2021 across 25 EDs utilizing high sensitivity cardiac troponin. Sex was determined by patient self-report. Cardiovascular testing outcomes included index visit objective cardiac testing (OCT: stress testing, coronary computed tomography angiography, invasive coronary angiography) and hospitalizations. The primary safety outcome was index all-cause death or myocardial infarction (MI). Outcomes were compared between sexes using chi-squared tests. Multivariable logistic regression models were used to assess the association between sex and outcomes adjusting for race, ethnicity, age, obesity, smoking, rurality, prior coronary artery disease, diabetes, hypertension, hyperlipidemia, insurance status, ED site, and initial troponin.

Results: Among 40,979 patients, 56.6% (23,188/40,979) were female. Among women OCT occurred in 12.8% (2,957/23,188) compared to 17.2% (3,055/17,791) in men ($p < 0.001$). Hospitalizations were lower in women compared to men, occurring in 27.2% (6,315/23,188) vs 33.0% (5,879/17,791) respectively ($p < 0.001$). In women index death or MI occurred in 2.0% (468/23,188) compared to 4.4% (786/17,791) in men ($p < 0.001$). After adjusting for potential confounders, female sex remained associated with lower rates of index death or MI (aOR 0.76, 95%CI 0.66-0.88). However, differences in hospitalization (aOR 0.97, 95% CI: 0.91-1.02) and OCT (aOR 0.94, 95%CI 0.88-1.01) were no longer significantly different between women and men after adjustment.

Conclusion: In patients with acute chest pain, women were less likely to have OCT, be hospitalized, or have index death or MI. However, when adjusting for confounders, women still had lower rates of death or MI but similar rates of hospitalization and OCT.

No, authors do not have interests to disclose

23 Treatment Complications of Emergency Department Patients With DVT/PE Discharged Home With Direct Oral Anticoagulants

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Study Objectives: Recent pharmaceutical advances have made it possible for emergency department (ED) patients diagnosed with deep vein thrombosis (DVT) or pulmonary embolism (PE) to be discharged home with direct oral anticoagulants (DOACs). Our primary objective is to measure the treatment failure rate of ED patients diagnosed with the venous thromboembolisms (VTEs) and discharged home on DOAC therapy. Secondarily, we want to measure the frequency of any type of bleeding complications following treatment with DOACs.

Methods: We performed a deidentified retrospective study of an electronic medical record database from a national healthcare organization. We included all adult ED patients from a 3-state division from January 1, 2021 – December 31, 2023. Patients had to be discharged home with a diagnosis of deep vein thrombosis (DVT) or pulmonary embolism (PE) and prescribed a DOAC (rivaroxaban [RB] or apixaban [AB]). Pregnant women and those >90 years old were excluded. From this cohort we screened for any return ED visits in the next 30 days, and from these visits we collected their demographical information, comorbidities, diagnosis codes, and final status. Diagnosis codes of interest included those for VTEs and bleeding complications (intracranial hemorrhages, gastrointestinal bleeding, epistaxis, retroperitoneal hemorrhage, or genitourinary bleeding). Our main outcome was to estimate treatment failure rates (how often those discharged on a DOAC returned and were admitted for treatment of VTE), secondary outcome was to estimate the rate of bleeding complications for RB and AB. Mann-Whitney U-test was used to compare groups and their characteristics. Logistic regression modeling was used to determine if any factors were associated with an increased likelihood of being admitted on a subsequent visit.

Results: 5,034 encounters met our initial criteria. After exclusions, duplicates, and missing data, we analyzed 4,570 unique ED patients diagnosed with VTE and discharged home on a DOAC. 55.5% were treated with AB and 44.5% with RB. 1,279 (28.0%) patients had return ED visits and were admitted to the hospital within the subsequent 30 days, of which 498 (10.9%) patients were admitted for treatment of VTE. Only 63 (1.4%) of patients were readmitted for a bleeding complication, and 36 (0.8%) died during their subsequent admission. Logistic regression analysis showed the odds of any cause 30-day readmission was independently increased by patient age ($p < 0.001$), Elixhauser comorbidity index ($p=0.003$), male gender ($p=0.007$), and non-white race ($p=0.019$). Discharge DOAC choice had no effect. However, logistic regression analysis showing the odds of treatment failure (admission for treatment of VTE) was only independently increased by patient age ($p < 0.001$) and AB vs RB (OR 1.28, 95% CI 1.05-1.54, $p=0.013$).

Conclusions: This project provides some evidence for ED providers discharging VTE patients on DOACs. We found that outpatient treatment failed in 10.9% of our patients and AB was more likely to fail than RB. Bleeding complication and mortality rates were low but not negligible, 1.4% and 0.8% respectfully. ED providers should be aware of these findings when considering discharging VTE patients on DOACs.

No, authors do not have interests to disclose

24 Computed Tomography Perfusion Patterns and Neurological Recovery in Post-Cardiac-Arrest Brain Injury

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Study Objectives: Computed tomography perfusion (CTP) has a growing role in the prognostication of mortality or comatose status of cardiac arrest victims. This study aimed to investigate 1) the patterns of cerebral perfusion changes while post-cardiac

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arrest brain injury (PCABI), and 2) their correlation with clinical outcome to explore their value for predicting outcome.

Methods: The retrospective cohort study enrolled 61 non-traumatic adult cardiac arrest survivors who underwent CTP within 6 hours after rewarming following targeted temperature management (TTM) during the period from January 2020 to July 2024. The patterns of perfusion abnormalities on cerebral blood flow (CBF), cerebral blood volume (CBV), and mean transit time (MTT) maps were analyzed and were classified into 10 distinct patterns based on perfusion status (hyperperfusion, hypoperfusion, perfusion delay) and perfusion area (diffuse, regional, asymmetric), as well as 8 specific locations (supratentorial cortical grey matter, combined supra- and infratentorial region, basal ganglia, isolated globus pallidus, thalamus, brainstem, cerebellum, and white matter). The degree of hypoperfusion was classified using the red-yellow-green-blue (RYGB) color scheme on a 4-point scale: red (3), yellow (2), green (1), and blue (0). The global perfusion score is determined by summing hypoperfusion extent and severity across eight regions, reflecting the total perfusion deficit. Further comparisons were made between patients who survived to hospital discharge and those who did not, as well as between patients with good neurological outcomes (Cerebral Performance Category [CPC] 1–2) and those with poor neurological outcomes (CPC 3–5), respectively.

Results: In our cohort of 61 patients, 11 (18%) had favorable neurological outcomes, while 50 (82%) had unfavorable outcomes. Hypoperfusion was observed in both cortical and subcortical regions. The median global perfusion score was significantly lower in the unfavorable outcome group as compared to the favorable outcome group (8 vs 15, $p < 0.001$). Compared to patients with favorable outcome, the patients with unfavorable outcome suffered from more hypoperfusion in subcortical regions, including the basal ganglia, globus pallidus, brainstem, and thalamus ($p < 0.001$). The unfavorable outcome group had a significant reduced gradient of cerebral blood volume between gray and white matter ($p < 0.001$) as well as diffuse perfusion delay ($p=0.004$).

Conclusion: Patients with unfavorable neurological outcomes exhibited significantly lower global perfusion scores and greater susceptibility to hypoperfusion. Severe neurological disability suffered from subcortical hypoperfusion, especially in the basal ganglia, globus pallidus, brainstem, and thalamus. Moreover, the distinct pattern with unfavorable outcomes were characterized by a reduced gradient of cerebral blood volume between gray and white matter and diffuse perfusion delay.

No, authors do not have interests to disclose

25 Impact of Emergency Department Pharmacists on Post-Intubation Sedation and Analgesia

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Study Objectives: Post-intubation sedation and analgesia is important to keep ventilated patients comfortable, alleviate pain, and minimize the risk of harms, such as self-extubation. We sought to better understand how emergency department (ED) pharmacists impact post-intubation sedation and analgesia. Primary outcomes were the time to sedation and analgesia initiation. Secondary outcomes included the proportion of patients receiving sedation or analgesia and cumulative propofol and intravenous (IV) morphine milligram equivalents (MMEs) at one hour post-intubation.

Methods: We conducted a prospective, observational study of patients intubated at a high-volume, academic ED and trauma center staffed by an ED pharmacist daily from 9am-9pm. Patients were included if they were intubated in the ED Monday through Friday 8am-12am for 6 weeks in the summer of 2023 and 7 weeks in the summer of 2024. Research assistants trained and blinded to the hypothesis collected basic demographics and intubation details, including the time and dose of peri- and post-intubation medications, in a structured REDCap database. The presence of an ED pharmacist was documented prospectively. Post-intubation sedative and analgesic doses were captured every five minutes for two hours following intubation or until the patient left the ED, whichever came first. All clinical decisions were made by the treating attending physician. Opioid dosing was converted to morphine milligram equivalents (MMEs). Summary statistics included percentage for categorical variables and median [IQR] for continuous variables. Groups were compared using Pearson's chi-squared test with Yates' continuity correction and Welch two sample t-test.

Results: Eighty intubations were performed over the study period. An ED pharmacist was present at 63% of these intubations. The median age of patients was 62.5 [41.5, 70.3] years. 57% of patients were male and 78% were Black. 26% of intubations occurred in the trauma bay. Patients could have been intubated for multiple reasons, including, most commonly, 63% for airway protection, 30% for acute respiratory failure, and 15% for shock. Patients were most commonly induced with etomidate (56%) or ketamine (24%). 54% of patients were paralyzed with succinylcholine and 30% with rocuronium. 10% of patients died in the ED. There were no differences in characteristics between the ED pharmacist and no ED pharmacist groups. The majority of patients received post-intubation sedation with propofol, including 70% of patients with an ED pharmacist present and 77% of patients without an ED pharmacist present ($p=0.70$). The time to sedation initiation was the same between patients with (10.0 [5.0, 11.3] min) and without (10.0 [5.0, 27.5] min) an ED pharmacist present ($p=0.31$). There were no statistical differences between groups in the cumulative propofol infusion dose at one hour post-intubation (ED pharmacist present: 900 [0, 1781] mg/kg/h; ED pharmacist absent: 538 [13, 1775] mg/kg/h; $p=0.56$). 78% of patients with an ED pharmacist present and 60% of patients without an ED pharmacist received an opioid following intubation ($p=0.142$). In patients who received an opioid, ED pharmacists were associated with quicker opioid initiation (ED pharmacist present: 10.0 [7.5, 20.0] min; ED pharmacist absent: 25.0 [16.3, 35.0] min; $p=0.036$). The cumulative IV MME at one hour post-intubation was greater in patients with an ED pharmacist present (10 [3, 20] mg) compared to those without an ED pharmacist (5 [0,10] mg) ($p=0.002$).

Conclusion: At a high-volume, academic ED, ED pharmacists were associated with quicker opioid initiation and more MMEs at one hour post-intubation. ED pharmacists were not associated with a difference in time to sedation initiation, the proportion of patients receiving post-intubation sedation or analgesia, or the cumulative propofol infusion dose one hour post-intubation.

No, authors do not have interests to disclose

26 The Association Between Hypoxia During Rapid Sequence Intubation With 30-Day Neurological Outcomes

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Study Objectives: Rapid Sequence Intubation (RSI) is the cornerstone of emergency airway management. When executed properly, it improves first-pass success and reduces complications rate. Nonetheless, this procedure is not without risks. In fact, emergency intubation is associated with an oxygen desaturation rate of 10%-30%. The role of secondary brain insults including hypoxia and hypotension, in traumatic brain injury (TBI) is well established. However, the significance and clinical sequalae of hypoxia emergency intubation in non-trauma patients is not known. The aim of this study is to evaluate short-term neurological function after intubating patients with hypoxia vs no hypoxia during RSI in the emergency department (ED).

Methods: This was a prospective observational study at a single academic institution. The analysis included 122 patients with a pre-intubation modified-Rankin scale (mRs) of 1-3 undergoing rapid sequence intubation in the ED. The primary outcome was the modified Rankin-scale (mRs) at 30-days from intubation. The secondary outcome was the association between duration of hypoxia with poor neurological outcome at 30-days.

Results: During ED RSI, hypoxia ($SpO2 < 90\%$) was seen in 37 (31%) patients. While severe hypoxia ($SpO2 < 80\%$) was seen in 12 (10%) patients. Poor neurologic function (mRs 4-5) was statistically similar between the hypoxia and no hypoxia groups at 30-days (6.1% vs 5.8%; $P= 0.13$). Moreover, both groups remained statistically similar after adjusting for potential confounding factors in a logistic regression model ($p= 0. 17$; OR95%CI [0.09 – 3.04]). However, after adjusting for confounding factors, hypoxia lasting more than 3-minutes was found to be a predictor of poor neurological outcome (HR; 6.58, 95% CI [3.45-12.52]).

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Conclusion: In this sample, a statistical difference could not be found in poor neurological outcomes rates for patients undergoing RSI between the hypoxic group and the non-hypoxic group. However, hypoxia lasting more than 3-minutes may predict worse neurological outcomes.

No, authors do not have interests to disclose

27 Transesophageal Echocardiography-Guidance of Endovascular Procedures: A Resuscitative TEE Collaborative Registry (rTEECoRe) Study

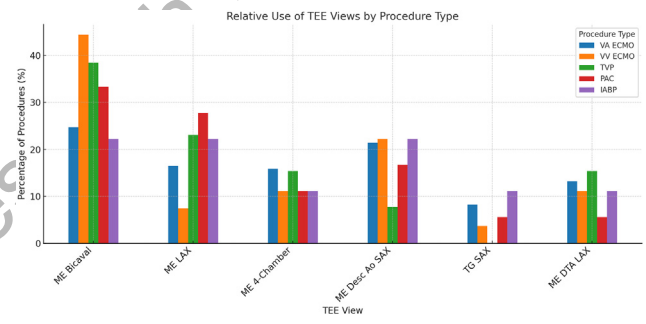
Burns K, Stancati J, Landau A, Panchamia R, Kaviyarasu A, Sands N, Abella B, Teran F, Owyang C/Weill Cornell Medicine, New York, New York

Study Objectives: Focused transesophageal echocardiography (TEE) has emerged as a valuable imaging modality for the guidance of life-saving endovascular procedures in emergency and critical care patients. While prior single-center studies have reported its use for individual procedures, there is a lack of real-world evidence describing the distribution of these applications, image acquisition patterns, and utility of TEE in the guidance of endovascular interventions. This study aimed to characterize resuscitative TEE's procedural characteristics and specific utilization patterns for guiding emergent endovascular procedures in critically ill patients in the emergency department (ED) and intensive care unit (ICU).

Methods: Planned analysis of a prospective, multicenter, observational registry involving critically ill patients undergoing emergent TEE-guided endovascular procedures, conducted through the Resuscitative Transesophageal Echocardiography Collaborative Registry (rTEECoRe), an international research network of 43 institutions (NCT04972526). All cases where procedural guidance was the primary indication for TEE were included. Outcomes included the frequency and types of procedures performed under TEE guidance and TEE views utilized. A quantitative thematic analysis of the free-text procedural descriptions was conducted to identify the primary procedural applications and how TEE was used for real-time guidance and clinical decisionmaking.

Results: A total of 134 TEE-guided procedural cases were performed between January 2021 and February 2025. The most frequently guided procedures were extracorporeal membrane oxygenation (ECMO) cannulation—VA ECMO in 63% (84/134) and VV ECMO in 12% (16/134)—followed by other procedures including Impella repositioning (2%), IABP placement or adjustment (5%), and TVP or PAC catheter placement (combined total 7%). TEE was used to guide guidewire placement, cannula advancement, assess device position, and evaluate functional impact (eg, AV opening, flow optimization, resolution of chatter). Across all procedures, the most commonly acquired TEE views were the mid-esophageal bicaval (80%), descending aortic short axis (63%), mid-esophageal long axis (37%), and mid-esophageal 4-chamber (38%) (**Figure**). Procedural descriptions demonstrated the value of TEE in confirming anatomical landmarks, ensuring safe guidewire and catheter advancement, optimizing cannula orientation, and avoiding malposition in both VA and VV ECMO.

Conclusion: Resuscitative TEE is a versatile imaging tool that provides real-time procedural guidance during emergent endovascular interventions in critically ill patients. In this multicenter registry, TEE was most frequently used to guide ECMO cannulation but also supported a range of other emergency interventions. These findings support the expanding role of TEE beyond diagnostic assessment into procedural applications within the ED and ICU.



Yes, authors have interests to disclose

Disclosure: Owner ResusMedx LLC, and has received consulting honoraria from Fujifilm Sonosite and Philips Ultrasound

Felipe Teran

Owner

ResusMedx LLC, and has received consulting honoraria from Fujifilm Sonosite and Philips Ultrasound

Disclosure: Ownership of VOC Health, MDAlly

Benjamin Abella

Owner

Ownership of VOC Health, MDAlly

28 WITHDRAWN

29 Predictors of Mortality in Vasopressor and Non-Vasopressor Dependent Sepsis Patients in the Emergency Department

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Study Objective: Sepsis is a high morbidity and mortality disease seen in emergency departments (EDs) throughout the country. The most severe form of sepsis is vasopressor-dependent sepsis, characterized by vasodilatory shock and organ malperfusion. Sepsis can present in many subtypes and mortality is influenced by a variety of factors including pathogen, host response, disease severity, genomics and epigenomics. Identifying variables that contribute to sepsis mortality would help define high-risk disease subgroups and targetable disease endotypes. Here, we aim to identify potential contributors to vasopressor-dependent and non-vasopressor dependent sepsis mortality such as BMI, age, co-morbidities, diagnostic and clinical variables.

Methods: A retrospective case-control model was utilized. Patient charts from all ED visits between 2019-2022 to a quaternary care center were queried from the electronic health record (Epic, Verona, WI) using ICD-10 codes of severe sepsis or septic shock, but not sepsis alone. Patients with trauma were excluded from the study. Charts were manually reviewed and separated into non-vasopressor-dependent (n=1,149) or vasopressor dependent sepsis (n=419). We analyzed these subgroups separately given known differences in disease severity and to avoid artificially confounding the impact of lactate as a predictor of mortality. Missing continuous data was imputed using multiple imputation by chained equations. We computed descriptive statistics for each subgroup, stratifying by the primary outcome variable (30-day mortality), and used Least Absolute Shrinkage and Selection Operator (LASSO) regression to identify variables with the strongest association with 30 day mortality, defined as death during the index visit within 30 days of ED arrival, while reducing the number of less informative variables in the final model. We fit the selected variables to logistic regression models with 30-day mortality as the outcome and reported odds ratios (OR) with 95% confidence intervals (95%CI).

Results: Vasopressor-dependent sepsis patients had higher 30-day mortality (22%) than non-vasopressor dependent sepsis (11%). Factors significantly associated with 30-day mortality in the non-vasopressor dependent group included age (OR = 1.04; 95%CI 1.02 – 1.06), NEWS (OR = 1.11 (1.03 – 1.20), initial lactate (OR = 1.15; 95%CI 1.27), COVID-19 infection (OR = 2.70; 95%CI 1.33 – 5.22) and elevated creatinine (OR = 1.20; 95%CI 1.09 – 1.32). For vasopressor-dependent sepsis, only initial lactate was significantly associated with 30-day mortality (OR = 1.17; 95%CI 1.09 – 1.27). For both vasopressor and non-vasopressor dependent sepsis, co-morbidities and obesity were not statistically significant predictors.

Conclusion: This study identified multiple predictors of mortality in vasopressor and non-vasopressor dependent sepsis. For both vasopressor and non-vasopressor dependent sepsis, elevated lactate was the only predictor for both vasopressor-dependent and non-dependent sepsis, indicating the prognostic utility of lactate across the spectrum of disease. Elevated age was a predictor of mortality in the non-vasopressor dependent group, suggesting that older patients with sepsis

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may have differences in pathophysiologic mechanisms such as immunosuppression. COVID-19 was also associated with mortality and is an important factor to consider in data sets obtained after 2020. Since lactate was the only predictor of mortality in vasopressor-dependent disease, this suggests vasopressor-dependence itself is likely a significant predictor of death in severe disease states. Outside of tailoring individualized care according to sepsis endotypes, use of these predictors may help healthcare teams in facilitating earlier awareness, detection, and timely interventions that limit disease progression or death. A major limitation of this study is that it is a single center study primarily only includes sepsis patients with organ dysfunction based on EMR search criteria and may not be generalizable to milder disease.

No, authors do not have interests to disclose

30 Differences of Adipokines in Older Emergency Department Patients With Sarcopenic Obesity and Sarcopenia

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Introduction: Sarcopenic obesity (SO), characterized by concurrent muscle loss and increased adiposity, poses significant health risks in older populations. However, the differences of adipokines between SO and sarcopenia older patients remained poorly understood.

Methods: This prospective study enrolled 326 patients aged ≥65 years who were categorized into healthy controls (n=62), obesity (n=92), sarcopenia (n=53), and SO (n=119) groups. Comprehensive assessments included body composition analysis, functional status evaluation, and hormone profiling.

Results: SO showed a high prevalence (36.5%) in the ED setting. Age, body weight index, activities of daily living, instrumental activities of daily living, body composition, status of malnutrition, frailty and low physical activity had significant in four groups analysis ($p < 0.001$). But these above significant variables could not differentiate SO from sarcopenia patients. In hormones analysis, SO group had significant lower adiponectin and higher C-peptide levels than in sarcopenic group.

Conclusions: SO is highly prevalent among older ED patients and associated with poor functional status and distinct metabolic profiles. These findings of adiponectin and C-peptide might help to screen and early differentiate SO patients from sarcopenia patients in emergency care settings.

Yes, authors have interests to disclose

31 Derivation of Prediction Model for Delayed Neutropenic Fever in Emergency Department Patients

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Study Objectives: To derive models for delayed neutropenic fever (NF) in adult patients attending an emergency department (ED) with suspected neutropenic fever (sNF).

Methods: Ethical approval (HKU/HA HKW IRB Number UW21-409) was obtained to conduct a single-centre, retrospective cohort study. We included consecutive adult patients attending the ED at Queen Mary Hospital (QMH) with sNF from January 1, 2020 to December 31, 2020. sNF was defined as 1) a body temperature ≥38.3°C at ED triage or within 24 hours before ED registration, and 2) either chemotherapy for a solid tumor within 6 weeks, or a history of haematopoietic stem cell transplantation. Confirmed NF (cNF) was defined as sNF patients with an absolute neutrophil count (ANC) $<1.0\times10^9$/L. The primary outcome was delayed (48 hour post-ED registration) NF. Multivariate logistic regression with backward removal of insignificant variables was used to derive two models.

Results: Of 601 adult sNF patients, 142 (23.6%) had cNF in the ED and were excluded. Of the remaining 459 patients (52.5% female; median age 62 years [IQR 53–72]), 19 (4.1%) developed NF in the subsequent 48 hours (four patients with ANC $<0.5\times10^9$/L and 15 patients with ANC ≥0.5 to $<1.0\times10^9$/L). Of 459 patients, 319 (69.5%) had solid organ tumor, and 140 (30.5%) had haematologic malignancies. All patients were prescribed ultrabroad-spectrum antibiotics (UBSAs) in the ED within one hour of registration unless contraindicated and were admitted to hospital. Univariate analysis showed that mean age (52.5±SD16.3 vs 61.5±14.2 years; p=0.0075), female gender (14 [73.7%] vs 227 [51.6%]; p=0.0593), median ED-ANC (1.81×10^9/L [IQR 1.19 to 3.11] vs 7.97×10^9/L, [IQR 3.87 to 10.08]; $p < 0.0001$), median ED-WCC (3.44×10^9/L [IQR 2.90 to 5.32] vs 8.64×10^9/L [IQR 7.81 to 9.20]; $p < 0.0001$), and haematological malignancy (14 (73.7%) vs 126 (28.4%); $p < 0.0001$) discriminated 48 hour cNF from non-NF respectively. Model 1, utilizing ED-ANC groups alone, predicted 48 hour cNF with ANC $1.00–1.99\times10^9$/L (OR 112.06, 95%CI 14.01–896.20), ANC $2.00–2.99\times10^9$/L (OR 31.55, 95%CI 3.19–312.47) and ANC $3.00–3.99\times10^9$/L (OR 24.60, 95%CI 2.70–224.39) giving an AUROC 0.886 (95%CI 0.854–0.914) and a correct classification rate of 96%. Model 2, haematological cancer and age, together with ED-ANC groups, predicted 48 hour cNF giving an AUROC 0.914 (95%CI 0.885–0.938) and a correct classification rate of 96%. No sNF patient with an ED-ANC $>6.0\times10^9$/L went on to develop NF within 48 hours. The 30-day, all-cause mortality rate in the cNF group was 0/19 (0%) versus 42/440 (9.5%) in non-NF group ($\chi 2$ test P=0.1581).

Conclusion: Two models have been derived to risk-stratify post-ED delayed 48 hour cNF. They may be used to guide antibiotic stewardship and ED discharge with outpatient follow up. They require validation.

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No, authors do not have interests to disclose

32 A Novel Host-Response Tool for Risk Stratification in Adults With Suspected Sepsis: MeMed Severity

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Study Objectives: Rapid and accurate risk stratification of patients with suspected sepsis in the emergency department (ED) is critical for guiding patient management. However, existing screening tools often lack specificity, contributing to alert fatigue, unnecessary resource utilization, and missing 5-20% of patients with occult sepsis. The systemic inflammatory response syndrome (SIRS) criteria, commonly used to trigger sepsis alerts in electronic health record systems, exemplify these limitations. MeMed Severity (MMSev) computationally combines three host-response proteins from distinct pathophysiological pathways into a numeric score with five bins indicating the likelihood of clinical deterioration, with bins 1-2 indicating low likelihood and bins 4-5 indicating high likelihood. This study aimed to evaluate MMSev performance and added value compared to SIRS criteria in providing accurate risk stratification in the ED.

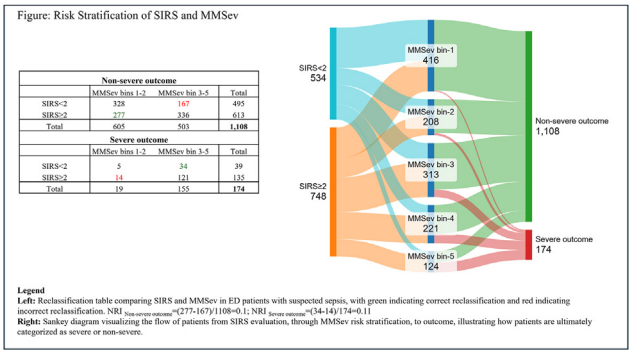
Methods: This retrospective analysis was conducted on a subgroup of a prospective multi-cohort study that was used to develop MMSev (NCT06665542). It included adult ED patients with suspected infection or sepsis and available SIRS data across 25 sites in the United States, Europe, and Israel. Severe outcomes were defined as a composite endpoint of invasive mechanical ventilation, vasopressor support or fluid resuscitation, or renal replacement therapy within 3 days, or mortality within 14 days. Performance in predicting severe outcomes was evaluated with an area under the receiver operating characteristic curve (AUC), sensitivity, and specificity. A secondary endpoint was the detection of sepsis at the time of blood draw, using the Sepsis-3 definition. Net reclassification improvement (NRI) was used to quantify the added value of MMSev over SIRS, using the SIRS score cutoff of ≥2 criteria and the MMSev cutoff between bins 2 and 3.

Results: Among 1,282 patients (median age (IQR): 66.0 (46.0, 77.0) years; 46.3% female), 79.5% were hospitalized (median length of stay 5.0 days). Severe outcomes occurred in 174 patients (13.6%), with 63.8% meeting this endpoint one day or more post blood draw. A total of 748 patients (58.3%) met two or more SIRS criteria. The AUC was 0.72 for SIRS and 0.84 for MMSev in the subset of patients with numeric SIRS score available (N=710). SIRS (≥2) had a sensitivity of 77.6% and a specificity of 44.7%. MMSev low likelihood bins (rule-out) provided a sensitivity of 96.6% with bin 1 alone and 89.1% when bins 1 and 2 were combined. MMSev high likelihood bins (rule in) provided a specificity of 94.0% with bin 5 alone and 78.9% when bins 4 and 5 were combined. MMSev demonstrated improved risk stratification over SIRS, with an NRI of 0.21 (Figure). For sepsis identification, MMSev achieved an AUC of 0.82 compared to 0.71 for SIRS in the subset of patients with numeric SIRS score and Sepsis-3 information available (N=164).

Conclusion: This multi-cohort analysis suggests that MMSev may improve risk stratification compared to SIRS in ED patients with suspected sepsis. The

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higher rule-in and rule-out performance of MMSev supports its potential utility in clinical decisionmaking. Further studies are warranted to validate these findings and assess the impact of MMSev on clinical outcomes and resource utilization.



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Medical College of Wisconsin, MeMed
Disclosure: MeMed
All authors
Scientific Study/Trial
MeMed

33 Rethinking D-Dimer: Optimal Cutoff Values for Venous Thromboembolism in End Stage Renal Disease

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Study Objective: This study aims to identify the optimal D-dimer cutoff level to rule out venous thromboembolism (VTE) in patients with end-stage renal disease (ESRD) on dialysis.

Method: We conducted a retrospective analysis of adult patients with dialysis-dependent ESRD who underwent D-dimer testing for suspected VTE within our hospital system over a five-year period. Patients on oral anticoagulants were excluded from the study. We assessed the sensitivity and negative predictive value (NPV) of previously defined D-dimer cutoffs, including 0.5 mg/L, age-adjusted, and estimated glomerular filtration rate (eGFR)–adjusted, and an ESRD-adjusted cutoff of 1.00 mg/L. Age-adjusted D-dimer cutoff values were calculated by multiplying the patient's age by 10 for patients over 50 years, while a fixed threshold of 0.5 mg/L was used for those under 50 years. The eGFR-adjusted cutoff level was set at 1.663 mg/L.

Results: Our analysis included 307 patients (mean age, 64.5±14.6 years) with a median D-dimer value of 1.8mg/L (min-max:0.21-35.88mg/L) and 292 patients (95.1%) who had a D-dimer level 0.5 mg/L. A total of 26 (8.5%) patients were confirmed to have VTE via imaging. The standard D-dimer cutoff value of 0.5mg/L yielded a sensitivity and NPV of 100%. The age-adjusted d-dimer cutoff had a sensitivity and NPV of 100%. The previously proposed eGFR-adjusted cutoff of 1.663mg/L demonstrated a sensitivity of 92.31% and a NPV of 98.63%; the ESRD-adjusted cutoff value of 1.0 mg/L maintained a 100% sensitivity and NPV.

Conclusion: Our findings indicate that a D-Dimer cutoff level of 1.0 mg/L for patients with ESRD demonstrates 100% sensitivity and NPV for ruling out VTE. This level allows for the exclusion of VTE in more patients than the standard 0.5 mg/L and age-adjusted cutoff, thereby enhancing clinical decisionmaking and reducing unnecessary imaging. While the eGFR-adjusted cutoff of 1.663 mg/L showed higher true negatives than the ESRD-adjusted cutoff, it also missed two VTE cases within our patient population. It is important to note that the clinical outcomes of these two VTE patients were not assessed in this study, as that was outside the scope of our investigation. Further studies are needed to explore the implications of adopting the ESRD-adjusted cutoff and to understand its impact on patient outcomes in this population.

No, authors do not have interests to disclose

34 Assessing the Diagnostic Utility of Procalcitonin in Diagnosing Serious Bacterial Infections

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Study Objectives: Bacterial infections are a leading cause of morbidity and mortality in pediatric patients that can rapidly escalate to serious bacterial infections (SBIs). While erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) are common inflammatory markers, they lack specificity. Procalcitonin (PCT), a biomarker found to increase significantly in response to bacterial infection, has shown promise for distinguishing bacterial from viral infections; however, data on its diagnostic utility in pediatric SBIs is limited. This study aimed to evaluate the diagnostic accuracy of PCT in distinguishing bacterial infections in pediatric patients, compared to CRP, a widely used marker in clinical practice.

Methods: This is a retrospective chart review of 709 pediatric participants with laboratory values of PCT and CRP. All data were collected from two clinical sites, NCH-Florida and NCH-Delaware, and de-identified using REDCap prior to analysis. To evaluate the predictive value of each marker to distinguish between patients with or without bacterial infections, a receiver operating characteristic (ROC) curve analysis was conducted with SPSS across 3 models: PCT alone, CRP alone, and PCT*CRP combination. An area under the ROC curve (AUC) was calculated to assess each model's ability to distinguish between positive and negative cases across all possible cutoffs.

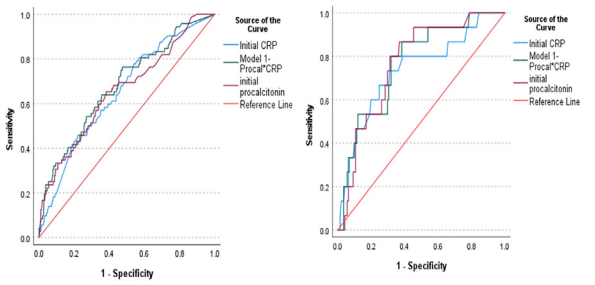
Results: The median age of participants was 68.3 months, 57% were male, 59% were from NCH-FL and 41% from NCH-DE. At least 78% of patients had at least one comorbidity, and 10.2% were confirmed positive for bacteria via culture or PCR for common bacterial species. The diagnostic performance of all three models was poor when analyzing the entire sample of 709 patients, with AUC values ranging from 0.6 to 0.7. Specifically, initial procalcitonin had an AUC of 0.658 (95% CI: 0.588–0.728), initial CRP had an AUC of 0.652 (95% CI: 0.587–0.718), and the combined PCT*CRP model had an AUC of 0.680 (95% CI: 0.613–0.747). However, when restricting the analysis to the 156 patients without comorbidities, diagnostic performance was fair across all three models. In this subgroup, initial PCT showed an AUC of 0.767 (95% CI: 0.660–0.874), initial CRP had an AUC of 0.735 (95% CI: 0.594–0.876), and the PCT*CRP model yielded an AUC of 0.766 (95% CI: 0.651–0.882).

Figure. (a) ROC curve of the PCT, CRP, and PCT*CRP models of 709 patients (with and without comorbidities) (b) ROC curve of the PCT, CRP, and PCT*CRP models of 156 patients (without comorbidities only).

Comorbidity-exclusion models consistently resulted in higher diagnostic predictive value across the three models. Of the three, initial PCT demonstrated the highest individual diagnostic performance, with an AUC of 0.767. The combined PCT*CRP model exhibited nearly identical AUC (0.766), suggesting limited added benefit from combining markers. CRP alone showed a slightly lower AUC of 0.735, indicating weaker performance. These findings provide evidence that PCT may serve as a more reliable biomarker for bacterial infection in pediatric populations than traditional markers like CRP. The absence of synergy between PCT and CRP suggests that PCT may be reliable as a standalone marker, particularly in settings requiring rapid differentiation between bacterial and viral infections. Notably, including patients with comorbidities in the models resulted in lower diagnostic performance, potentially due to comorbid conditions influencing PCT and/or CRP concentrations, altering their response when a bacterial infection is subsequently acquired.

Conclusion: This study highlights the diagnostic potential of PCT as a biomarker for pediatric bacterial infections, outperforming CRP in predictive accuracy. Further research is needed to validate these findings and to explore whether combining PCT with other clinical or laboratory data can enhance diagnostic accuracy.

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35 Use of 3-Host-Protein Assay in Identifying Bacterial Infection in a Quaternary Emergency Department

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Study Objectives: Early diagnosis and management of bacterial infection is critical for achieving high-quality emergency department (ED) care. Yet the clinical diagnosis of sepsis can be challenging, especially in older and medically complex patient populations who may have nonspecific presentations of bacterial infections. Moreover, overuse of antibiotics may lead to resistance, adverse drug reactions, and infections with *C. difficile*. The Liaison MeMed BV® assay has been reported to have high accuracy in differentiating bacterial versus viral infections in predominantly young healthy outpatient populations with respiratory tract infection. Yet, little is known about the assay's performance in older more complex patient populations. In this study, we evaluated the diagnostic performance of the MeMed BV® assay in ED setting of a quaternary medical center.

Methods: This was a retrospective, single center, observational study of adult ED patients who were hospitalized and in whom early infection (<7 days duration) was enough of a clinical concern to prompt blood culture and lactic acid testing. Remnant plasma samples were collected from July 2024 through February 2025 and tested according to manufacturer's instructions at an off-site laboratory. Assay results were divided into 2 groups (MeMed BV® score >66 as bacterial infection and MeMed BV® score <65 as nonbacterial) and were compared against a clinical reference standard. An expert panel blinded to the MeMed BV® score included a senior research nurse and physician with clinical and quality improvement expertise. They adjudicated the reference standard as bacterial based on primary inpatient clinician documentation with focus on initiation or continued use of antibiotics by hospital day 3. Final adjudications deemed as "clinically indeterminate" were excluded from the performance analysis. Subjects were further stratified by presence versus absence of immunosuppression—defined as having one of the following active diagnoses: neutropenia, use of immunosuppressant therapy, AIDS, and end-stage renal disease on dialysis.

Results: Study population consisted of 252 patients with mean age (SD) 67.1 (19.0) years, and 50.4% females. Geriatric patients compromised of 61.1% of the subjects and 31.4% were older geriatrics (>80 years). The clinical adjudication discrepancy rate between the expert panel was 8% and was reduced to 3.2% after further simultaneous case review. These indeterminate cases were excluded from the performance analysis. Bacterial infection was identified in 160, viral in 10, and no infection in 74 subjects. Sites of bacterial infection were 51 genitourinary, 41 respiratory, 32 gastrointestinal, 22 skin/soft tissue, 13 blood steam, and one bone/joint. Eighteen (7.1%) of the patients were transplant recipients and Immunosuppression was present in 26.2%. The performance of MeMed BV® is shown in the Table.

Conclusion: A MeMed BV® assay score above 66 did not perform well in identifying patients with bacterial infections in this medically complex older ED patient population with significant rates of immunosuppression. Further testing is warranted to identify patient populations more suitable for use of the assay in predicting the presence of bacterial infections.

Table 1. MeMed BV Performance in Identifying Bacterial versus Non-Bacterial Infection

	All (n=244)	Immune Competent (n=162)	Immune Suppressed (n=82)
Sensitivity % (95% CI)	56.9 (49.0 - 64.3)	54.0 (45.3 - 62.4)	67.6 (50.8 - 80.9)
Specificity % (95% CI)	59.5 (48.8 - 69.4)	61.1 (47.8 - 73.0)	56.7 (39.2 - 72.6)
Positive Predictive Value % (95% CI)	72.8 (64.4 - 79.8)	76.4 (66.6 - 84.0)	63.9 (47.6 - 77.5)
Negative Predictive Value % (95% CI)	42.0 (33.5 - 51.0)	36.3 (27.1 - 46.5)	60.7 (42.4 - 76.4)
LR+ (95% CI)	1.41 (1.05 - 1.88)	1.39 (0.96 - 2.01)	1.56 (0.98 - 2.50)
LR- (95% CI)	0.73 (0.56 - 0.93)	0.75 (0.57 - 1.00)	0.57 (0.32 - 1.02)
ROC - AUC (95% CI)	0.58	0.58	0.62

No, authors do not have interests to disclose

36 Just-In-Time Emergency Refresher Tool for Transvenous Pacemaker Placement Increases Performance

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Study Objectives: Transvenous pacing, along other high-acuity, low-opportunity procedures, presents a unique challenge. It is often a lifesaving intervention performed under significant time constraints and with infrequent training opportunities. A concise Just-in-Time Emergency Refresher (JIT-ER) tool for transvenous pacemaker (TVP) placement could improve physician efficiency and performance. The objective of this study was to assess the ability of a 1-page JIT-ER tool to improve resident physicians' ability to successfully place a TVP under time constraints while employing appropriate techniques.

Methods: This was a randomized, crossover design study evaluating the impact of a JIT-ER tool, developed by residents, on the performance of TVP placement by resident emergency physicians at a single academic center. Overall performance and time to successful TVP placement were evaluated by academic faculty utilizing a manikin based TVP task trainer at a simulation center. Randomization and phase 1 assessment occurred three months after all residents received didactic training on TVP placement. In phase 1, residents were randomized in block by PGY to either use of the JIT-ER tool or no tool. The intervention group received the JIT-ER tool. The control group received no additional aid. Following a 6-month washout period, assessments will be repeated. Residents had 20 minutes to complete the placement of a TVP. If they were unable to successfully complete the procedure, they were assigned a completion time of 20 minutes. The primary outcome was a critical action checklist score ranging from 0 to 5. Secondary outcomes measured the total time to completion and the percent of residents who completed the task within the allotted time. IRB approval was obtained for this project.

Results: Data are reported only from the first phase of the crossover study. 29 residents across three years of training participated in this study. The intervention group included 38% PGY1, 38% PGY2, and 25% PGY3 residents. Residents using the JIT-ER tool achieved significantly higher critical action checklist performance scores, with a median score of 5 (IQR 2) compared to 2 (IQR 4) in the control group. Time to successful completion was less among the intervention group with a mean time of 9m24s vs 12m08s among the control group. 69% of the control group did not successfully complete the procedure in the allotted time compared to 94% in the intervention group.

Conclusion: In the first phase of this randomized crossover study, emergency resident trainees using a JIT-ER tool demonstrated significantly higher performance and missed fewer critical actions in less time compared to residents without the tool. A JIT-ER tool may prove beneficial in increasing successful performance of TVP placement among emergency medicine trainees.

No, authors do not have interests to disclose

37 Impact of a Structured Educational Program on Resident-Performed Resuscitative Transesophageal Echocardiography

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Study Objectives: Resuscitative transesophageal echocardiography (rTEE) is a crucial tool in emergency medicine, enabling continuous imaging during cardiac arrest

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without interrupting compressions. Despite its advantages, the majority of Emergency Medicine Residents (EMR) lack training and confidence in rTEE. The objective of this study was to evaluate the impact of a structured educational intervention and increase confidence, knowledge, clinical utilization and quality assurance (QA) assessment of EMR performed rTEE.

Methods: PGY-2 and PGY-3 EMR from a large academic, quaternary-care hospital prospectively enrolled in a structured rTEE training program. The intervention included a pre-test assessment, a 3-hour session led by emergency ultrasound faculty, and hands-on training with high-fidelity rTEE simulator. The curriculum focused on the four basic rTEE views. EMR confidence in performing and interpreting rTEE was assessed pre and post intervention, and at 16-month follow-up via written and electronic surveys using a 10-point Likert scale. Knowledge was assessed by comparing pre-test and post-test scores, with further evaluation at 16 months. rTEE utilization was compared before and after the intervention. QA score: rTEE examination quality was rated on a numeric scale from 1 to 5, with scores of 3–5 indicating high-quality images. Primary outcome measures included EMR comfort (confidence scores), competency (performance on standardized assessments), knowledge (pre- vs post-test scores), clinical utilization (number of rTEE performed) and QA of rTEE scans.

Results: A total of 19 residents (14 PGY-2 and 5 PGY-3) participated in the study. 106 rTEE were evaluated in this study (44 pre and 62 post-intervention). Mean confidence scores across assessed domains exceeded the 50% improvement target post-intervention and remained above it at 16 months: performing rTEE (2.95 to 7.53, p <.00001; 5.82 at 16 months, p=0.0007), interpreting rTEE images (3.95 to 7.58, p <.00001; 5.92 at 16 months, p=0.0107). The mean EMR knowledge survey score for the four basic rTEE views increased by 26% (3.00 to 3.79, p=0.0202). At 16 months, it was 3.73 (p=0.055), reflecting a <2% decline. EMR performed 15.9% (7/44) of rTEE pre-intervention and 67.7% (42/62) post-intervention (rate ratio = 4.26, 95% CI: 1.91–9.48, p <0.001). Monthly utilization of rTEE did not significantly increase post-intervention (3.65 per month, 95% CI: 2.80–4.68) compared to pre-intervention (3.14 per month, 95% CI: 2.28–4.22; rate ratio = 1.16, 95% CI: 0.79–1.79, p=0.45). However, the monthly rate of EMR performed rTEEs increased nearly 5-fold from 0.50 (95% CI: 0.20–1.03) pre-intervention to 2.47 per month (95% CI: 1.78–3.34) post-intervention (rate ratio = 4.94, 95% CI: 2.22–11.00, p <0.001). The quality of EMR performed rTEEs remained high, with 100% (7/7) of pre-intervention procedures and 95% (39/41) of post-intervention procedures achieving high quality scores (QA score 3-5) (p >0.99; 1 procedure was excluded due to missing score). There was no significant difference between pre-intervention QA scores (mean 3.57, median 4, IQR 3-4) and post-intervention QA scores (mean 3.78, median 4, IQR 4-4; p = 0.26).

Conclusion: This structured educational intervention significantly increased EMR performance of rTEE without compromising quality. Confidence in performing and interpreting rTEE significantly improved both immediately post-intervention and at 16 months. Knowledge scores showed strong retention with less than a 2% decline at 16 months. Overall rTEE utilization did not significantly change, but EMR performed rTEEs rose nearly four-fold while maintaining high-quality examinations. Findings support implementing structured rTEE training for EMR to enhance critical care capabilities and expand resident procedural competencies. Future research should explore the long-term retention of these skills and their impact on patient outcomes.

No, authors do not have interests to disclose

38 Structured Training to Improve Blood Loss Estimation by Emergency Physicians

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Study Objectives: Previous investigators have found that emergency physicians are inaccurate in their estimates of blood loss. We assessed an educational module designed to improve blood loss estimation by emergency physicians.

Methods: This was a prospective interventional study at a teaching hospital simulation lab. Eligible subjects included consenting emergency medicine residents and physicians. Whole blood ranging from 25-1200 ml was used in 7 stations that simulated ED conditions (eg, gurney cover with a known amount of blood). The intervention was a 20-minute slide presentation that illustrated 3 concepts to improve estimates: math formulas for various shape volumes, familiar object volumes (eg, soda), and volumes in common ED items (eg, 4X4 gauze). Subjects were asked to estimate the amount of blood loss for each station pre/post intervention. The % of deviation for each station was calculated (estimated-true volume)/true volume. The two key outcomes were whether there was improvement in the accuracy of estimation (smaller deviations after intervention), and the magnitude of improvement. For each station, a one-tail Z-test and t-test were performed for whether the proportion of providers who improved was greater than half (non-random), and whether the improvement was positive, respectively. Multivariate mixed models were also conducted to control for repeated measures.

Results: 50 subjects; 13 females, 34 attendings. The proportion of providers who had improvement after the intervention ranged from 18% (25 ml) to 64% (1,200 ml). The magnitude of improvement measured by the change in %'s of deviation ranged from -218.80% (SD=464.52, 25 ml) to +24.02% (39.83, 1,200ml). For blood volumes of 1,200 ml, 400 ml, and 35 ml, the proportion of providers who improved was statistically significantly ($p < 0.05$) greater than half. For 1,200 ml, the improvement of 24.02% was statistically significantly >0 ($p < 0.01$). In the multivariate analyses, subjective characteristics were not statistically significant, but all blood volume variables were ($p < 0.05$). There was a U-shaped pattern in the effect of blood volume in both odds ratio and the change in the % of deviation; more effect of intervention was seen at lower and higher volumes.

Conclusion: Structured training improved physicians' blood loss estimation with the largest effects on the low and high ends of the volume spectrum.

No, authors do not have interests to disclose

39 The Impact of Longitudinal Ultrasound Curricula on Medical Students: A National Examination

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Introduction: Point-of-care ultrasound (POCUS) has become integral to clinical decision-making across various specialties. Yet, significant variability persists in ultrasound education among medical schools, partly due to the absence of national guidelines. While ultrasound education has expanded, few institutions have implemented structured multi-year ("longitudinal") curricula.

Study Objectives: To determine whether medical students enrolled in a longitudinal ultrasound curriculum (spanning multiple academic years) demonstrate different perceptions, confidence, and knowledge compared to those without structured ultrasound training.

Methods: We conducted a cross-sectional, multi-institutional survey from March to July 2024, capturing responses from 1,058 third- and fourth-year medical students at 102 institutions. The survey consisted of three sections: (1) perception of ultrasound education (5-point Likert scale), (2) confidence in ultrasound skills (5-point Likert scale), and (3) knowledge assessment including image interpretation, normal/abnormal image analysis, multiple-choice items, and identification questions. Students were grouped by whether or not their institution offered a longitudinal ultrasound curriculum. Between-group comparisons were performed using unpaired t-tests and chi-square analyses.

Results: Among respondents, 49.3% were enrolled in a longitudinal curriculum and 50.7% were not. Third-year students comprised 53.3% of respondents, fourth-year students 46.7%. No group difference emerged in students' stated intention to use POCUS post-graduation (p=0.14); however, 86.8% overall agreed or strongly agreed on ultrasound's relevance after residency. Positive perceptions were significantly higher in longitudinal programs (mean difference 0.77, 95% CI 0.66–0.88, p <0.001). Confidence was higher among longitudinal students for image acquisition (mean difference 0.89, 95% CI 0.76–1.03), image interpretation (mean difference 0.59, 95% CI 0.46–0.71), machine operation (mean difference 1.05, 95% CI 0.91–1.19), and ultrasound-guided procedures (mean difference 0.27, 95% CI 0.16–0.39, all p <0.001). Students in longitudinal curricula also demonstrated higher overall knowledge accuracy (59% vs 47%, p <0.001). Confidence correlated strongly with knowledge performance (p <0.001).

Conclusion: Medical students receiving multi-year ultrasound training exhibit significantly greater confidence and accuracy in using POCUS, yet both groups showed room for improvement in absolute knowledge scores. Despite training variability, students universally recognize ultrasound's clinical importance and plan to use it in practice. These findings highlight the importance of implementing

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standardized, robust ultrasound curricula to ensure consistent competency among future physicians, particularly in high-impact specialties such as emergency medicine.

	Longitudinal Curriculum	Without Longitudinal Curriculum	Mean Differences	95% CI
Value of ultrasound education received*	2.04	2.81	.771	.661, .881
Intention to use ultrasound after graduation*	1.64	1.65	.011	-.113, .134‡
Confidence in obtaining images†	2.90	2.01	-0.89	-.76, -1.03
Confidence in interpreting images†	3.04	2.45	-0.59	-.46, -.71
Confidence in operating machines†	3.22	2.17	-1.05	-1.194, -.907
Confidence in performing procedures†	2.02	1.75	-0.27	-.389, -.161
Normal/abnormal image accuracy	.66	.56	-.102	-.134, -.069
Probe placement and selection accuracy	.40	.49	-.095	-.142 to-.048
Image identification accuracy	.57	.41	-.161	-0.203, -0.119

*Questions in Likert Scale format: 1(Strongly agree) to 5(Strongly disagree). †Questions in Likert Scale format: 1(Not at all confident) to 5(Extremely confident). ‡Differences between groups not statistically significant.

No, authors do not have interests to disclose

40 Implementation of a Novel Fascia Iliaca Nerve Block Curriculum for Emergency Physicians

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Study Objectives: The infrainguinal fascia iliaca block (iFIB) provides effective pain management for hip fractures while reducing reliance on opioid analgesics. Despite evidence supporting their feasibility in the emergency department (ED), these blocks remain underutilized due to lack of training and standardized competency assessment. This study aimed to evaluate the impact of a novel structured, simulation-based educational intervention on clinician comfort, skill, and likelihood of performing iFIBs.

Methods: Emergency medicine residents and attending physicians participated in a structured procedural training session for the iFIB. Participants completed a pre-teaching survey assessing their baseline comfort and experience with the procedure. Following real-time instruction and hands-on simulation, participants were randomized and evaluated using a Standardized Direct Observational Assessment Tool (SDOT). To achieve proficiency, participants were required to complete all critical actions and at least 70% of all SDOT items. Those not meeting the threshold repeated the assessment until proficiency was achieved. Afterwards, a post-teaching survey reassessed participants' confidence and likelihood of performing iFIBs in clinical practice. Data were analyzed based on level of training.

Results: A total of 81 participants completed the study, including residents (PGY-1 to PGY-3) and attending physicians. The majority of participants (74.07%) had not performed an iFIB in the past year, while only 1.23% had performed more than ten. Comfort with ultrasound-guided needle visualization significantly improved following training ($p < 0.001$), with the most notable gains observed among PGY-1 trainees and clinicians with 11+ years of post-residency experience. Similarly, self-reported comfort in performing the procedure significantly increased across all training levels ($p < 0.001$), with the greatest improvements seen among PGY-1 trainees and mid-career clinicians with 6–10 years of post-residency experience. Additionally, 57% of participants indicated their greatest barrier to performing this block was inexperience and lack of comfort with the iFIB, further highlighting the need for regular training sessions and lectures to empower emergency physicians when approaching this procedure. Participants' likelihood of performing an iFIB in clinical practice also increased significantly ($p < 0.001$), though PGY-2 trainees did not show a statistically significant change ($p = 0.10$), suggesting additional barriers to procedural adoption. Verbal and skills-based SDOT assessments highlighted specific areas for improvement, for example, PGY-1 residents demonstrated the lowest compliance in patient positioning ($p = 0.002$) and ensuring continuous cardiac monitoring with reversal agent availability ($p = 0.012$). Additionally, ultrasound anatomy identification posed a challenge for all training levels ($p = 0.024$), with PGY-1 residents scoring the lowest (41.2%), whereas early-career attending physicians (1–5 years post-residency) demonstrated the highest proficiency (85.7%). These findings indicate that while simulation-based training enhances clinician confidence and skill, continued reinforcement may be needed to improve procedural adoption and safety awareness.

Conclusion: Simulation-based training significantly improves clinician confidence, technical skill, and procedural competency in performing the infrainguinal fascia iliaca block. The Standardized Direct Observational Assessment Tool proved effective for evaluating procedural proficiency. The greatest improvements were seen in early-career trainees and mid-career physicians, while senior attendings demonstrated persistent gaps in ultrasound-guided regional anesthesia skills. Future efforts should focus on long-term skill retention, addressing barriers to procedural adoption, external validation of the SDOT, and integrating iFIB training into standard curricula.

No, authors do not have interests to disclose

41 Simulated Cranial Ultrasound for Longitudinal Learning

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Introduction: Head trauma is common in pediatric emergency departments. While scoring tools have reduced CT use, diagnostic challenges remain when scalp hematomas obscure assessment. Studies show variable sensitivity but high specificity for point-of-care ultrasound (POCUS) in diagnosing skull fractures, making it a useful adjunct. Emergency medicine residents need to recognize sonographic characteristics of skull fractures and develop proficiency in acquiring accurate images, but may lack confidence due to variable clinical exposure.

Study Objectives: This project aimed to demonstrate accurate POCUS technique to identify pediatric skull fractures using a simulated model therefore increasing procedural confidence and diagnostic accuracy of emergency medicine residents. Further goals include enhancing routine use of POCUS as an adjunct to clinical assessment for pediatric head trauma.

Methods: We integrated a small-group session and hands-on skills workshop by using a customized simulated task trainer with two ultrasound-compatible skull models—one with simulated fractures and another intact with highlighted pediatric suture lines—to enable comparative and realistic learning. During a 30-minute rotation, residents received instruction from a pediatric faculty member on POCUS indications, feasibility, and limitations for pediatric skull fractures. Learners then participated in a skills workshop, using the models to gain hands-on experience in image acquisition and pathology identification.

Results: A post-session survey of 14 residents using a five point Likert scale showed that all respondents (100%) found the session educational. 86% reported increased confidence in identifying cortical irregularities in skull POCUS. Only 36% of respondents reported prior experience with pediatric skull POCUS, but 93% expressed an intent to implement it as a diagnostic tool post-session.

Conclusion: Although previous studies have demonstrated the efficacy of POCUS in identifying skull fractures, educational methods for training clinicians in pediatric skull POCUS have not been systematically evaluated. With this project, we aim to establish an annual session to reinforce resident confidence and increase clinical utilization of POCUS for pediatric head trauma. Identification of skull fractures by POCUS can lead to improved specificity so the bedside clinician can perform definitive studies more quickly to treat the pediatric head injured patient.

No, authors do not have interests to disclose

43 Hazardous Chemical Accidents: A Data-Driven Study of Incidents in the United States During 2021-2024

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Study Objectives: Hazardous chemical accidents in the United States (US) involve unintentional spills, leaks, explosions, or exposures to toxic, flammable, or otherwise harmful substances that threaten public health. These events may take place in industrial facilities, during transportation (such as rail or highway incidents), at storage sites, or because of natural disasters impacting chemical plants. To analyze the occurrence, causes, and effects of such incidents across the US, we conducted a cross-sectional survey using government and publicly available databases during 2021-2024.

Methods: This was a cross-sectional survey undertaken to document the frequency of hazardous chemical incidents in the US during 2021-2024. Incident data was

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collected from the Coalition to Prevent Chemical Disasters, the Environmental Protection Agency (EPA), the HAZMAT Incident Database, and the Chemical Safety Board. A basic abstraction form was used to guide data collection, which included the location, substance(s) released, number of victims, types of injuries, and the number of people evacuated. Descriptive statistics (frequency tables, confidence intervals) were used to summarize the data. Interrater reliability was determined using the Kappa score.

Results: During the four-year study period, 102,177 hazardous chemical incidents occurred in the US, resulting in damages exceeding $1 billion. Approximately 1,033 (1%) were HAZMAT releases that threatened public health. These incidents frequently occurred around transportation corridors and storage facilities. Texas had the most HAZMAT releases (12.5%), followed by California, Ohio and Louisiana. Many incidents were associated with plastics and petrochemical manufacturing (41.7%), extraction and transportation of crude oil and natural gas (12.2%), and chemical transportation and storage (8.6%). There was a total of 1,090 injuries, of whom 965 were hospitalized, including 44 first responders. Respiratory system problems (34.9%) were the most frequently reported symptoms. There were 63 fatalities. Overall, 304 communities were required to evacuate; 302 were advised to shelter in place. The data in these surveillance summaries show that equipment maintenance, improved safety regulations, and training to prevent human error could alleviate many of the incidents. Interrater reliability calculated across 30 videos was excellent (Kappa = 0.80).

Conclusions: To decrease HAZMAT incidents that pose a threat to public health, several strategies can be implemented based on this surveillance data. In addition, developing and regularly updating emergency response plans can ensure communities are prepared for incidents involving hazardous chemicals. This includes coordination with local emergency services and community awareness initiatives.

No, authors do not have interests to disclose

44 Verbal De-Escalation Training for EMS Clinicians and the Prevention of Workplace Violence

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Study Objectives: Within our emergency medical services (EMS) agency, workplace violence (WPV) is captured through a mandatory documentation feature in the electronic medical record (EMR), with data showing WPV occurs on nearly 1% of all prehospital patient encounters. After a recent qualitative study within the agency revealed a desire for WPV education and training to better prepare for agitated/violent patient encounters, we implemented de-escalation training for all staff. Our objectives were (1) to determine whether this training had an association with improved clinician comfort level in de-escalation of and safety around agitated/violent patients and (2) to determine whether training was associated with decreased usage of physical restraints in the prehospital setting.

Methods: Anonymous electronic pre-post training survey study of EMS clinicians and retrospective analysis of data gathered prospectively pre-post intervention between July 20, 2024 and February 26, 2025 within our large, multistate Midwest EMS agency which averages 122,000 ground calls for service annually. Between October 21, 2024 and November 25, 2024, 5 instructors taught the 1-hour Verbal Judo (Verbal Judo, Inc.) de-escalation course either virtually or in-person to staff during 7 sessions. Pre- and post-course surveys were provided to staff immediately before and after the training session, respectively. We compared prevalence of WPV and documentation of physical restraint use in the EMR as an intervention on ground-based encounters pre- (July 20, 2024 – October 20, 2024) and post- (November 26, 2024 – February 26, 2025) training. Survey questions were compared using Chi-square tests for categorical items or Wilcoxon rank-sum tests for Likert scale items. Change in the rate of WPV and physical restraint use indicated in the EMR was assessed using risk differences (RDs) with 95% confidence intervals.

Results: A total of 447/477 (93.7%) EMS clinicians completed the training and 439 (98.2%) completed both the pre- and post-course surveys. Respondents were predominantly male (n = 235, 53.5%), paramedic (n = 273, 62.2%), ground-based (n = 399, 90.9%) and had worked in EMS >6 years (n = 275, 62.6%). Respondents indicated improved comfort level in de-escalating an agitated patient (75.2% comfortable pre-course vs 78.6% post-course; p = 0.020) and increased perception of safety around both agitated (65.2% pre vs 72.2% post; p = 0.002) and violent (39.4% pre vs 53.1% post; p < 0.001) patients. Overall WPV indicated in the EMR decreased from 146 violent events (0.75 per 100 encounters, 95% CI 0.63-0.88) pre-training to 124 events (0.61 per 100 encounters, 95% CI 0.51-0.73) post-training (RD= -0.14 cases per 100 encounters, 95% CI: -0.30 to 0.02, p = 0.084). Physical restraint use decreased from 271 cases (1.39 per 100 encounters, 95% CI: 1.23-1.57) pre-training to 218 cases (1.07 per 100 encounters, 95% CI: 0.93-1.22) post-training (RD = -0.32 per 100 encounters, 95% CI: -0.11 to -0.54, p = 0.003).

Conclusion: Verbal de-escalation training within our EMS agency was associated with increased clinician comfort level in de-escalating agitated patients and increased perception of safety around both agitated and violent patients. Although not statistically significant, rates of WPV decreased during the study period. We did observe significant decreased physical restraint use on patient encounters during the post-training period, potentially due to increased utilization and effectiveness of verbal de-escalation.

No, authors do not have interests to disclose

45 Comparative Analysis of Health Impacts From Natural Versus Technological Disasters

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Study Objectives: The objective of this study is to compare the health impacts of natural and technological disasters using global disaster data. By quantifying differences in mortality, injuries, affected populations, and economic damage, we aim to provide evidence-based insights for improving disaster medicine strategies.

Methods: Data were extracted from the EM-DAT (Emergency Events Database) covering disasters from 1900 to 2025. Disasters were categorized into two groups: Natural Disasters (eg, earthquakes, floods, hurricanes) and Technological Disasters (eg, industrial explosions, chemical spills, transportation accidents). Key impact variables included Total Deaths, Number Injured, Total Affected Population, and Economic Losses. Descriptive statistics and comparative analyses (t-tests, ANOVA) were performed to assess significant differences between the two disaster types.

Results: Natural disasters resulted in a higher mean death toll per event, with an average of 44.17 deaths per disaster and a standard deviation of 115.39. In contrast, technological disasters tended to have a lower mortality rate. However, the number of injuries was significantly higher in technological disasters, with an average of 105.36 injuries per event and a standard deviation of 1,568.21, indicating that these events often result in mass casualty incidents with severe trauma cases. When examining the affected population, natural disasters impacted a significantly larger number of people per event, with a mean affected population of 6,669.15 and a standard deviation of 45,764.85, suggesting their widespread and prolonged disruptions to communities. On the other hand, technological disasters had a more localized but intense impact. In terms of economic losses, natural disasters caused greater overall financial damage, with total damage averaging $248.67 million per event. However, insured damage was significantly higher in technological disasters, with an average insured loss of $323.2 million per event, reflecting the industrial and infrastructural nature of these incidents (**Table**). The comparative analysis, illustrated in the **Figure**, highlights the distinct impact patterns of natural and technological disasters. The logarithmic scale visualization demonstrates that while natural disasters exhibit higher total deaths and affected populations, technological disasters disproportionately contribute to insured economic losses. Trend lines further emphasize that injuries from technological disasters are notably more frequent and severe, reinforcing the need for trauma-focused medical preparedness. The inclusion of standard deviations provides a clearer representation of the variance within each disaster type, supporting a more nuanced understanding of their impact distribution.

Conclusion: Natural disasters generally cause higher mortality and affect larger populations, whereas technological disasters result in more injuries and insured economic losses. These findings highlight the need for tailored medical preparedness and response strategies in disaster medicine, focusing on mass casualty management for natural disasters and acute trauma care for technological events.

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Table 1. Summary of Impact Comparison

Impact Variable	Natural Disasters	Technological Disasters
Mean Deaths	44.17	Lower
Mean Injuries	Lower	105.36
Affected Population	6669.15	Lower
Total Economic Damage ($)	248.67M	Lower
Insured Damage ($)	Lower	323.2M

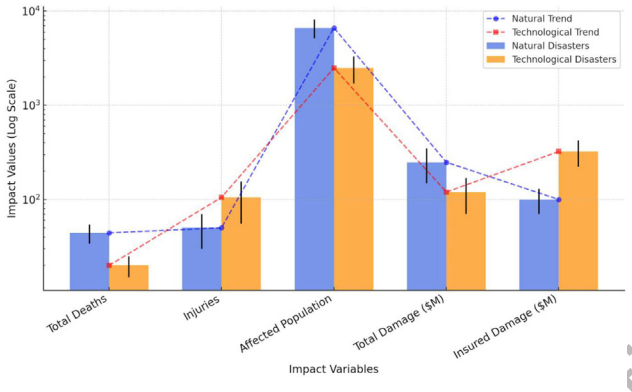


Figure 1. Comparative Impact of Natural vs. Technological Disasters

These findings provide empirical evidence to inform disaster medicine policies, emphasizing customized preparedness strategies for different disaster types.

No, authors do not have interests to disclose

46 Data-Driven Tactical Triage Optimization for High-Severity Terrorist Attacks

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Study Objectives: The purpose of this study is to develop a tactical triage model specifically optimized for responding to high-severity terrorist attacks. The model is designed using empirical data extracted from the Global Terrorism Database, covering incidents from 2001 to 2021. The research aims to analyze the relationship between different types of terrorist attacks, the weapons used, and the severity of casualties. By leveraging these insights, this study provides an evidence-based framework for improving prehospital emergency medical responses during mass casualty incidents.

Methods: This study utilizes the Global Terrorism Database, a comprehensive dataset that documents terrorist incidents worldwide. The inclusion criteria for analysis focus on terrorist events that resulted in at least ten fatalities or at least fifty injuries. A detailed statistical analysis was conducted to assess the correlation between attack types, weapon usage, and casualty severity. The study employs data mining techniques to identify patterns and trends in high-severity incidents. The primary outcome measures include the classification of incident severity, the correlation between attack type and weapon effectiveness, and the development of a predictive triage model that informs medical response strategies.

Results: Bombing and explosion incidents were responsible for the highest number of high-severity cases, accounting for 2,902 mass casualty events (**Tables 1** and **2**). Armed assaults followed, with 1,498 high-severity incidents (**Tables 1** and **2**). Explosive devices resulted in widespread multi-trauma injuries, whereas firearms had a higher lethality rate due to targeted attacks (**Tables 1** and **2**). Based on these findings, a Tactical Triage Decision Matrix was developed to guide emergency medical teams in prioritizing casualties according to expected injury patterns (**Table 3**). Incident severity distribution varied significantly by attack type. Bombings and explosions were the leading cause of high-severity casualties, necessitating mass casualty incident protocols (**Figure**). Armed assaults led to concentrated injuries with a higher fatality rate. Medium-severity incidents were more common in structural facility attacks, while low-severity incidents were primarily associated with small-scale hostage situations and localized explosions (**Figure**). Chemical attacks demonstrated a unique injury profile, with fewer immediate fatalities but a significant increase in injuries, necessitating specialized CBRNe response protocols (**Table 3**). These findings support the need for targeted triage strategies for different types of terrorist attacks.

Conclusion: This study highlights the necessity of a structured, data-driven approach to tactical triage for high-severity terrorist incidents. By incorporating large-scale incident data, the proposed Tactical Triage Decision Matrix provides a practical framework for optimizing casualty prioritization in prehospital settings. Integration of this model into tactical medical training programs can enhance preparedness and operational efficiency. Future research should validate the model through real-world field applications and tactical medical exercises.

Table 1. Incident Severity Classification Criteria

Incident Severity Level	Fatalities (nkill)	Injuries (nwound)	Medical Resource Demand	Operational Considerations
High-Severity	≥ 10	or ≥ 50	Extensive tactical medical resources required, Mass Casualty Incident (MCI) protocols activated.	Requires multi-agency coordination, immediate hemorrhage control, advanced trauma care.
Medium-Severity	1 – 9	or 10 – 49	Multiple tactical medical teams required, moderate-level medical resource allocation.	Triage prioritization essential, secondary evacuation planning needed.
Low-Severity	0	1 – 9	Single tactical medical team or standard emergency response sufficient.	Local EMS response adequate, no surge capacity required.

Table 2. Incident Severity by Attack Type

Attack type	High	Low	Medium
Armed Assault	1796	6908	17909
Assassination	86	2532	6032
Bombing/Explosion	2915	34341	23227
Facility/Infrastructure Attack	67	7098	400
Hijacking	10	321	69
Hostage Taking (Barricade Incident)	89	300	118
Hostage Taking (Kidnapping)	466	6384	3475
Unarmed Assault	32	540	162
Unknown	601	1499	3111

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Table 3. Tactical Triage Decision Matrix

Attack Type	Weapon Type	Average Fatalities	Average Injuries	Recommended Triage Strategy
Bombing or Explosion	Explosives	2.16	4.77	Mass Casualty Incident Protocol, Immediate Hemorrhage Control
Armed Assault	Firearms	2.53	1.28	Tactical Evacuation, Rapid Tourniquet Application
Chemical Attack	Chemical Agents	1.29	32.37	CBRNe Response, Decontamination and Respiratory Support
Facility Attack	Structural Damage	0.34	0.31	Evacuation of Survivors, Minor Injury Stabilization
Hostage Situation	Mixed Weapons	8.23	55.21	Psychological Trauma Triage, Mass Casualty Response

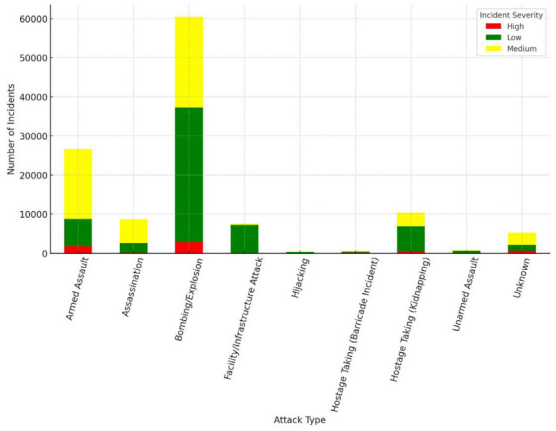


Figure 1. Incident Severity Distribution by Attack Type

No, authors do not have interests to disclose

47 Physician-Led Emergency Training for Medical Volunteers at the Chicago Marathon

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Introduction: Medical coverage for large-scale endurance events presents unique logistical and operational challenges. Events such as the Bank of America Chicago Marathons involve thousands of participants with hundreds of patients seeking medical attention, creating a potential strain on local emergency medical and health systems. To prevent overwhelming local healthcare facilities, the majority of runners are evaluated, treated, and released by an interdisciplinary cadre of medical volunteers. In order to prepare medical volunteers, the Chicago Marathon Medical Education Committee prepared two medical training sessions.

Study Objectives: Our goal was to assess the range of training levels among medical volunteers and ascertain which profession sought continuing medical education for the training.

Methods: Due to the diverse experience levels among volunteers, all medical personnel were encouraged to complete an online training session. This session covered common race-day medical conditions, including: exercise-induced collapse, hyponatremia, environmental emergencies, as well as musculoskeletal injuries. The training also included a review of hands-only CPR and general mass-casualty incident preparedness. Volunteers had the option to request one hour of CME credit for their participation. The training session was jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME) and the American Nurses Credentialing Center's Commission on Accreditation (ANCC) as well as the Illinois Department of Public Health.

Results: A total of 15.4% (n=254) of all volunteers attended the training sessions. In terms of participants, 37.4% of all attendees were healthcare students, 30.7% allied health professionals, 16.9% registered nurses, with physician and EMS being 8.3% and 6.7% respectively. Of the attendees, 34.7% of attendees requested CME which comprised physicians, nurses, and social workers with 10% of attendees requesting EMS CE. In addition, 72.8% of attendees requested a certificate of completion.

Conclusions: Our preliminary work highlights the diverse backgrounds and levels of training of medical volunteers supporting the Chicago Marathon and those individuals who attended the pre-event training. Our training provided standardized instruction on common endurance event medical presentations and emergency protocols. A significant portion of participants took advantage of continuing education credits, underscoring the value of structured training opportunities in mass event medical preparedness. Future efforts will focus on optimizing training content, expanding CME offerings, and assessing the impact of training on patient outcomes during endurance events.

Yes, authors have interests to disclose
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48 Rethinking Resuscitation: Insights on End-of-Life Care Practices in High Mortality Risk Patients

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Study Objectives: With the U.S. population over 65 years projected to double by 2050, emergency departments (EDs) are increasingly caring for older adults near the end of life. Despite most patients' preferring less aggressive care, ED visits often lead to intensive interventions that may not align with patient goals. Primary palliative care interventions such as goals-of-care (GOC) discussions and code status conversations can improve goal-concordant care, yet there is limited data on their implementation in the ED. Existing research relies on physician-reported surveys rather than objective analyses of clinical practice. This study quantifies the frequency of ED-based GOC discussions, advance care directive (ACD) utilization, and primary palliative interventions in high-risk ED patients through a retrospective chart review.

Methods: A multicenter retrospective chart review was conducted on 170 high-risk-for-mortality ED patients who had previously completed a survey assessing end-of-life care knowledge and ACDs. High-risk status was determined using a validated prognostic framework from consensus-driven guidelines, identifying patients with at least one of the following: a life-limiting illness (eg, end-stage organ disease, advanced cancer, multisystem organ failure), significant functional decline, or a clinician-identified risk of near-term mortality. Patient demographics, hospitalization history, code status documentation, and palliative or hospice care interventions were analyzed. The retrospective review captured these outcomes over a three-month period following the survey administration. The primary outcome was frequency of ED-based GOC discussions during the study period. Secondary outcomes included the rate of code-status transitions during hospitalization and the frequency of ACD updates in the electronic medical record. Comparative analyses were performed between a quaternary care academic medical center and a public safety-net hospital.

Results: Among 170 high-risk ED patients, 48% were surveyed at a quaternary care academic medical center and 52% at a public safety-net hospital. The mean age was 69 years (median: 70), with 71% English-speaking, 28% Spanish-speaking, and 1% identifying as other. At the time of survey, 72% of patients were admitted to the hospital, and 28% were discharged from the ED. Regarding insurance status, 21% were enrolled in Financial Assistance Planning, 77% had Medicare, Medicaid, or private insurance, and 2% were self-pay/uninsured. Despite meeting high-risk criteria, only 0.6% of the total cohort had a documented ED-based GOC discussion. Among 123 hospitalized patients, 29% had GOC discussions documented during hospitalization, and 26% received a palliative care or hospice consultation. Hospice enrollment occurred in 12% of hospitalized patients. During the study period, 12% of subjects died, yet none had a

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documented ED-based GOC discussion. Of the 20 patients who expired, 18 transitioned to DNR/DNI status, with 10 electing this change during their final hospitalization, while two remained full code at the time of death.

Conclusion: Despite frequent hospitalizations and high mortality, primary palliative care interventions remain underutilized in high-risk ED patients. The significant gaps in ACP documentation and GOC discussions underscore the need for structured, ED-based palliative care pathways to improve goal-concordant care and reduce unnecessary ICU admissions.

No, authors do not have interests to disclose

49 Effect of an Extubation Protocol on Palliative Extubation in the Emergency Department

Sherman M, Kan V, Gibbons P, Garrell J, Moschella R, Reznek M/Boston University, Boston, Massachusetts

Study Objectives: Emergency department (ED) extubation (EDx) remains a rare event, often limited by physician comfort and hospital culture. Palliative extubation in the ED is a critical aspect of end-of-life care that can alleviate suffering, avoid unnecessary transfers, and provide closure to families. Palliative EDx requires a structured approach to optimize patient comfort and support families. This study evaluates the impact of a Clinical Practice Guideline (CPG) for ED-based extubations that included a Palliative Care Pathway on patient outcomes, disposition, and length of stay (LOS).

Methods: A retrospective cohort study was conducted at a tertiary academic ED, comparing pre-CPG (24 months) and post-CPG (24 months) periods from January 2019 – January 2023. The CPG standardized patient selection, symptom management, and family engagement. The CPG included key steps such as: ensuring clear proxy/family support for extubation, engaging social work for cultural/spiritual needs, contacting Donor Services for organ/tissue donation discussions, conducting a dedicated palliative "Extubation Time Out" among attending physicians, nurses, and respiratory therapists, and prioritizing patient comfort through medication titration and reassessment. Adult patients (≥18 years) who underwent palliative extubation in the ED were included. Primary outcomes included location of death, hospital length of stay, and changes in patient disposition.

Results: A total of 114 patients were included (42 pre-CPG, 72 post-CPG). The implementation of the protocol was associated with a 71% increase in the rate of palliative extubations in the ED, from 1.75 per month pre-CPG to 3.0 per month post-CPG. Following protocol implementation, the proportion of patients expiring in the ED increased from 74% to 82%, while hospital admission rates decreased 31%; from 26% to 18%. Hospital LOS was significantly reduced by 42% from 1.4 ± 3.6 days to 0.81 ± 1.44 days. Patient age and sex distribution remained similar between groups.

Conclusion: Implementation of a structured ED extubation protocol significantly improved the efficiency of palliative extubations, reducing hospital admissions and LOS while increasing the proportion of patients who completed their palliative care treatment in the ED. These findings support the adoption of standardized guidelines to enhance end-of-life care in the ED setting. Future research should explore family satisfaction and symptom control measures to further refine best practices.

Outcome	Pre-CPG (n=42)	Post-CPG (n=72)
Age (mean ± SD)	75.8 ± 14.4	75.4 ± 14.1
Female (%)	45%	47%
Expired in ED (%)	74%	82%
Admitted to Floor (%)	26%	18%
LOS in hospital (days)	1.4 ± 3.6	0.8 ± 1.4

Table 1: Demographics and Outcomes of Palliative Extubations before and after implementation of a Clinical Practice Guideline (CPG) for ED-based extubations that included a dedicated Palliative Care Pathway

No, authors do not have interests to disclose

50 Experiences of Patients and Care Partners With Emergency Department-Embedded Palliative Care: A Qualitative Study

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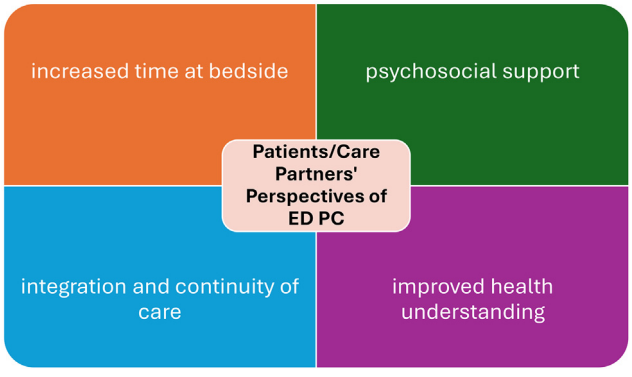
Study Objectives: Over the past several years, there has been a rapid growth of specialty palliative care (PC) programs offering upstream, emergency department (ED)-embedded palliative interventions for patients facing serious illness. Previous work highlights that ED-embedded PC reduces costs, hospital length of stay, and intensive care unit admissions. Despite these promising outcome measures, to date, little is known about the perceptions of patients and their care partners who experience ED-embedded PC. This qualitative study seeks to explore patients' and care partners' perspectives of ED-embedded PC and its impact on their healthcare decisions. Understanding these perspectives is critical for optimizing care delivery and informing future program development.

Methods: This qualitative study was conducted at a large, urban, academic medical center with a multidisciplinary PC team embedded in the ED. Between May and September 2024, adult, English-speaking patients and their care partners presenting for any reason who received a comprehensive PC consultation in the ED were asked to participate in a semi-structured phone interview conducted 1-2 weeks after their ED visit. During the interview, participants were asked to reflect on their interactions with ED PC providers, perceptions of their care, and the encounter's impact on their subsequent healthcare decisions. Interviews were transcribed and coded by two independent investigators until consensus was reached. Qualitative analysis was conducted to identify key themes constructed from interview transcripts.

Results: Fifty-one patients were screened for participation, and a total of 16 interviews were conducted between May and October 2024. Of the 16 total interviews, 4 (25%) were conducted with patients and 12 (75%) were conducted with care partners. All participants shared positive impressions of PC in the ED. Four overarching themes were constructed regarding the perceived impact of ED-embedded PC: 1) ample time was spent at the bedside, 2) critical psychosocial support was provided in a challenging, busy ED environment, 3) integration and continuity of care were enhanced, 4) interactions improved health understanding and enabled self-advocacy and decisionmaking (Figure 1). Care partners particularly emphasized the value of support and communication in navigating the complexities of serious illness, while patients highlighted the significance of clarifying medical information and decisions.

Conclusion: Patients with PC needs who present to the ED are often facing an acute crisis in the context of their serious illness. Findings from our study complement the quantitative metrics of prior studies, supporting that ED-embedded PC is positively received by patients and their care partners. This service enhances the experience of this population by improving illness understanding and psychosocial support, which in turn facilitates self-advocacy and decisionmaking. These findings underscore the positive impact of PC in the ED on patient experience and suggest opportunities to further tailor interventions to the unique needs of both patients and care partners in this setting.

Figure 1. Themes of Patients/Care Partners' Perspectives of ED-embedded PC



No, authors do not have interests to disclose

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51 Impact of High Sensitivity Troponin Assay on Patient Disposition in a Geriatric Emergency Department

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Study Objectives: High-sensitivity troponin (hs-Tn) assays are preferred biomarkers with the highest sensitivity, specificity, and precision for early diagnosis of myocardial injury. Little is known about how implementation influences clinician decisionmaking among geriatric emergency department (ED) patients—a population that is more prone to non-specific abnormal troponin values. The primary objective of this study was to assess how transitioning from conventional troponin I (cTnI) to high sensitivity troponin I (hs-TnI) influenced admission rates and disposition decision times among older adults.

Methods: We conducted an observational pre-post implementation study of the transition from cTnI to hs-TnI in the geriatric ED at a high-volume quaternary medical center. Patients were included if they were age 65+ and underwent troponin testing in the ED during either a baseline period when conventional troponin I (cTnI) was in use (June 1, 2023-November 30, 2023) or a post-implementation period in 2024 of equivalent duration and seasonality when the hs-TnI assay had replaced cTnI. This equivalent period was chosen to avoid the impact of respiratory season on rates of hospitalization and to allow a washout period during which clinicians adjusted to use of the hs-TnI assay (adopted on April 17, 2024). Patients admitted to the ED-run observation unit were excluded from the sample due to inaccurate disposition decision times in the database. The primary measures of interest were 1) proportion of admitted patients to inpatient units and 2) emergency physician time to disposition decision. We conducted a comparative analysis of the primary measures between the baseline and post-implementation groups. Statistical tests included chi-square test, two-sided t-tests mean comparisons, and two-sided z-tests for proportions.

Results: A total of 5,502 geriatric patients received cTnI testing during the baseline time period and 5,972 received hs-TnI testing in the post-implementation period. Females comprised 52.9% of the baseline group and 54.6% of the post-intervention group (p=0.49); Mean (SD) age of patients in baseline group was 78.5 (8.7) years and 78.3 (9.3) in the post-intervention group; p=0.387. Admission rate was higher in the baseline cohort (68.4%) than the post-intervention group (65.2%); p=0.002. The median (IQR) time to physician disposition decision for discharged patients was 235.4 (155.0 - 351.4) for baseline group and 221.0 (147.1 - 331.5) for post-intervention group. The median (IQR) disposition times for admitted patients were 116.2 (57.6 – 197.1) for baseline and 113.3 (56.4 – 192.1) for post-intervention. The average number of troponins (SD) performed per patient was 1.18 (0.5) in the post-intervention group and 1.21 (0.5) for baseline; p <0.0001.

Conclusion: We found that a transition from cTnI assay to a hs-TnI assay was associated with a reduced rate of admissions and time to disposition decision for discharged patients in a geriatric ED population. These findings add further real-world support for use of hs-Tn assays even in geriatric populations who may have false non-specific abnormal troponin results. Future studies are needed to study factors that explain why implementation of a hs-TnI test might lead to lower admission rates, particularly in older adults with multiple chronic conditions.

Table 1. Demographic characteristics for geriatric emergency department patients with troponin levels performed during the baseline period (cTn-I) and post-intervention period (hs-TnI).

	cTn-I (n=5502)	Hs-TnI (n=5972)	*P*
Mean age (SD)	78.9 (9.6)	78.6 (9.5)	0.123
Sex			
Male (%)	46.0	45.4	0.49
ED disposition			
Admitted (%)	68.4	65.7	0.002
Time to Discharge (min.)			
Mean (SD)	256.8 (177.5)	244.4 (170.3)	0.0289
Median (IQR)	221.8 (150.6 - 313.5)	210.0 (142.5 - 302.8)	—
Time to Admit (min)			
Mean (SD)	142.9 (119.0)	137.7 (113.9)	0.0528
Median (IQR)	116.2 (57.6 - 197.1)	113.5 (56.4 - 192.1)	—
Avg. troponin tests per encounter (SD)	1.18 (0.5)	1.21 (0.5)	<0.00001

No, authors do not have interests to disclose

52 Bimodal Advanced Care Planning Education for Emergency Medicine Residents

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Study Objectives: Advanced care planning (ACP) discussions are common in hospital settings to establish a patient's code status and goals of care, however the depth that these discussions require can be difficult to achieve during high-acuity situations as are common in the emergency department. This study aimed to evaluate a novel bimodal curriculum designed to enhance emergency medicine residents' proficiency in advanced care planning (ACP) discussions. The educational intervention was crafted to improve residents' ability to conduct clear, empathetic, and effective communication regarding serious illness and surrogate decisionmaking.

Methods: Emergency medicine residents at an academic center participated in a structured program that integrated two educational modalities. They first completed a simulation focused on ACP during which they were tasked with determining the code status of a critically ill patient. Next, they attended a didactic session targeted on ACP principles and best practices - including ethical and legal implications as well as communication strategies. At a later date, they completed the same simulation scenario with the same tasks. During the simulation, standardized patients (SPs), who were trained using a case template, enacted a real-world scenario requiring complex family and surrogate decisionmaking-related discussions. Residents' communication skills were assessed by the SPs as well as palliative care physicians using standardized evaluation tools that measured clarity, empathy, and success in establishing goals-of-care. Pre- and post-intervention evaluations (both quantitative scores and narrative feedback) were collected to determine the curriculum's impact. Cohen's weighted kappa was calculated to determine inter-rater reliability, and a cumulative link mixed model was run on each question asked of the palliative care providers.

Results: Qualitative feedback from palliative care providers emphasized improved empathy, sensitivity in eliciting patient wishes, and alignment of care with patient values in the second visit as compared to the first visit. Quantitative data demonstrated nonsignificant yet noticeable improvements in several ACP-related competencies, as assessed by two palliative care providers. Ratings between the two palliative care providers differed greatly, with a κ=0.28 indicating fair agreement and the mixed models showing that which provider evaluated the resident was a significantly stronger predictor of performance than whether they were pre- or post-didactic. SP-evaluated communication skills showed both question-level and resident-level non-significant improvements between pre- and post-education simulations. Resident-perceived

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competency and confidence did not see any improvement, with only 3 of the 8 residents having higher overall composite scores post-didactic, and 2 of them having lower composite scores.

Conclusion: The bimodal educational approach merging didactic instruction with simulation-based learning effectively enhanced emergency medicine residents' ACP communication competencies as assessed by palliative care providers. While palliative care provider and SP impressions were mostly that of improved performance in the second simulation, resident-perceived competency did not follow the same trend. This may be due to small sample size, but it may also point to the need for continued teaching due to the topic's complexity, as many residents felt that the difficulty of ACP conversations required additional learning opportunities. The difference in ratings between the two palliative providers may be due to their difference in years of practice, with their years of Palliative Medicine board certification being 3 and 13, respectively. The difference may also be due to generalized differences in rating styles. Further investigation of using this method to teach ACP might benefit from either more evaluators or a search for providers more homogenous in career trajectories. This integrated teaching model holds promise for broader implementation in residency curricula, offering a replicable method to bolster patient-centered care in high-stakes emergency settings.

No, authors do not have interests to disclose

53 Social Isolation Increases Emergency Department Use Among Older Adults

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Study Objectives: Social isolation and loneliness have been a growing public health concern, with recent statistics indicating that nearly one in four older adults feel socially isolated. Living alone status has been shown to be a key contributor to social isolation, yet little is known about the association between social isolation and emergency department (ED) use. Our objective was to evaluate the ED use of older adults living alone compared to those living with a spouse.

Methods: We conducted a retrospective cohort study of ED visits by older adults using the 2015-2021 Medicare Current Beneficiary Survey, a nationally representative survey dataset linked to administrative claims with detailed information about healthcare utilization, costs of care, and living situation. The primary outcome was the mean (SD) number of ED visits per 100 beneficiary-years to account for varied participant time within the dataset. We performed descriptive statistics and compared older adults that lived with a spouse only to those that lived alone, with the latter group defined as "socially isolated".

Results: Our analytic sample consisted of 25,885 older adults contributing 47,741 beneficiary-years, with 25,394 having lived with a spouse and 22,347 having lived alone. Older adults living with spouses had 47.9 (1.0) ED visits per 100 beneficiary-years, compared to socially isolated older adults having 67.8 (2.0) ED visits per 100 beneficiary-years ($P < 0.001$).

Conclusion: Older adults who lived alone had a 40% higher rate of ED visits compared to those who lived with a spouse. This disparity underscores the critical influence of living arrangements on healthcare utilization among older adults. Targeted interventions to address social isolation may improve health outcomes for this vulnerable population.

No, authors do not have interests to disclose

54 Emergency Medical Response Disparities Following the 2023 Al Haouz Earthquake in Morocco

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Study Objectives: The 2023 Al Haouz earthquake was Morocco's deadliest seismic event in nearly a century, causing widespread destruction, particularly in rural communities of the High Atlas Mountains. This study aims to assess the disparities in emergency medical response following the disaster, focusing on geographic accessibility, healthcare infrastructure, and population-level inequities. By evaluating response times, resource allocation, and patient outcomes, we seek to highlight critical weaknesses in Morocco's disaster preparedness and provide policy recommendations for improving future emergency response efforts.

Methods: This study employs a mixed-methods approach, incorporating quantitative data from government and humanitarian reports, Geographic Information System (GIS) analysis of response times, and qualitative interviews with emergency responders and healthcare professionals. The research setting includes urban centers such as Marrakech and remote villages in the Al Haouz region. Participants include healthcare providers, aid workers, and local residents affected by the earthquake. Data were collected from field assessments, damage reports from the Moroccan Ministry of Health and the International Federation of Red Cross and Red Crescent Societies (IFRC), and firsthand accounts from medical personnel involved in the response effort.

Results: Findings indicate a stark contrast in response times between urban and rural regions. While emergency medical teams reached Marrakech within 12 hours, many mountainous villages experienced delays of 48-72 hours due to collapsed roads and damaged infrastructure. GIS analysis revealed that over 80% of rural roads were obstructed, limiting the mobility of emergency personnel. Helicopter evacuations, though deployed, were insufficient, reaching fewer than 15% of critically injured patients within the first 48 hours. Damage assessments identified at least 50 rural clinics and 37 hospitals with structural damage, with 10 hospitals rendered non-operational. Urban hospitals were overwhelmed, exceeding 200% capacity within 48 hours, while rural healthcare facilities suffered severe shortages in medical supplies and personnel. Mortality rates were highest in rural areas, where over 70% of earthquake-related deaths occurred. Additionally, socioeconomic disparities played a role in healthcare access, with wealthier urban residents benefiting from private hospitals and faster ambulance services, while low-income and rural populations depended solely on overwhelmed public healthcare facilities. Language barriers further exacerbated delays, particularly for Berber-speaking communities, as emergency response teams predominantly operated in Arabic and French.

Conclusion: The 2023 Al Haouz earthquake exposed severe deficiencies in Morocco's emergency medical response, particularly in rural areas. Geographic and infrastructural barriers significantly delayed life-saving interventions, disproportionately affecting vulnerable populations. The findings underscore the urgent need for policy reforms, including investment in rural healthcare infrastructure, improved disaster response coordination, and enhanced emergency transportation capabilities. Strengthening these areas will be critical to reducing mortality and morbidity in future disasters.

No, authors do not have interests to disclose

55 How Does the WHO Interagency Integrated Triage Tool Perform in a Rural Ugandan Setting?

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Study Objectives: The World Health Organization (WHO), in partnership with the International Red Cross and Médecins Sans Frontières, developed a systematic triage tool for low-resource settings known as the Interagency Integrated Triage Tool (IITT). Presently, little is known about the IITT's performance in Uganda where it has been adopted by the Ministry of Health and is branded as the Uganda Triage and Treatment Algorithm (UTAT). Even less is known about its performance at rural health facilities. The majority of prior studies based in Sub-Saharan Africa are performed in urban cities which may have vastly different resources and challenges than their rural counterparts. Thus, this study seeks to determine whether the IITT is a feasible and efficacious tool for a rural health facility in Uganda.

Methods: To inform an educational initiative, a needs assessment focusing on the implementation of the UTAT was distributed to the healthcare providers at Masindi Kitara Hospital (MKH), supported by non-governmental organization, OneWorld Health. This led to the development of a video-based tailored triage curriculum. Nurses, clinical officers, and physicians took pre- and post-educational testing. Additionally, to assess provider accuracy in triaging patients using the UTAT, a retrospective chart review was conducted. A total of 372 charts were reviewed for triage designation, accuracy, wait time, and patient disposition before the educational initiative. As this study is ongoing, preliminary data prior to the educational initiative is presented here. Data was analyzed using R Statistical Software (Version 4.4.3). Ethics review granted this study exemption.

Results: In the initial survey, providers at MKH reported feeling prepared to manage the triage station and comfortable using the UTAT with a mean score of 4.18 and 4.0 on a 5-point Likert scale, respectively. However, pre-test results revealed an average score of 63% on the 25 question assessment. Performance on the pre-test did not vary notably by years of experience or level of provider. Of the 372 charts reviewed, 320 were given a triage designation (86.0%). Patients admitted to the inpatient ward and emergency room were assigned a triage designation in 63.0% and 76.6% of cases respectively. Patients in the outpatient department were assigned triage categories in 98.0% of cases. Of the 320 patients triaged, 157 were assigned the appropriate tier

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based on full chart review (49.5%). Of the patients assigned a category, 101 were categorized "Red" (31.6%), 4 were "Yellow" (1.3%), and 215 were "Green" (67.2%) (**Figure 1**). Percent correctly assigned was determined to be 15.3%, 50%, and 65.1% respectively. The average wait time was 24.8 minutes and did not differ by triage category (all p-values > 0.05, **Figure 2**).

Conclusion: This preliminary evaluation of triage practices at MKH reveals a disconnect between provider self-reported comfort and the accuracy of triage designation as determined by chart review. While providers expressed confidence in their ability to utilize the UTAT, our findings indicate that triage designations were frequently inaccurate prior to training. Additionally, we found several instances of patients being admitted to both the general ward and emergency room without documentation of formal triage. Despite generally short wait times from triage to provider, concerningly, patients identified as in need of urgent intervention did not receive treatment more promptly than those more stable according to the triage tool. These findings underscore a need for improved triage accuracy and documentation, as well as a transition from the "first-come, first-served" approach more commonly seen in outpatient settings. Should additional training using the UTAT not improve triage accuracy, the tool may need adaptation to best suit the unique characteristics of the patient population and available personnel and treatment resources within the rural context at MKH.

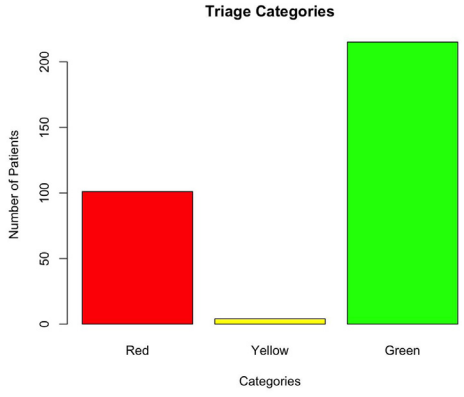


Figure 1: Number of patients assigned to each triage tier as assessed by the triage personnel at time of presentation.

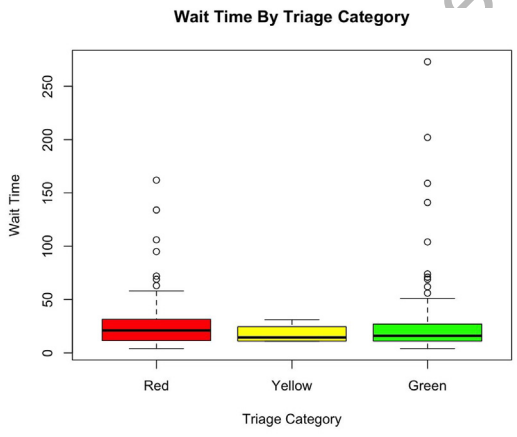


Figure 2: Time interval from triage to provider encounter for patients in each tier of the triage system as assigned. A One-Way ANOVA demonstrated no significant differences between groups (all p-Values > 0.05).

No, authors do not have interests to disclose

56 A Review of Snakebite Envenoming at a Tertiary Referral Hospital Emergency Department in Guyana

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Study Objectives: Snakebite envenoming is an important yet under-recognized toxicological emergency that is estimated to cause over 100,000 annual deaths worldwide. Snakebite envenoming is a neglected tropical disease that disproportionately affects low-to-middle income countries. Guyana is home to some of the deadliest venomous snakes in the Americas and has one of the highest rates of snakebite envenoming in the region. The most common envenoming species, *Bothrops atrox*, has hemotoxic venom that can induce coagulation disorders and cause deadly complications such as shock, systemic bleeding, renal failure, and respiratory failure. There is little reported data on snakebite envenoming in Guyana, making targeted interventions and allocation of resources difficult. The objectives of this study were to assess the incidence, patient demographics, and medical outcomes of snakebite envenoming cases presenting to a tertiary referral hospital emergency department (ED) in Guyana in 2024.

Methods: A retrospective cross-sectional analysis of snakebite envenoming was performed at a tertiary referral hospital ED in Georgetown, the capital city of Guyana. All snakebite cases presenting to the ED from January 1, 2024, to December 31, 2024, were included in this study. Patients with confirmed or suspected dry bites and patients with insufficient data to assess their medical condition were excluded. Data including patient sex, age, administrative region, dry bite status, ED disposition, envenoming symptoms, and treatments received were collected from a review of ED charts as well as inpatient charts for admitted patients. Descriptive statistical analysis was performed to identify relationships and trends between patient characteristics and medical outcomes.

Results: Over twelve months, 74 patients presented to the ED after snakebite. Over a third of the patients (n=29, 39%) were excluded for having dry bites and one patient was excluded for incomplete data. Of the 44 included envenoming patients, the majority (n=32, 73%) were male. The median age was 29 years (IQR: 15-45). Of Guyana's ten administrative regions, the greatest number of envenoming incidents occurred in region 4 (n=20, 45%), which includes Georgetown, followed by the forested hinterland regions 1 (n=6, 14%) and 7 (n=6, 14%). However, the incidence of snakebite envenoming per 100,000 population was greatest in forested hinterland regions such as region 7 (33/100,000), region 8 (27/100,000), and region 1 (22/100,00). All envenoming patients survived, and the admission rate was 59% (n=26). The most common signs and symptoms were edema (n=37, 84%), pain (n=35, 80%), and non-bite site bleeding (n=16, 36%). Mean Snakebite Severity Score was 4.27. Over half the patients (n= 24, 55%) received antivenom. These patients had an admission rate of 96% (n=23), a non-bite site bleeding rate of 58% (n=14), and a mean Snakebite Severity Score of 4.83, all increased compared to the general envenoming population. Twelve patients who received antivenom had a reported time of snakebite, and the median time between snakebite and antivenom administration was 522.5 minutes (IQR: 290-722.5 minutes).

Conclusion: Snakebite envenoming is an understudied public health risk in Guyana affecting both urban centers and rural areas, with the highest incidence per capita occurring in the forested hinterlands. Snakebite envenoming is often serious; over a third of cases demonstrated coagulation disturbance evidenced by non-bite site bleeding, and over half received antivenom. Further studies are needed to assess the population health risk of snakebite envenoming in Guyana, especially in the hinterlands. A central reporting hub, such as a poison center, would strengthen country-wide responsiveness to this threat and bolster further research capabilities.

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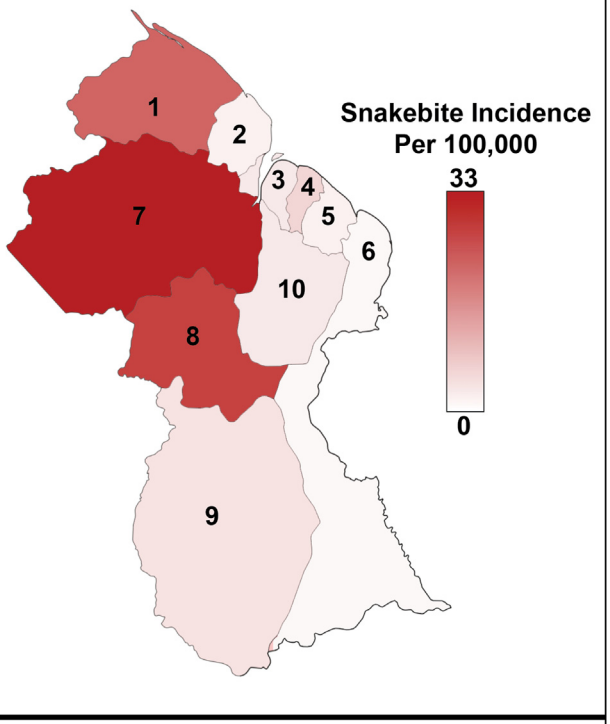


Figure 1) Heatmap of snakebite envenoming incidence per 100,000 population amongst Guyana's 10 regions

No, authors do not have interests to disclose

57 Evaluating a Longitudinal Multidisciplinary POCUS Program in The Gambia: A Mixed-Methods Study

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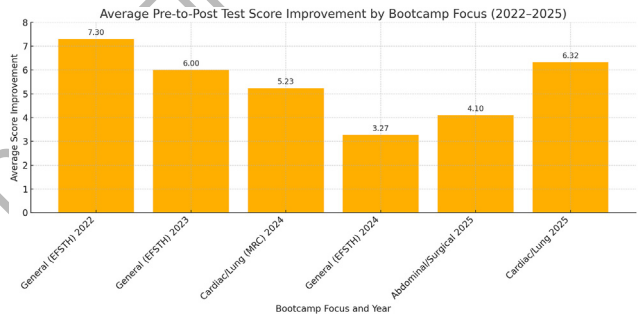
Introduction: In low-resource settings like The Gambia in West Africa, access to diagnostic imaging is severely limited, with few radiologists, minimal CT capacity, and no formal point-of-care ultrasound (POCUS) training programs. POCUS offers a low-cost, high-impact diagnostic solution, yet its sustainable integration into clinical practice remains a challenge. In 2020, a partnership between Edward Francis Small Teaching Hospital (EFSTH) and the University of California, Davis launched a longitudinal, multidisciplinary POCUS education program to address this gap. Unlike many high-income countries, emergency medicine is not yet recognized as a medical specialty in The Gambia or many other African nations. This absence makes it difficult to house POCUS within a single clinical department. Instead, the program adopted a multidisciplinary implementation strategy, engaging physicians from internal medicine, surgery, pediatrics, OB/GYN, anesthesiology, and radiology to promote shared ownership and broader adoption of ultrasound skills across the healthcare system.

Study Objectives: To evaluate the implementation, educational impact, and sustainability of a longitudinal POCUS training program in The Gambia using a mixed-methods approach.

Methods: Beginning with a baseline needs assessment and bootcamp in 2020, the program expanded to annual training sessions (2022, 2023, 2024 x2, 2025), incorporated structured curricula, and included participants from multiple hospitals. Seven Gambian POCUS champions completed an 18-month fellowship including remote lectures, QA, mentorship, teaching, and OSCEs. Quantitative data for all bootcamp participants (over 100 in total) included scan logs, pre/post-test scores, post-course surveys (2022–2025). For the Champions, they had additional educational and competency evaluations in the form of lectures and objective structured clinical exams (OSCE). In 2024, qualitative data were collected via interviews with champions to explore barriers and facilitators to integration.

Results: Between 2022 and 2025, six POCUS bootcamps were conducted across multiple sites. Average pre-to-post test score improvements were as follows: 2022 (General, EFSTH): +7.3; 2023 (General, EFSTH): +6.0; 2024 (MRC, Cardiac/Lung): +5.23; 2024 (General, EFSTH): +3.27; 2025 Week 1 (Abdominal/Surgical): +4.1; and 2025 Week 2 (Cardiac/Lung): +6.32. These results suggest a modest decline in score improvement over time, potentially due to increased baseline knowledge and evolving learner needs. The highest improvement was seen in focused, specialty-specific sessions. To date, a total of 537 ultrasound scans have been performed and uploaded to the Butterfly cloud platform. This number reflects only those scans that were saved and successfully uploaded, representing active engagement and documentation by trainees. Survey feedback over four years has consistently demonstrated high satisfaction. In 2022, 100% of participants strongly agreed on course clarity, engagement, and relevance; 90% expressed confidence in immediate clinical use. In 2023, Likert responses averaged >4.2 across domains, with strong agreement that POCUS was essential to clinical care. In 2025, 100% of participants rated the course as "Outstanding" or "Above Average" across educational quality, relevance, and hands-on practice. Common feedback across all years emphasized the value of case-based learning, real-patient scanning, and peer interaction, while also consistently requesting more hands-on scanning time and longer course duration.

Conclusions: This five-year initiative demonstrates that longitudinal, multidisciplinary POCUS training with embedded ultrasound champions improves knowledge retention and clinical confidence in resource-limited settings. The integration of structured mentorship, focused bootcamps, and competency-based assessment provides a scalable and sustainable model for ultrasound education and implementation across West Africa.



No, authors do not have interests to disclose

58 Bringing Low-Cost, Portable EKG Capabilities to Rural Uganda

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Study Objectives: More than three quarters of the world's mortality from cardiovascular disease occurs in low- and middle-income countries (LMIC) like Uganda. LMICs lack tools necessary for the detection of cardiovascular disease. EKGs are widely accepted as a critical component of the evaluation of patients with potential cardiovascular pathology. A 6-lead KardiaMobile EKG device is a portable, low-cost, handheld device that could bring EKG capabilities to LMICs that otherwise would not have access to cardiovascular screening tools. The KardiaMobile device has the benefit of the ability to transmit EKG PDFs electronically if there are no trained providers to interpret them on site. The aim of this study is to directly compare findings on a 6-lead portable EKG to the gold-standard 12-lead EKG on the same patients in the same encounter to identify if the KardiaMobile is a reliable, affordable, and practical option to bring EKGs to LMICs.

Methods: This is a review of an EKG database collected for quality improvement purposes in Masindi, Uganda. Six- and 12-lead EKGs were recorded on patients presenting with symptoms concerning for cardiovascular pathology. EKGs were collected as a convenience sample during weekday, daytime hours by a trained Ugandan assistant to model the process that would be implemented at other sites for 6-lead KardiaMobile EKG collection. Demographic data, indication, and EKGs were collected on patients from April 2023 to September 2023. The EKGs and other data were transmitted electronically in PDF format to a cloud database. EKGs underwent

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comparison and analysis by board-certified emergency physicians (EPs) for interpretability and quality of standard EKG findings with specific emphasis on variables that would require further acute intervention or referral.

Results: Twelve-lead EKGs were collected on 151 patients and 123 6-lead EKGs were able to be matched for comparison. Seventy-four (60%) were female and 49 (40%) were male ranging in age from 18 to 96 with a mean age of 47 years (SD 19.3). Patients were excluded if they were younger than 18 years, declined an EKG, or if EKG data could not be matched. EKG indications included chest pain (42%), palpitations (20%), dyspnea, syncope, or provider discretion. Sinus rhythm was identified in 99 patients by 12-lead (80%); 6-lead was accurate in 91% of these with a sensitivity of 91%. Critical rhythms, including third degree heart block, atrial fibrillation, and atrial flutter, found on 12-lead (n=5) were identified on 60% of corresponding 6-leads (n=3), sensitivity 60% and specificity 99%. Six clinically important abnormal intervals, including prolonged QT and wide QRS complex, were found on 12-lead EKGs (5%) and identified appropriately on 6-lead 83% of the time with sensitivity of 67% and specificity of 97%. The predominant reason for missed clinically significant findings on 6-lead was level of artifact. All 12-leads were deemed interpretable (100%), while 10% of 6-leads (n=12) had significant artifact.

Conclusion: Despite the 6-lead EKGs having more artifact, benign sinus rhythm was appropriately identified in more than 90% of EKGs. While specificity was high for identification of both critical rhythms and abnormal intervals, the KardiaMobile interpretations had low sensitivity, which can be partially attributed to level of artifact. A critical next step is evaluating methods to reduce artifact and improve quality of the portable 6-lead for more accurate interpretation by trained clinicians. Although lower quality compared to a 12-lead, at 1/10 the cost, a portable 6-lead EKG is an easy-to-use, affordable screening tool that has the potential to improve cardiovascular care by bringing previously inaccessible EKG capabilities to resource limited settings.

No, authors do not have interests to disclose

59 International Initiative to Identify Prehospital and Trauma Needs Throughout Jamaica

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Study Objectives: With a growing population of 2.8 million individuals and demands on an already overburdened healthcare system, Jamaica's healthcare system faces significant challenges. While prehospital care in Jamaica is mainly provided by the emergency medical unit of the Jamaica Fire Brigade, there is an increased need for first responder and emergency medical technician (EMT) training. In 2019, the Jamaicans Abroad Helping Jamaicans at Home (JAHJAH) foundation launched the Jamaica Emergency Medical Service (JEMS) to address the gap in emergency medical care. JAHJAH, in collaboration with the Negril Chamber of Commerce and a team of air force rescue EMTs from Unit 669 in Israel, trained 25 firefighters, police officers, ancillary healthcare workers, and community members in first responder medical care. Starting with Negril, the pilot project introduced a fully functional ambulance service that has yet to be deployed. The authors aimed to identify the typical prehospital patient presentations, challenges and limitations in prehospital care, and gaps in knowledge across first responder and EMTs throughout Jamaica through a needs assessment survey.

Methods: The study obtained IRB exemption through the Albert Einstein College of Medicine. *Design and Setting:* This study utilized a prospective qualitative needs assessment in Jamaica. *Participants:* Prehospital EMTs and first responders from across rural and urban Jamaica were surveyed.

Results: First responders and EMTs from across both rural (28.6%) and urban (71.4%) regions in Jamaica were surveyed. On average, emergency personnel reported transportation of 8.33 patients daily to the hospital systems with an average response time of 3.18 minutes (SD 3.49). Average time on scene was recorded at 10 minutes and transportation time at 15 minutes, with traffic as the main barrier to care. Patient presentations included medical (61.2%) and trauma (38.8%) related chief complaints. The most common medical complaints included chest pain, altered mental status, and respiratory distress. Traumatic complaints included blunt (36.3%) and penetrating (13.75%) traumas. All (100%) emergency medical personnel were comfortable treating orthopedic injuries. Patient presentations that emergency personnel were least comfortable treating included: intracranial hemorrhage or traumatic brain injury (81.8%), blunt abdominal trauma (36.3%), penetrating chest trauma (36.3%), and burns (18.2%).

Conclusions: By having a more comprehensive understanding of the cases seen by EMTs and first responders, the gaps in knowledge, and the challenges emergency personnel face, more intentional interventions and resource allocation can be implemented at the governmental- and community-levels. Such knowledge will also allow for further educational and pilot programs targeted at the common emergency department presentations in Jamaica.

No, authors do not have interests to disclose

60 Emergency Medical Treatment and Labor Act Cases Involving Disruptive Patient Conduct: Initial Review

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Study Objectives: The Emergency Medical Treatment and Labor Act (EMTALA) ensures that all emergency department (ED) patients receive medical screening exams (MSE) and stabilizing care regardless of their ability to pay. Although the statute provides broad protections for access to emergency care, there is ambiguity regarding how hospitals can respond to patients exhibiting willful disruptive behavior, such as verbal abuse, physical threats, and violence toward staff. Hospitals face regulatory scrutiny when removing such patients, despite the potential risks to ED operations and patient and staff safety. This exploratory study aims to (1) identify EMTALA citations from 2022-2023 involving disruptive patient conduct, (2) determine the proportion of these cases involving willful disruptive behavior (ie, on purpose), and (3) preliminarily characterize the circumstances surrounding these enforcement actions.

Methods: We reviewed inspection texts from Centers for Medicare & Medicaid Services (CMS)-issued EMTALA violations from 2022-2023, using a set of predefined keywords to screen events that potentially involved disruptive patient behavior. Inspection reports containing these terms were then reviewed in detail by two independent reviewers to determine whether each case involved disruptive behavior and whether the behavior described was judged to be willful.

Results: There were 1,608 total EMTALA citation-deficiencies, with 444 (28%) screened as potentially involving disruptive patient conduct. During our initial review, we found that cases involving disruptive patient conduct were most frequently linked to failure-to-MSE citations, so we focused on these citation types for this pilot study. Of 497 EMTALA events involving failure to provide an appropriate MSE, 218 (44%) screened positive for potential disruptive patient behavior based on keywords and stems. The full citation text was reviewed in a random sample of 100 failure-to-MSE events that screened positive. In the review, 39% of screen-positive events were judged to involve disruptive patient behavior, representing 17% of all failure-to-MSE events. Of the events that were determined to stem from disruptive patient behavior, 40% (7% of all failure to MSE events) were classified as willfully disruptive. An analysis of interrater reliability revealed 95% agreement on whether a case involved disruptive patient behavior and 88% agreement on whether the disruptive conduct was willful.

Conclusion: Willfully disruptive behavior is not an uncommon occurrence in emergency departments. It can also be a threat to staff and patient safety and contribute to a poor care environment. We estimate that 7% of recent failure-to-MSE EMTALA citations originate from willful, disruptive patient behavior. Our findings highlight the difficulty EDs face balancing patient rights under EMTALA with staff protection and maintaining a safe care environment for patients. Additional work is needed to identify common risk factors that result in EMTALA citations associated with willfully disruptive behavior. The development of best practices and further guidance from CMS regarding how hospitals and healthcare staff can better understand and comply with EMTALA while simultaneously maintaining a safe working environment is urgently needed.

No, authors do not have interests to disclose

61 You Don't Choose the Hospital—But It Chooses Your Bill: Trauma Charge Variation in Florida

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Study Objectives: Trauma activation fees (TAFs) are billed when a trauma team is mobilized in response to prehospital or emergency department triage criteria. These charges are intended to offset the fixed costs of trauma system readiness but have become a source of increasing scrutiny due to wide variation across hospitals. Prior studies suggest that charges may differ based on hospital ownership, trauma center designation, and patient population characteristics of the hospital, but most analyses rely on listed fees rather than actual patient-level billing data. To address this gap, we

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conducted a statewide analysis of trauma response charges in Florida using billing data from 2023 and evaluated how charges vary by institutional and demographic factors.

Methods: We conducted a retrospective analysis of 2023 patient data from the Florida Agency for Health Care Administration, including all patients billed a TAF in emergency departments statewide. Hospital-level characteristics, including trauma designation (Level I, II, or non-trauma), pediatric trauma status, and ownership (for-profit vs nonprofit), were merged using data from FloridaHealthFinder.gov. The outcome variable was the cost of the TAF. A linear mixed model was used to assess associations between trauma charges and hospital-level (profit status, trauma level, pediatric status) and patient-level (age, sex, race, ethnicity, insurance, length of stay) predictors. Continuous variables (age and length of stay) were centered at the sample mean (57.1 years and 5.2 days, respectively) to improve the interpretability of model coefficients. Interaction terms were included for-profit status by payer, profit status by trauma level, and trauma level by pediatric status. Hospital facility was modeled as a random intercept to account for patient clustering.

Results: A total of 54,140 patient encounters with TAFs were included in the adjusted model, which explained 77.9% of the variance in trauma charges (marginal $R^2 = 0.779$; conditional $R^2 = 0.779$). The overall adjusted mean TAF was $15,773. Hospital ownership, trauma level, and pediatric trauma designation were significantly associated with adjusted trauma charges (all $p < .001$). For-profit hospitals had significantly higher adjusted TAFs than nonprofit hospitals ($22,036 vs $9,510; $p < .001$). Level I trauma centers charged more than Level II and non-trauma centers. Pediatric trauma centers were associated with lower TAFs compared to non-pediatric centers. See the **Table** for full adjusted means and pairwise comparisons across groups. Patient-level predictors, including insurance type, race, ethnicity, sex, age, and length of stay, were all significantly associated with TAFs ($p < .001$). Adjusted charges varied significantly by payer type; patients with "Other" had the highest charges, followed by private, self-pay, and public insurance. Male patients and those identifying as non-Hispanic or White had higher adjusted charges than other demographic groups. Significant interactions were observed between profit status and payer group and between profit status and trauma level ($p < .001$). For-profit Level I trauma centers had the highest adjusted mean TAFs ($35,402).

Conclusions: Significant variation in TAFs exists across Florida hospitals, driven by differences in hospital ownership and trauma center designation. For-profit hospitals and Level I trauma centers had substantially higher adjusted TAFs than nonprofit and lower-level or non-designated centers. Notably, some non-designated hospitals were billing TAFs despite lacking formal trauma center status. Because trauma patients are typically transported by EMS and often lack the capacity or opportunity to choose their destination, they face large, uncontrollable cost differences based on where they are taken. These findings underscore the need for increased transparency and regulatory oversight in trauma billing practices and support further investigation into systemic contributors to charge variation in emergency care.

	Mean	Standard Error	95% Confidence Interval	Degrees of Freedom
Grand Mean	15,773	1,123	(13,571 : 17,974)	54,114
	Mean	**Standard Error**	**95% Confidence Interval**	**Significance**
Profit Status				
Non-profit	9,510	1,124	(7,307 : 11,713)	
For Profit	22,036	1,134	(19,813 : 24,258)	
Pairwise Comparisons				
Non-Profit/For Profit	-12,526	229	(-12,975 : -12,076)	<.001
Trauma Level				
Non Trauma Center	13,514	1,133	(11,294 : 15,734)	
Level I Trauma Center	21,786	1,112	(19,606 : 23,966)	
Level II Trauma Center	15,025	1,161	(12,748 : 17,301)	
Pairwise Comparisons				
Non/Level I	-8,272	218	(-8,793 : -7,750)	<.001
Non/Level II	-1,510	398	(-2,463 : -558)	<.001
Level I/Level II	6,761	337	(5,954 : 7,569)	<.001
Pediatric Trauma				
Non-Pediatric Tauma Center	18,237	1,120	(16,042 : 20,432)	
Pediatric Tauma Center	12,076	1,168	(9,786 : 14,366)	
Pairwise Comparisons				
Non-Pediatric/Pediatric	6,161	391	(5,395 : 6,926)	<.001
Payer Group				
Other	16,668	1,138	(14,438 : 18,899)	
Private	15,800	1,123	(13,600 : 18,001)	
Public	15,123	1,123	(12,922 : 17,324)	
Self-Pay	15,500	1,124	(13,297 : 17,703)	
Pairwise Comparisons				
Other/Private	868	194	(357 : 1,379)	<.001
Other/Public	1,546	193	(1,037 : 2,055)	<.001
Other/Self-Pay	1,169	200	(641 : 1,697)	<.001
Private/Public	678	59	(522 : 833)	<.001
Private/Self-Pay	301	81	(88 : 513)	0.001
Public/Self-Pay	-377	80	(-587 : -167)	<.001

Note: Covariates appearing in the model are evaluated at the following values:
Age = 57.07, Length of Stay = 5.16.

Table 1. Estimated Marginal Means and Pairwise Comparisons of Trauma Activation Charges by Hospital Characteristics and Payer Type

No, authors do not have interests to disclose

62 Preliminary Post-Dobbs Trends in Emergency Department Visits for Early Pregnancy Conditions

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Study Objectives: The emergency department (ED) is a common setting of care for early pregnancy conditions (EPC), such as early pregnancy loss (EPL), ectopic pregnancy, and after medication or procedural abortion. An estimated 2.8 million pregnant patients visit the ED each year, of which approximately 900,000 visits are for EPL. Following the June 2022 U.S. Supreme Court decision in *Dobbs v Jackson Women's Health Organization*, many states immediately enacted abortion "trigger" bans or restrictions. We hypothesize that states with such policies will experience an increase in EPC-related ED visits due to decreased access to usual settings of care for EPC and delayed presentation of emergent conditions. The aim of this study is to compare the proportion of EPC-related ED visits before and after *Dobbs* across regions with varying numbers of state-level abortion restrictions, as well as describe visit characteristics for future studies investigating variations in management of EPC.

Methods: This is a retrospective, cross-sectional study of patient visits at hospital-based EDs in the U.S. from 2017-2022. We use data from the publicly available National Hospital Ambulatory Medical Care Survey (NHAMCS), a nationally representative sample of U.S. ED visits, which ended in 2022. The study population is female patients ages 15-49 years with an EPC-related ED visit, defined using relevant ICD-10 diagnosis and Reason for Visit codes. The primary outcome is the proportion of EPC-related visits before (July-December 2017-2021) and after (July-December 2022) the *Dobbs* decision, using the second six months in each pre-*Dobbs* year to account for seasonality in ED visits. U.S. regions serve as the exposure, as varying numbers of states in each region enacted abortion restrictions immediately post-*Dobbs*: 0/9 Northeast (NE) states, 2/13 West states, 4/12 Midwest (MW) states, and 10/17 South states. The publicly available NHAMCS lacks state-level data. We use survey-weighted Pearson chi-squared statistics to compare the proportion of EPC-related visits during the two time periods and logistic regression with an interaction term between time-period and region to evaluate the association between region and post-*Dobbs* EPC-related visits. We report odds ratios (OR) and associated 95% confidence intervals (CI).

Results: There were 6,783,338 EPC-related visits among 220,266,725 weighted ED visits (3.08%) among female patients ages 15-49 during the study period. Among EPC-related visits, the median patient age was 28 (IQR 23-32), which was similar across regions. Insurance type was similar across regions, with 55.1% of visits covered by public insurance, 30.4% by commercial insurance, and 11.5% self-pay. The overall proportion of EPC-related visits was 3.04% (6,030,811 weighted visits) pre-*Dobbs* and 3.48% (752,526 weighted visits) post-*Dobbs* (p=0.532). By region, the proportion of visits was 3.41% vs 2.55% in the NE (p=0.582); 2.97% vs 3.59% in the West (p=0.654); 2.70% vs 3.10% in the MW (p=0.663); and 3.11% vs 3.83% in the South (p=0.586). Compared to the NE, the unadjusted odds of post-*Dobbs* EPC-related visits was 1.55 in the West (95% CI 0.42-6.45), 1.55 in the MW (95% CI 0.49-5.37), and 1.66 in the South (95% CI 0.46-6.10). Adjusting for race, ethnicity, and insurance payer did not significantly change these estimates.

Conclusion: In this cross-sectional analysis, we do not find a significant difference in the proportion of post-*Dobbs* EPC-related ED visits among female patients ages 15-49 in regions exposed to more state-level abortion restrictions. These visits continue to represent approximately 3% of all ED visits among reproductive age women, which is in line with previous estimates and represents over one million annual ED visits. While results of our regression are not statistically significant, we do see a trend in increased visits in regions with post-*Dobbs* abortion restrictions; this data is likely underpowered to detect a significant change. Given the limitations of NHAMCS, including a lack of data beyond 2022, further studies are needed to investigate post-*Dobbs* trends in EPC-related visits and management of these conditions.

No, authors do not have interests to disclose

63 Analyzing the Relationship of Malpractice Date and Health Care Expenditure Through Longitudinal Data

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Study Objectives: The rising costs of healthcare remain a significant challenge in the U.S., driven by various contributing factors. Malpractice claims may affect expenditures by raising insurance premiums, encouraging defensive medicine, or intensifying systemic inefficiencies. This study aims to investigate the potential impact of malpractice payouts

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on healthcare expenditures using longitudinal data, providing insight into whether states with higher malpractice payouts experience higher per capita healthcare costs.

Methods: Data on per capita healthcare expenditure for U.S. states in 2020 was obtained from the Kaiser Family Foundation. Malpractice payout data from 2017 was sourced from the National Practitioner Data Bank and was adjusted to per capita using U.S. Census population statistics. A two-sample t-test for unequal variances was performed to compare healthcare expenditure levels between states with high and low malpractice payouts. Correlation analyses were conducted to assess the relationship between per capita healthcare expenditures and malpractice payouts.

Results: The t-tests revealed statistically significant differences, with all two-tailed p-values being < 0.0001 for comparisons involving healthcare expenditure and malpractice payouts (in millions and per capita), substantially below the 0.05 threshold. Additionally, the correlation coefficient between healthcare expenditure per capita and malpractice payouts per capita were moderate ($r = 0.54$), suggesting a tendency for higher payouts to coincide with slightly elevated expenditures.

Conclusion: The findings suggest that higher malpractice payouts are associated with moderately increased healthcare expenditures, as supported by the correlation analysis. However, malpractice payouts are unlikely to be the sole driver of costs. Additional factors, including litigation issues and systemic inefficiencies, likely play a substantial role in healthcare expenditures. Additional investigation is required to examine these factors and their policy ramifications.

No, authors do not have interests to disclose

64EMF The Impact of Ownership Structure in Emergency Medicine on Older Adults

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Study Objectives: The corporatization of emergency department (ED) staffing has accelerated, with private equity-backed and publicly-traded companies playing a growing role. We aim to describe the changes in ownership structure of emergency medicine practices nationally, and the impact on clinical outcomes for older adults.

Methods: We link Medicare data from 2009–2019 to tax and ownership records to identify the ownership structures of ED staffing groups and how they change over time. We use natural experimental econometric methods (differences-in-differences event study design) to identify how care and staffing changes after ownership transitions.

Results: We find that the share of Medicare-covered ED visits managed by private equity or publicly-traded entities rose from 13% in 2009 to nearly one-third by 2019. Following a hospital's transition to such ownership, we observe a significant increase in the use of nurse practitioners and physician assistants. We use similar methods to analyze outcomes including coding distribution, admission rate, and health outcomes.

Conclusion: Changing ownership of emergency medicine groups towards private equity or publicly traded corporate ownership leads to greater substitution towards nurse practitioners and physician assistants. The complexity of ownership transitions and outcomes belies simple narratives when examining national data using a method with high internal validity.

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65 Information Dissemination on Twitter/X About Eight COVID-19 Emergency Care Innovations

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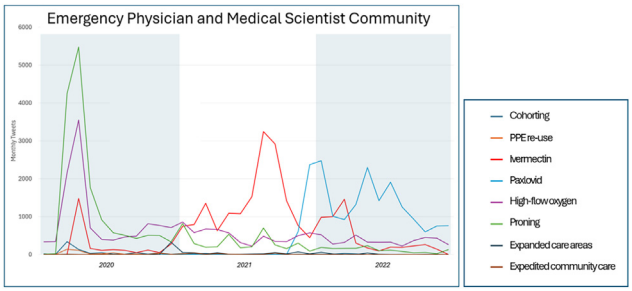
Study Objectives: During a public health emergency such as the COVID-19 pandemic, emergency physicians may use social media platforms to learn about care innovations, but knowledge is limited about how such information spreads online. Our objective was to describe the volume and timing of information dissemination among emergency physicians and other medical scientists on Twitter/X for eight "tracer" innovations that were selected in consultation with a project advisory board consisting of emergency physician, infectious disease, emergency nurse, emergency advanced practice provider, and respiratory therapy content experts.

Methods: We performed an observational social network analysis of tweets from 2020-2022 discussing any of eight tracer innovations in emergency department (ED) care during the pandemic: two pharmaceutical (ivermectin, nirmatrelvir/ritonavir "Paxlovid"), two oxygenation/ventilation (proning, high-flow oxygen), two infection control (cohorting of staff and patients, personal protective equipment reuse), and two surge management innovations (expanded care areas, and expedited community care transitions). Tweets about each innovation were identified using search terms on Brandwatch (a social media aggregation and analytics platform) and then, in some cases based on validation coding, narrowed by using chain of thought prompting with a GPT-4 large language model. A community detection algorithm assigned each user with an in-scope tweet to a discourse community based on with whom they communicated. To limit the scope of community analysis, we analyzed content for communities with >1,000 users and used a machine learning algorithm to identify emergency physicians and/or medical scientists in each community by analyzing linguistic characteristics. Our primary measures of interest were the proportion of tweets about each innovation and, as a measure of medical scientific discourse, the percentage of tweets linking to a peer-reviewed or preprint article.

Results: Over 1 million users sent 4 million tweets about at least one of the study's eight tracer innovations. The community detection algorithm identified 5,119 discourse communities consisting of two or more users. Twenty-nine communities composed of at least 1,000 users accounted for 97% of users. Based on the machine learning algorithm, the community with the largest proportion of users whose linguistic style was similar to emergency physicians and medical scientists (55%) was composed of 30,511 users who tweeted about one or more tracer innovation. In this community, the most commonly discussed innovation was ivermectin (28%), followed by high-flow oxygen (25%), proning (24%), nirmatrelvir/ritonavir "Paxlovid" (22%), cohorting of staff and patients (1%), expanded care areas (1%), personal protective equipment reuse (<1%), and expedited community care transitions (<1%). Fifteen percent of all tweets by this community contained links to peer-reviewed or preprint articles. The **Figure** shows the number of tweets per innovation per month by the community with the largest proportion of emergency physician and medical scientist users. Most other communities had far fewer emergency physician and/or medical scientist users, shared scientific articles much less often, and focused almost exclusively on ivermectin and nirmatrelvir/ritonavir ("Paxlovid"), with almost no mention of the other six innovations.

Conclusion: Tweets about COVID-19 care innovations by emergency physicians and other medical scientists in 2020 focused on proning, high-flow oxygen, and ivermectin. In 2021, ivermectin was by far the most commonly discussed innovation. Nirmatrelvir/ritonavir ("Paxlovid") was increasingly discussed in 2021 and 2022. Retrospective or real-time monitoring of information dissemination by communities of emergency physicians and medical scientists may help stakeholders understand and respond to developing dialogues about care innovations during public health emergencies.

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66 Hybrid Type 1 Pilot Trial on National Early Warning Score 2-guided Sepsis Hour-1 Bundle in the Emergency Department

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Study Objectives: Despite international promulgation, the uptake of the Surviving Sepsis Campaign Hour-1 Bundle (lactate measurement, blood culture, broad-spectrum antibiotics, 30 mL/kg crystalloid for hypotension/lactate ≥4 mmol/L and vasopressors for hypotension during/after fluid resuscitation within 1 hour of sepsis recognition) remains low across healthcare settings. We propose a novel sepsis care model (NEWS-1 care), in which the Hour-1 Bundle is triggered objectively by a high National Early Warning Score 2 (≥5). We aimed to determine the feasibility of a full-scale type 1 hybrid effectiveness-implementation trial on the NEWS-1 care in multiple emergency departments (EDs) in Hong Kong.

Methods: We conducted a pilot type 1 hybrid trial with two components (NCT05731349). The effectiveness component was a prospective cluster randomized controlled trial in four public EDs with a stepped-wedge design over 10 months. The unit of randomization was the study site. All study sites started with an initial period of standard care and switched in random order at two-month intervals to the NEWS-1 care unidirectionally, with 90-day follow-up of all the recruited patients. The implementation evaluation was performed using mixed methods with focus group interviews (n=48) and staff surveys (n=116) guided by the Reach, Effectiveness, Adoption, Implementation and Maintenance framework. Feasibility of a full-scale trial was evaluated based on 14 progression criteria, including trial acceptability to patients and staff, recruitment rates, accuracy of sepsis screening, protocol adherence, accessibility to follow-up data, safety, and preliminary clinical impacts.

Results: During the implementation phase, the compliance rate with lactate, blood culture, antibiotics increased significantly, but the overall bundle compliance rate remained at 56.7% (**Table**). Preliminary intention-to-treat analysis on the 200 recruited patients (standard care group n=102, NEWS-1 group n=98) showed that the NEWS-1 group had a significantly higher NEWS2 at enrolment than the standard care group (median NEWS2 7.0 vs 6.0, p=0.03), but the all-cause 30-day mortality did not differ significantly between the groups (absolute risk difference 5.2%, 95% confidence interval, −1.6% to 12.1%), and there were no differences in mortality at 90 days, in-patient mortality, sepsis-related mortality, needs for mechanical ventilation, renal replacement therapy, intensive care and surgery, ventilator-free days and adverse events. Focus group interviews and staff surveys identified multiple barriers to and facilitators of ED implementation of the NEWS-1 care. Thirteen of the 14 progression criteria, except the overall bundle compliance, were met.

Conclusions: The effectiveness of the NEWS-1 care remained in equipoise and adverse events were rare. A full-scale type 1 multicenter hybrid trial is feasible. However, the lower-than-expected mortality rate calls for a larger sample size in the full-scale trial or alternative triggers for the care bundle.

Table 1. Characteristics and outcomes of the patient participants in the effectiveness trial

Variables	Standard care (n = 102)	NEWS-1 care (n = 98)	P value
Age—years, median (IQR)	73.0 (64.0–80.0)	75.5 (65.0–84.0)	0.171
Sex			
Female	40 (39.2)	41 (41.8)	0.706
Male	62 (60.8)	57 (58.2)	
Charlson Comorbidity Index—median (IQR)	4.0 (3.0–5.0)	4.0 (3.0–6.0)	0.159
Site of infection			
Respiratory	64 (62.7)	71 (72.4)	0.143
Bloodstream	19 (18.6)	17 (17.3)	0.814
Genitourinary	17 (16.7)	12 (12.2)	0.375
Gastrointestinal/Intra-abdominal	9 (8.8)	15 (15.3)	0.158
Skin or soft tissue	9 (8.8)	0 (0)	0.003
Cardiovascular	2 (2.0)	0 (0)	0.498
Pathogen			
Gram-positive bacteria	10 (9.8)	9 (9.2)	0.881
Gram-negative bacteria	32 (31.4)	31 (31.6)	0.968
Mixed organisms	4 (3.9)	4 (4.1)	>0.99
SARS-CoV-2	18 (17.6)	9 (9.2)	0.080
Influenza	12 (11.8)	13 (13.3)	0.748
NEWS2 at enrolment—median (IQR)	6.0 (5.0–7.0)	7.0 (6.0–8.0)	0.03
Sepsis (SOFA ≥ 2) within 7 days	59 (58.4)	66 (67.3)	0.192
SSC Hour-1 Bundle compliance			
ED initiated lactate	20 (19.6)	82 (83.7)	<0.001
Compliance with lactate within 1 hour	17 (16.7)	74 (75.5)	<0.001
ED initiated blood culture	25 (24.5)	85 (86.7)	<0.001
Compliance with blood culture within 1 hour	22 (21.6)	79 (80.6)	<0.001
ED initiated antibiotics	34 (33.3)	81 (82.7)	<0.001
Compliance with antibiotics within 1 hour	26 (25.5)	63 (64.3)	<0.001
ED initiated IVF	38 (37.3)	44 (44.9)	0.272
Compliance with IVF within 1 hour*	4/9 (44.4)	11/16 (68.8)	0.397
ED initiated inotrope	1 (1.0)	0 (0)	>0.99
Compliance with inotrope within 1 hour#	1/1 (100)	0/1 (0)	>0.99
Overall compliance with the Sepsis Hour-1 Bundle	13 (12.9)	55 (56.7)	<0.001
Effectiveness			
All-cause 30-day mortality	4 (3.9)	9 (9.2)	0.131
All-cause in-hospital mortality, censored at day 90	7 (6.9)	9 (9.2)	0.545
All-cause 90-day mortality	8 (7.8)	13 (13.3)	0.211
Sepsis-related in-hospital mortality	5 (4.9)	9 (9.2)	0.235
Need for mechanical ventilation	6 (5.9)	3 (3.1)	0.499
Ventilator free days at day 30—days, median (IQR)	30 (30–30)	30 (30–30)	0.335
Need for renal replacement therapy	1 (1.0)	2 (2.0)	0.616
Need for surgical operation	10 (9.8)	8 (8.2)	0.685
ED length of stay—hours, median (IQR)	3.4 (1.7–5.0)	2.3 (1.2–3.2)	<0.001
ICU admission	7 (6.9)	12 (12.2)	0.194
ICU length of stay—days, median (IQR)	2.2 (0.8–3.8)	3.5 (2.7–8.9)	0.083
Total hospital length of stay—days, median (IQR)	7.6 (4.0–17.5)	8.0 (4.0–16.0)	0.851

Abbreviations: ED, emergency department; IQR, interquartile range; NEWS2, National Early Warning Score 2; SOFA, Sequential Organ Failure Assessment Score
Footnotes: *only patients with hypotension or initial lactate ≥ 4 mmol/L were counted. #patients with hypotension after or during IVF were counted.

Yes, authors have interests to disclose

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Rex Pui Kin Lam

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67 Pilot Evaluation of a Host-Protein Test in Emergency Department Patients Who Trigger a Sepsis Alert

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Study Objectives: Sepsis is a life-threatening condition associated with high mortality and healthcare resource utilization. The Centers for Medicare & Medicaid Services (CMS) introduced the SEP-1 bundle to improve sepsis outcomes; however, its impact remains debated due to low compliance and limited specificity. Diagnostic tools that aid in stratifying infection type may aid in optimizing patient outcomes. MeMed BV® (MMBV) is an FDA-cleared host-response test that distinguishes bacterial (including co-infection) from viral (or other non-bacterial) infections with sensitivity and specificity exceeding 90%, and NPV of 99%. This pilot study explores the integration of MMBV into routine emergency department (ED) care for patients with sepsis alerts.

Methods: We conducted a retrospective cohort study at Tampa General Hospital's ED between September 2024 and February 2025. As part of a pilot implementation, MMBV testing was automatically ordered for patients with a sepsis alert. For the first

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100 patients, MMBV results were not available to the treating physician. MMBV scores were interpreted as follows: <35 indicative of viral (or non-bacterial) infection; 35–65 equivocal; >65 indicative of bacterial infection (or co-infection). This abstract summarizes the first 35 cases with completed data abstraction; additional cases will be abstracted and analyzed by the meeting. Outcomes were descriptively stratified by MMBV score: <35 vs ≥35.

Results: The median patient age was 63 years (IQR 49–74); 40% were immunocompromised. All patients received antibiotics and were hospitalized for a mean of 6.4 days (SD 1.4). Overall mortality was 5.7%. No additional bacterial testing was performed in 11 cases (31.4%). Among patients with MMBV scores <35 (n=7) vs ≥35 (n=28):

Antibiotic use (Vancomycin: 2.9 vs 2.6 doses; Cefepime: 4.9 vs 4.7 doses) and route of administration were similar.

Bacterial testing was more frequent in the <35 group (57.1% vs 25.0%), but blood culture positivity was lower (0% vs 17.9%).

Hospital length of stay was shorter in the <35 group (4.4 vs 6.9 days).

No deaths occurred in the <35 group, compared to 2 (7.1%) in the ≥35 group.

Conclusion: In this pilot cohort, patients with sepsis alerts and MMBV scores <35—suggestive of viral or non-bacterial infections—demonstrated lower bacterial test positivity, reduced length of stay, and no observed mortality. These preliminary findings suggest MMBV may help identify a lower-risk subgroup within flagged patients. Further analysis of the full dataset is underway.

Yes, authors have interests to disclose

Disclosure: MeMed (provided in-kind cartridges and student support funding)

Jason Wilson

Other

MeMed (provided in-kind cartridges and student support funding)

68 Point-of-Care Presepsin and Procalcitonin to Rule-Out Sepsis in Patients With Infectious Symptoms

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Study Objectives: In patients presenting to the emergency department (ED) with infectious symptoms, ruling-out sepsis is essential. Procalcitonin (PCT) and Presepsin (PSEP) are inflammatory biomarkers that have been suggested for the diagnosis and exclusion of sepsis. However, limited data exists for PSEP in the ED setting when used alone or in combination with PCT. Our objective was to test whether these biomarkers, in combination or alone, can rule-out sepsis.

Methods: We conducted a prospective pilot observational cohort study of adult ED patients presenting with clinical suspicion of acute infection from June 2022-May 2023. Suspicion of acute infection was based on ED provider assessment and at least one of the following: antibiotics ordered, identification of an infectious source on imaging or laboratory testing, or presence of systemic inflammatory response syndrome. Each participant had blood collected and analyzed on the Pathfast point-of-care analyzer (PHC Corporation, Tokyo, Japan) for PSEP and PCT. PSEP and PCT results were classified into low-, moderate-, and high-risk based on established cut-points. The patient's clinical team were blinded to PSEP and PCT results. The primary outcome was a clinical diagnosis of sepsis. The association of PSEP and PCT with sepsis was assessed using chi-square testing. Negative predictive values (NPV) of PSEP and PCT measures, alone and in combination, for sepsis were calculated with associated 95% confidence intervals.

Results: During the study period, 149 patients were accrued and had biomarker measures completed, of which 47.0% were female and 40.9% non-white, with a median age of 64. Among these patients 27.5% (41/149) were diagnosed with sepsis. In patients with low-risk PSEP measures, 4.7% (2/43) had sepsis compared to 36.8% (39/106) in patients with moderate- or high-risk PSEP measures (p <0.0001). Of the 99 patients with a low-risk PCT, 9.1% (9/99) had sepsis vs 62.5% (30/48) in patients with a moderate- or high-risk PCT (p <0.0001). In the 37 patients with low-risk measures of both PSEP and PCT, 0% (0/37) had sepsis compared to 35.5% (39/110) of patients without low-risk measures for both biomarkers (p <0.0001). The NPV for sepsis was 95.4% (95% CI of 89.1%, 100%) for PSEP, 90.9% (95% CI of 85.3%, 96.6%) for PCT, and 100% (95% CI of 90.5%, 100%) for their combination.

Conclusions: Use of PSEP yielded high negative predictive value for sepsis especially when used in combination with PCT.

Yes, authors have interests to disclose

Disclosure: Polymedco

Simon Mahler

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Polymedco

70 Investigation of the Effect of Implementing a Host Response Test on SEP-1 Compliance

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Study Objectives: The Centers for Medicare & Medicaid Services (CMS) SEP-1 bundle was introduced to standardize the identification and management of sepsis. However, SEP-1 clinical criteria may exclude patients who could benefit from early intervention. This study evaluates the impact of implementing a host response (HR) test to inform SEP-1 inclusion criteria and its effect on compliance rates.

Methods: This study was conducted in a large emergency department (ED) in Baton Rouge, LA, from July 2024 to December 2024. The HR test was first implemented in August 2023, and in July 2024, sepsis disease-specific documentation was modified to incorporate the results of the HR test. The modified approach ensured appropriate documentation of SEP-1 inclusion to capture patients with a positive early diagnostic who did not yet meet SEP-1 clinical criteria while excluding patients with negative early diagnostic. The target compliance rate was set at 70%.

Results: From July to December 2024, 100 ED patients per month [MS1] were sampled for SEP-1 eligibility and compliance, except in September and December (99 patients). At baseline in July 2024, SEP-1 compliance was 61.2%. By September 2024, compliance surpassed the 70% target, reaching 72.7%, and by December 2024, it increased to 78.9% (**Figure** - A). This increase in compliance was primarily driven by appropriate documentation of SEP-1 inclusion earlier than clinical criteria had previously allowed. In July 2024, 30 out of 100 patients met SEP-1 criteria and were treated, with 19 others qualified without treatment and 51 excluded. By September 2024, the number of qualifying patients increased to 40, with 15 additional qualified without treatment and 44 excluded. By December 2024, 45 patients met SEP-1 criteria, with 12 additional qualified without treatment and 42 excluded (**Figure** - B).

Conclusion: Integrating an HR test into SEP-1 inclusion criteria may improve compliance by empowering providers to more rapidly identify septic and non-septic patients. This approach may enable centers to enhance SEP-1 metric performance.

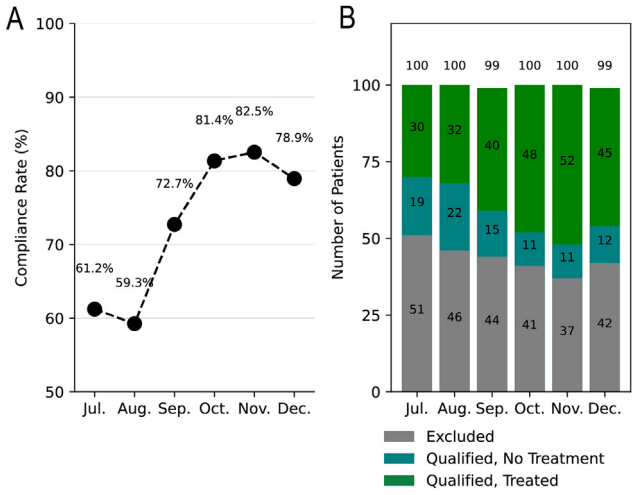


Figure 1. (A) SEP-1 compliance rate over time. (B) SEP-1 qualification and treatment status of patients in study cohort over time.

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71 Barriers to and Facilitators of the Sepsis Hour-1 Bundle: A Mixed Methods Implementation Evaluation

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Study Objectives: To standardize sepsis care in the emergency department (ED) and to improve the uptake of the Surviving Sepsis Campaign Hour-1 Bundle (lactate measurement, blood culture, broad-spectrum antibiotics, 30 mL/kg crystalloid for hypotension/lactate $\geq$4 mmol/L and vasopressors for hypotension during/after fluid resuscitation within 1 hour of sepsis recognition), we propose a novel sepsis care model (NEWS-1 care), in which a National Early Warning Score 2 $\geq$5 (high-risk threshold) triggers the Hour-1 Bundle. The aim of this study was to identify the barriers to and facilitators of implementation of the NEWS-1 care in multiple EDs in Hong Kong.

Methods: We conducted a pilot type 1 hybrid trial (NCT05731349). While collecting preliminary data on clinical effectiveness in four public EDs, we evaluated the implementation of NEWS-1 care using mixed methods guided by the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework. Two rounds of focus group interviews (pre/post-patient enrolment period) and an anonymous staff survey were conducted. Grounded theory was used to analyze qualitative data, with independent coding and thematic analysis by two coders using NVivo version 14. Qualitative data from interviews were triangulated and interpreted with quantitative survey data.

Results: Focus group interviews involving 48 ED doctors and nurses and staff survey with 116 respondents identified multiple barriers to and facilitators of ED implementation of the NEWS-1 care. From the interviews, 187 codes generated from the transcript verbatim were synthesized into 28 main themes and categorized as barriers and facilitators under the RE-AIM framework (**Table**). Barriers to care bundle implementation involved every bundle component. The NEWS2 calculation was identified as a barrier in adoption, implementation, and maintenance of the NEWS-1 care, with doubts about the appropriateness of the cutoff point. Increasing NEWS2 uptake through automatic score calculation, streamlining delivery of bundle components, breaking staff inertia, and designated resources for sepsis might facilitate its ED implementation.

Conclusions: Many of the barriers to and facilitators of ED implementation of the NEWS-1 care are local issues, but some are universal. This information is not only useful in NEWS-1 implementation and full-scale trial planning, but also to inform other initiatives seeking to improve ED sepsis care.

Table 1. Main themes identified as barriers to and facilitators of implementation of the NEWS-1 care under the RE-AIM Framework

Domain	Key themes
Reach (NEWS-1 uptake and the extent of staff participation)	
Barriers to reach	• Unfavorable patient factors • Inconsistent patient selection
Facilitators of reach	• Early sepsis recognition checkpoints • Systemic screening for borderline or deteriorating cases
Effectiveness (NEWS-1 impact on patient outcomes)	
Barriers to effectiveness	• Concerns about the one-size-fits-all approach • Lack of continuity of care • Missing deterioration during long waits
Facilitators of effectiveness	• Staff perceived clinical benefits • Appropriate patient selection
Adoption (Organization support for the NEWS-1 care)	
Barriers to adoption	• Concerns about negative impacts on service • Staff resistance to the NEWS2 • Medicolegal considerations
Facilitators of adoption	• Staff willingness to change practice • Additional manpower
Implementation (delivery of the NEWS-1 care)	
Barriers to implementation	• Challenges in delivering bundle care • Inadequate resources for additional workloads • Staff reliance on clinical judgement over NEWS2 • Staff inertia to change in practice
Facilitators of implementation	• Increasing the update of NEWS2 • Streamlining sepsis bundle care • Breaking staff inertia • Designated resources for sepsis care
Maintenance (long-term use of the NEWS-1 care)	
Barriers to maintenance	• Additional costs • Difficulty in recalling NEWS-1 care • Unreliable point-of-care assay
Facilitators of maintenance	• Clear and simple sepsis protocol • Pre-packed antibiotics • Regular performance review

Abbreviation: NEWS2, National Early Warning Score 2

Yes, authors have interests to disclose
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72 Application of Artificial Intelligence to Emergency Medicine in the United States: A Scoping Review

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Study Objectives: Although without a clear consensus definition, "artificial intelligence" (AI) can be described as the application of information technology to tasks that previously relied on human intelligence in ways that can either approach or exceed human performance in those tasks. This closely intersects (and is sometimes used synonymously) with the field of machine learning that leverages statistics to "learn" from patterns in data rather than explicitly programmed rules. With recent booms in mainstream popularity of AI, there has been acceleration of publication growth attempting to apply AI to improve the practice of emergency medicine. Machine learning is a unique field of research in that studies of machine learning models can be done completely *in silico*, on retrospective or simulated patient data, without necessarily being deployed and evaluated in a clinical or simulated environment. This review aims to scope the current landscape of application of artificial intelligence to the clinical operations and practice of emergency medicine in the United States. This will focus on which tasks artificial intelligence is being applied to, which techniques and models are being studied, and which operational stage of deployment these studies are in (eg, *in silico* vs clinical study vs usability study).

Methods: A systematic review was conducted to identify studies evaluating artificial intelligence and machine learning in clinical emergency medicine according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) guidelines. Three databases (Ovid MEDLINE, PubMed, and Scopus) were systematically searched for relevant articles published over a ten year period (January 1, 2014-August 1, 2024). Included studies described a developed, in development, or theoretical "artificial intelligence" or machine learning system applied

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to a specific task within the clinical operations or practice of emergency medicine. Studies applied to data from outside of the United States or with a majority of authors outside of the United States were excluded. Data were extracted using a standardized reporting tool by two authors, with a third author adjudicating.

Results: A total of 879 studies were screened for inclusion with 137 articles included in the final analysis. For 92% of papers, their use of AI pertained to a statistical or machine learning model. A majority of studies (about 64%) were *in silico* retrospective analyses with less than 18% of studies incorporating prospective data at all. Less than 3% of studies were RCTs or similar clinical trials. Common application areas included prediction of patient outcomes (41% of studies), risk stratification (14%), imaging diagnostics (11%), triage (11%), resource allocation (9%), other non-imaging diagnostics (6%), and ECG diagnostics (4%). Common involved specialties outside of general emergency medicine included infectious disease (18% of studies), pediatrics (11%), neurology/neurosurgery (7%), cardiology (7%), psychiatry (6%), and trauma (6%). The most utilized machine learning models were gradient-boosted trees, random forests, and other tree ensembles (about 45% of studies).

Conclusion: Current emergency medicine "artificial intelligence" research published within the United States focuses primarily on in silico analysis, with very few clinical trials of AI interventions and machine learning models. Future work and investments should be focused on technology transition and usability studies to help accelerate technology deployment in emergency medicine and advance emergency medicine practice.

No, authors do not have interests to disclose

73 Does Artificial Intelligence Note Writing Affect Emergency Medicine Throughput and Billing Metrics?

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Study Objectives: Emergency department (ED) crowding, driven by increasing patient volume and documentation burden, is associated with higher mortality rates, worsened quality of care, and decreased patient and provider satisfaction (1). Generative artificial intelligence (AI) for note-writing has shown promise in reducing documentation time in ambulatory and pediatric emergency settings, but its impact in adult EDs remains unclear (2). This study evaluates whether unintegrated Abridge AI-assisted note writing is associated with increased patient throughput and its effects on key operational and financial metrics, including patient length of stay (LOS), relative value units (RVUs) per encounter, and total charges per encounter.

Methods: From January 1, 2024, to October 20, 2024, we implemented optional use of Abridge generative AI software in our adult ED for drafting provider notes. An encouragement design was used to assess voluntary adoption as physicians were not randomized. We included all ED encounters where patients were independently evaluated by an emergency physician over the study time frame, as well as a one-year prior to Abridge implementation. We excluded visits managed by non-physician providers or resident physicians. The primary outcome was the association between Abridge use (%) and patients seen per hour. Secondary outcomes included the association between Abridge use (%) and patient length of stay (LOS), RVUs per encounter, and total amount billed per encounter. All outcomes were analyzed using multi-level generalized linear regression. Abridge utilization was quantified by calculating the total number of initial patient history and physical notes generated per provider per week divided by the provider's total encounters for the same week. We controlled for age, sex, race, severity index, laboratory and imaging studies, disposition, and daily ED census. Statistical analysis was performed using R version 4.3.

Results: A 1% increase in Abridge usage per provider per week was associated with a 0.91% increase in patients seen ($p < 0.001$). This increase in Abridge utilization was similarly associated with an increase in total relative value unit (RVU) of 0.1%, total charges of 0.06% and a decrease in patient length of stay of 0.14%. All associations were statistically significant ($p < 0.001$).

Conclusion: The implementation of Abridge AI-assisted note writing was associated with improved patient throughput, as indicated by an increased number of patients seen per hour. Additionally, its use correlated with reduced LOS and increased RVUs per encounter, suggesting potential operational and financial benefits. Given that documentation consumes approximately 31% of emergency physicians' time, AI assisted note-writing may help streamline workflow and improve provider efficiency. Future research should explore long-term adoption, patient and provider satisfaction, and patient safety outcomes, as well as the scalability of AI documentation tools across high-volume urban and rural EDs, where efficiency gains could significantly impact patient care and financial sustainability.

Table 1. Percent Change in Outcome per 1% Increase in Abridge Usage per Provider per Week.

	% Change	95% CI	P-value
Patients Seen	0.91	0.87 – 0.95	<0.001
LOS	-0.14	(-0.15) – (-0.13)	<0.001
Total Changes	0.90	0.75 – 1.06	<0.001
Work RVU	0.09	0.07 – 0.11	<0.001
Total RVU	0.10	0.08 – 0.13	<0.001

No, authors do not have interests to disclose

74 The Promise and Pitfalls of Artificial Intelligence Literature Search Tools in Medicine

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Study Objectives: Conducting comprehensive literature reviews often poses challenges for clinicians and medical researchers, requiring extensive reading and synthesis of existing works while advancing original insights. Numerous artificial intelligence (AI) research tools have emerged that aim to assist medical researchers and clinicians, but finding the best tools can be overwhelming. The study assessed AI tools based on their ability to accurately identify relevant research papers, extract key information, generate concise summaries, and facilitate the analysis of trends across studies.

Methods: This prospective descriptive analysis analyzed six semantic AI search tools that interpret the meaning of words and phrases in a query and six citation-based search tools that match keywords. A panel of emergency medicine faculty developed evaluation criteria. These criteria included search functionality, data analysis and summarization, accuracy (compared to four human searches), relevance, limitations, unique features, user-friendliness, and cost. Descriptive statistics and frequency tables were used to describe the key quantitative and qualitative variables.

Results: The six semantics-based tools (eg, Consensus, Perplexity) were more suitable for exploring nuanced topics and emerging research. In contrast, the six citation-based tools (eg, Connected papers, Scite.ai) focused on the impact of research through citation metrics and network analysis. Most AI search tools offered a user-friendly interface (92%), quick summaries of research findings (75%), content analysis (67%), conversational search abilities (50%), and literature mapping (42%). Monthly fees ranged from free to $29/month based on the features selected. The accuracy compared to human searches ranged from 100% to 87%. All of the tools flagged results as relevant when they were not (false positive rate of 3-16%).

Conclusions: While AI search tools provide rapid access to literature and can be helpful for preliminary research, they currently lack the precision and contextual understanding of human researchers. Users should maintain a critical perspective when using these tools, particularly when making important clinical decisions based on their findings. Cross-verifying data with original research is advisable to ensure accuracy.

No, authors do not have interests to disclose

75 Quality of ChatGPT Generated Review of Emergency Medicine Topics

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Study Objectives: Physicians are discovering the potential of AI to improve patient care from a wide number of perspectives including efficiency/cost, disease prevention, and treatment. However, investigators have raised concerns regarding the accuracy of information provided by chatbots as well as the references that such technologies cite. We conducted a study to evaluate the quality of ChatGPT generated reviews for the work-up of common emergency medicine (EM) related diagnoses.

Methods: This was a descriptive study conducted at a teaching facility. Study authors selected EM diagnoses that reflected a broad practice scope. The lead study author entered a standardized ChatGPT-4 search for work-up of each diagnosis. Subsequently, each reference provided by ChatGPT was entered into Google web search to determine accuracy of citation/authors from the actual reference. Two blinded, EM, BC/BE study authors conducted a structured review of the chatbot outputs. They assessed information accuracy, thoroughness, and whether such information was up-to-date on a scale from 1 (strongly disagree) to 5 (strongly agree). Categorical data presented as frequency of occurrence and continuous data as means +/-SD.

Results: 25 topics were evaluated; mean number of references was 8.2+/-1.9 and the mean % of correct reference citations was 9.6+/-1.3%. The majority of topics (14/25; 56%) did not have a single correct reference, including the following:

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acetaminophen toxicity, respiratory failure, acute liver failure, altered mental status, appendicitis, ectopic pregnancy, hernia, meningitis, ocular foreign body, ovarian torsion, paraphimosis, SBO, tenosynovitis, and testicular torsion. The highest reference accuracy was noted for endocarditis (30%), CVA (37.5%), and PE (43%). The reviewers provided the following mean scores (rater 1 and rater 2): accuracy (3.9+/-0.7 and 3.9+/-0.8), completeness (3.4+/-0.9 and 2.5+/-0.5), and up-to-date (4.1+/-0.7 and 3.7+/-0.7). The two reviewers agreed on a review score > 4 for the following proportion of reviews: accuracy of information provided (60%), completeness (56%), and up-to-date (52%).

Conclusion: Within our review of ChatGPT-4 output for work-up reviews of a broad array of EM diagnoses, citations were predominantly inaccurate and a large proportion had concerns for information accuracy, completeness, and recency.

No, authors do not have interests to disclose

77 Comparative Analysis of an AI Chatbot Versus Physician Responses to Emergency Department Questions

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Study Objective: Artificial intelligence (AI) has the potential to increase access to medical information, improve medical decisionmaking, and increase the efficiency of healthcare professionals. This study aims to assess and compare the accuracy, relevancy, and comprehensibility of ChatGPT answers to real-time clinical questions by comparing answers obtained from ChatGPT and practicing emergency physicians.

Methods: This study used a controlled prospective cohort study design. Physicians in the emergency department (ED) participated by providing clinical questions that arose while working in the department or by providing answers to questions obtained by other physicians. Each question was inputted into ChatGPT (version 4.0, OpenAI, San Francisco, California) to obtain an answer. A panel of three experienced attending emergency physicians (graders) scored ChatGPT and physician answers. Scores were based on the accuracy, clinical relevancy, and comprehensibility of the answers. Graders were blinded to whether an answer was provided by ChatGPT or an emergency physician. Scoring was performed using a 5-point Likert scale (1 for "Strongly Agree" to 5 for "Strongly Disagree"). A final score for an answer was determined by the average score provided by the three graders. A paired t-test was used to compare the scores for answers provided by ChatGPT and physicians.

Results: 46 patient care questions were obtained in the ED. 30 questions were provided by residents and 16 questions were provided by attending emergency physicians. In obtaining answers to the patient care questions, a physician providing an answer must not have initially asked the question. 34 questions were answered by ED residents and 12 questions were answered by ED attending physicians. Sources used by answering physicians were: UpToDate (7 times), PubMed (6 times), "Textbook" (3 times), and Other (39 times). Self-knowledge was included in the "Other" category and physicians were instructed to avoid the use of artificial intelligence to answer questions. Graders identified whether answers were provided by ChatGPT or a physician with 100% accuracy. Graders determined answers provided by ChatGPT were more accurate (1.4 ± 0.5 vs 2.0 ± 1.0), more clinically relevant (1.3 ± 0.3 vs 1.6 ± 0.7), more understandable (1.1 ± 0.2 vs 1.3 ± 0.3), more comprehensive (1.4 ± 0.6 vs 2.5 ± 1.0), and potentially less harmful to patient care (4.3 ± 0.6 vs 3.9 ± 0.9). Results were statistically significant with a p-value < 0.05 for each of these grading criteria. ChatGPT was similar to physicians in avoiding bias toward a particular patient population (4.3 ± 0.3 vs 4.3 ± 0.1); p-value $= 0.82$.

Conclusion: ChatGPT performed better than emergency physicians in answering relevant patient care questions. However, it did not pass the Turing test as graders were able to correctly differentiate ChatGPT from physician answers. Our study highlights the possibility of ChatGPT serving as a chatbot medical consultant, acknowledging that it is not human.

No, authors do not have interests to disclose

78 Improving Stroke Detection in Patients Presenting With Dizziness, Vertigo, Ataxia, and Imbalance

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Study Objectives: We study the impact of a national program to standardize care for patients with dizziness and related symptoms by promoting the use of National Institute of Health Stroke Scale (NIHSS) clinical assessments.

Methods: 1. Setting: In a multisite of 114 U.S. emergency departments (EDs), performance of the NIHSS was established as a clinical priority in patients presenting with dizziness, vertigo, ataxia, and imbalance from 2021-24. 2. Patients: Patients were included if they had a chief complaint of dizziness, vertigo, or imbalance. This was done by using key word searches of the chief complaint text field listed in the electronic medical record. 3. Interventions and Measurements: Starting in 2021, clinicians were educated on diagnostic accuracy of CT, MRI, and HINTS versus NIHSS to diagnose posterior stroke. From 2020 to June 2023 performance was measured through selected random audits of 500 charts per quarter and site level data were reported to the site directors. This is the pre-period. Starting in July 2023, chart audits of all patients presenting with the chief complaint of dizziness, vertigo, ataxia, and imbalance or performed by electronic query combined with audit of all applicable charts by human auditors for the presence or absence of a NIHSS exam performed. Performance was measured on a month-by-month basis. Starting in July 2023, when robust data down to individual clinician data were available, direct feedback on performance to both site directors and individual clinicians was given. This is the post-period. Visit data from the 114 sites were aggregated by month to determine whether the full- monthly rates of stroke diagnoses, use of head CT and MRI imaging. 4. Statistical Analysis: The primary outcome was the stroke detection rate, defined as the number of visits with a stroke diagnosis. Secondary outcomes included the number of visits with brain/neck MRIs, NCCTs, and CT head/neck angiography. We conducted an interrupted time series analysis to estimate the effect of the full-audit beginning in July 2023. Due to the non-linear distribution of the outcomes, we used Poisson regression with a log link, including total visits as an exposure variable to estimates rates, adjusted for average visit age, gender, ESI level, and monthly volumes of COVID-19 visits. To estimate changes in the level and trend associated with the full-audit, we included an interaction term between time and an intervention-period indicator. Standard errors were adjusted for clustering at the ED-level.

Results: NIHSS performance persistently improved throughout the post-period, increasing at a rate of 2.2% per month (95% CI 2.0-2.4), from 47% in July of 2023 to 73% by December 2024. During the pre-period, the trend in diagnosis of stroke was declinging slightly, but increased post-intervention by 2.0% per month (95% CI 1.0-3.1), relative to the pre-period trend. The pre-period trend in use of brain MRIs was approximately flat, and utilization increased by 1.2% per month (95% CI 0.5-1.8). Trends in Non-contrast head CT also increased significantly, from a relatively flat pre-period trend to increasing at a rate of 0.6% per month (95% CI 0.2-1.0). Similarly, trends in head CT angiography also were relatively flat in the pre-period and increased at a rate of 1.3% per month (95% CI 0.7-1.9) after the intervention.

Conclusions: We found that promoting the use of the NIHSS in patients with complaints dizziness, vertigo, ataxia, or imbalance after full-chart audits was associated with an increased stroke detection rate, as well as a modest increase in MRI use and CTA use. Non-contrast head CT increased slightly but less so compared with MRI and CTA.

Table. Interruputed Time Series Analysis: Changes to Outcomes after NIHSS Full-Audit

	Pre-Period Trend	Immediate Change in Rate	Change in Trend
Stroke Diagnoses	-0.006 (-0.011, -0.001)	-0.099 (-0.219, 0.021)	0.020 (0.010, 0.031)
Brain MRIs	-0.002 (-0.007, 0.002)	-0.006 (-0.071, 0.059)	0.012 (0.005, 0.018)
Head CT without Contrast	-0.004 (-0.006, -0.003)	-0.028 (-0.059, 0.004)	0.006 (0.002, 0.010)
Head CTA	0.002 (-0.001, 0.006)	0.005 (-0.046, 0.055)	0.013 (0.007, 0.019)

No, authors do not have interests to disclose

79 Enhancing Head Trauma Evaluation in Intoxicated Patients Using Blood Biomarkers

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Study Objectives: Assessing intoxicated head trauma patients in the emergency department (ED) presents significant challenges due to unreliable patient histories, cognitive impairment, and overlapping symptoms of intoxication with head injuries. When standard assessments, such as the Glasgow Coma Scale (GCS), prove unreliable, additional diagnostic tools like neuroimaging become essential. However, factors such as vomiting and altered mental status may complicate acquiring brain imaging. New FDA cleared blood tests on both Abbott Core Lab and Point of Care platforms measuring glial fibrillary acidic protein (GFAP) and ubiquitin C-terminal hydrolase L1 (UCH-L1) may help clinicians determine if a computed tomography (CT) of the head is needed. This study aimed to characterize the

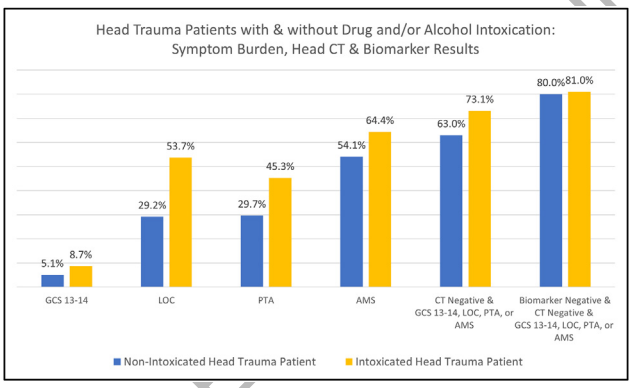
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prevalence of alcohol and/or drug use among traumatic brain injury (TBI) patients presenting to the ED and evaluate the performance of the Abbott i-STAT TBI Plasma test measuring GFAP and UCH-L1 to assess head injury in intoxicated patients.

Methods: A secondary analysis from the ALERT-TBI clinical trial was performed. Patients ≥18 years-old with nonpenetrating head injury, presenting with a GCS score of 13–15, where a head CT was indicated, and blood collection occurred within 12h of injury were included. Patient characteristics including age, sex, ethnicity, GCS score, loss of consciousness (LOC), posttraumatic amnesia (PTA), and altered mental status (AMS), and imaging results were compared between those with and without substance use. Interference studies based on Clinical and Laboratory Standards Institute (CLSI) guidelines were conducted to assess potential ethanol interference with the assays.

Results: Of 1,977 patients, 1,901 had analyzable data. 21.1% (n=402) presented with drug and/or alcohol intoxication. Compared to non-intoxicated patients, intoxicated patients were on average younger (mean 45.3 years vs 50.1 years), predominately male (74.6% vs 51.7%), non-white (42.0% vs 26.0%), and were more likely to have lower GCS scores of 13 or 14 (8.7% vs 5.1%). Of those with alcohol and/or drug use, reports of LOC, PTA, and AMS were higher than those presenting without substance use (LOC 53.7% vs 39.2%, PTA 45.3% vs 29.7%, AMS 64.4% vs 54.1%). Of intoxicated patients that had a lower than 15 GCS or LOC, PTA, or AMS, 73.1% (n=294) had a negative head CT and 81.0% (n= 238) of those were biomarker negative compared to 63.0% (n=944) and 80% (n=751) of non-intoxicated patients. The negative predictive value (NPV) to rule out a head CT for those presenting intoxicated was 98.8% (95% CI: 96.1, 99.7) and 99.5% (95% CI: 98.5, 99.8) for those not intoxicated. No ethanol interference with GFAP was detected. Interference with UCH-L1 was detected only when levels of ethanol were 50% above the survivable limit set by CLSI.

Conclusion: One in five head trauma patients presenting to the ED were also under the influence of alcohol and/or drugs. These patients were predominately younger, male, demographically diverse, and exhibited higher rates of LOC, PTA, AMS, and lower GCS scores compared to non-intoxicated patients. Despite these symptoms, they had a higher rate of negative head CTs but a similar percentage of biomarker negative results. This suggests that intoxication symptoms may confound head injury symptoms, leading to unnecessary CT utilization, which could be avoided with the aid of GFAP and UCH-L1. Importantly, there was a high NPV to aid in determining the need for a head CT and no statistical difference in NPV between patients presenting with TBI that were or were not intoxicated. Alcohol had no meaningful interference with the GFAP and UCH-L1 assays. This study concludes that the Abbott i-STAT TBI plasma test performs well and could improve accuracy and efficiency of evaluating TBI in intoxicated patients presenting to the ED.



Yes, authors have interests to disclose
Disclosure: Abbott Laboratories
All authors
Employee
Abbott Laboratories

80 AI Detection of Nonconvulsive Status Epilepticus in a Community Hospital Emergency Department: Accuracy and Clinical Use

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Study Objectives: Point-of-care electroencephalography (POC EEG) with AI-based seizure detection was launched at our hospital in 2020 as part of an effort to expand neurodiagnostic capacity. POC EEG is used across hospital units, including the emergency department (ED), where it is now the default EEG order after hours when EEG technicians are unavailable. To ensure timely decisionmaking in the ED, we developed a treatment protocol using the device's rolling 5-minute seizure burden (SzB) estimate. Previous studies have shown that SzB ≥90% is highly accurate in detecting nonconvulsive status epilepticus (NCSE; Kamousi et al, 2021, Neurocrit Care). Per the treatment protocol, seizure burden surpassing 90% in the presence of high clinical suspicion should be treated immediately, coincident with escalation to neurology for review. In all other cases, the protocol recommends either STAT or routine review of EEG results (**Figure**). The goal of this study is to assess the accuracy of the POC EEG algorithm in detecting NCSE in our ED and to evaluate the workflow's suitability and effectiveness in driving treatment decisions for patients with suspected NCSE.

Methods: Chart reviews were conducted for ED patients monitored with POC EEG between April-June 2023 as part of a larger study of POC EEG's impact on patient care. Original EEG reports were categorized as "non-seizure", "seizure," or "NCSE" and compared to the maximum SzB output from the POC EEG. For exploratory evaluation of the impact of the AI-based protocol on clinical management of ED patients, medication administration records were examined for (1) patients with neurologist-diagnosed NCSE (whether or not correctly identified by the AI algorithm) and (2) patients whom the algorithm inaccurately indicated the presence of NCSE.

Results: Of 73 patients included in this analysis, formal neurology review of the POC EEG yielded the diagnosis of NCSE in 1 case, seizure diagnosis in 5 cases, and no seizure diagnosis in 67 cases. The AI algorithm correctly identified the case of NCSE (max SzB = 100%); for the additional 5 seizure cases, max SzB estimates ranged from 0-80%. Overall, for detecting NCSE at the bedside (SzB≥90%), the algorithm had sensitivity = 100%, specificity = 98.6%, positive predictive value = 50%, and negative predictive value = 100%, and overall accuracy = 98.5%. In the patient with neurologist-confirmed NCSE, seizures were documented from the beginning of the recording in both the report and SzB output, and IV medication was started within 30 minutes of SzB crossing the 90% threshold. In the patient without neurologist-diagnosed NCSE (false positive), the patient's treatment was not escalated in response to SzB (due to low clinical suspicion of NCSE).

Conclusion: Consistent with previous work (Kamousi et al, 2021), AI-based NCSE detection showed high sensitivity and specificity, providing emergency physicians with immediately actionable data. While the algorithm demonstrated high sensitivity and specificity, its positive predictive value suggests a moderate false-positive rate. However, this risk is mitigated by our protocol's reliance on clinical judgment and STAT neurology review. In 71 cases, the algorithm correctly ruled out NCSE, potentially enabling emergency physicians to avoid unnecessary escalation of medications and intubations. Strong conclusions are limited by a small sample size and very few cases of NCSE.

Figure 1:

Seizure burden	PROVIDER'S CLINICAL SUSPICION: HIGH	PROVIDER'S CLINICAL SUSPICION: LOW
> 90%	Patient needs treatment now. STAT page to responding clinician and on-call epileptologist → proceed with orders	Do not treat yet! Ask for review of EEG now (Tiger Text on-call epileptologist)
50-89%	Do not treat yet! Ask for review of EEG now (Tiger Text on-call epileptologist)	Do not treat! Wait for review of EEG
10-49%	Do not treat yet! Ask for review if increases nearing 50% (Tiger Text on-call epileptologist)	Do not treat! Wait for review of EEG
< 10%	Do not treat! Wait for review of EEG	Do not treat! Non-urgent review of EEG

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81 Evaluation of an Out-of-Catchment Ambulance Hyperacute FAST+ Bypass Pathway

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Study Objectives: In March 2024 the Dublin Midland Hospital Group and National Ambulance Service introduced a Hyperacute FAST+ ambulance bypass protocol for patients who are normally in the catchment area of two regional hospitals (Naas General Hospital and Midland Regional Hospital, Portlaoise) in the Leinster region of Ireland. Paramedics are empowered to bring patients with a hyperacute FAST+ presentation in these catchment areas to Tallaght University Hospital (TUH) an academic tertiary hospital to expedite specialist stroke care. The regional hospitals are located 28km and 76km respectively from the academic tertiary hospital. This study aimed to describe the resource burden on the academic tertiary hospital emergency department (ED) and to quantify the patient journey times.

Methods: In this single center retrospective chart review, all Hyperacute FAST+ patient presentations to TUH ED between March 1, 2024 and February 28, 2025 were reviewed and analyzed using data from the ED Information System Symphony. Journey times and distances were collated using Google Maps.

Results: There were 62,728 attendances to TUH ED in the study period and of these 13,403 patients presented to TUH ED by ambulance. 1.2% (n=162) of ambulance attendances were patients presenting on the out of catchment Hyperacute FAST+ patients protocol during the study period. The mean age was 68 years. There were 93 males and 69 females. The mean travel distance was 54.9km and an estimated travel time of 44 minutes. The mean ED patient experience time was 5.1 hours. 56.2% (n=91) of patients were admitted to TUH while 43.8% (n=71) were discharged from ED. 9.9% received thrombolysis and 5.6% received thrombectomy. 4.3% (n=3) patients were referred onwards to the regional neurosurgical center, 29.6% (n=21) patients were discharged home directly and 66.2% (n=47) were repatriated back to the regional hospitals for medical admission. The mean length of stay for the patients admitted to the academic tertiary hospital was 13.6 days.

Conclusion: This single health region Hyperacute FAST+ bypass protocol resulted in high admission rates and hospital length of stay in the regional stroke center. The ambulance journey times in this study are long. Time to imaging and senior decisionmaking for thrombolysis is at an appropriately trained consultant level is critical. The future and optimal model for Hyperacute FAST+ assessment and gold standard endovascular thrombectomy treatment in Ireland is continuously developing and will be influenced by geographical considerations, manpower and ambulance resources and will be better informed by both ongoing national and international research.

No, authors do not have interests to disclose

82EMF Andexanet Alfa Increases Thrombotic Events Versus 4F-PCC for fXa Inhibitor-Related Intracranial Hemorrhage in Veterans

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Study Objectives: Two hemostatic agents are commonly used to reverse factor Xa (fXa) inhibitor-related intracerebral hemorrhage (ICH): andexanet alfa (AA) or 4-factor prothrombin complex concentrate (4F-PCC). The optimal reversal strategy is widely debated, and prescribing patterns are unknown. We sought to address a critical need for real-world data in Veterans diagnosed with fXa inhibitor-related ICH by comparing short-term mortality and thrombotic events in patients who received AA vs 4F-PCC.

Methods: This was a national retrospective cohort from the Veteran Health Administration of AA or 4 F-PCC between January 1, 2018 to January 1, 2024. The primary efficacy endpoint was 90-day mortality. The primary safety endpoint was 30-day thrombotic events (venous thromboembolism, pulmonary embolism, acute ischemic stroke [AIS], myocardial infarction), which were validated through manual chart review. Demographic and treatment variables were summarized using descriptive statistics and frequency distributions. The χ^2 test was used to compare mortality and thrombotic events. Propensity score-matched data set was first created to balance AA and 4F-PCC by the significant demographic and clinical variables and then was used to analyze and compare the results using the complete data set.

Results: There were 19,015 veterans with ICH, of whom 664 Veterans received AA (n=151) or 4F-PCC (n=513). Overall, 350 veterans received a fXa inhibitor within 180 days and were included (AA n=129; 4F-PCC n=221). The propensity matched cohort included 123 matched subjects in each group. Most veterans were male (98.9%) and elderly (median age 77 years). Apixaban was the most common anticoagulant used, and the only difference between the propensity-matched groups was more apixaban in the AA group (AA group 87.8% vs 4F-PCC group 77.2%, p=0.03). There was no difference in the primary endpoint 90-day mortality between groups (30.9% vs 36.6%, p=0.35). For the primary safety endpoint, the AA group experienced significantly more thrombotic events in 30 days following hemostatic agent administration (11.4% vs 2.4%, $p < 0.01$). Ischemic strokes were significantly more common in AA group.

Conclusion: In veterans with fXa inhibitor-related ICH receiving AA or 4F-PCC as a hemostatic agent, there was no difference in 90-day mortality. Consistent with previous literature from non-veterans studies, 30-day thrombotic events were significantly higher in veterans who received AA, including a significant increase in AIS. This study adds to the growing body of literature demonstrating higher thrombotic risks with AA. Selection of AA should be carefully weighed against the risk of thrombotic events.

Table 1. Patient Demographics and Medical Characteristics by Hemostatic Agent Treatment: Unadjusted and Propensity-Matched Analysis

Characteristic	Propensity-Matched Analysis		
	AA Group (n=123)	4F-PCC Group (n=123)	P value
Age, years, median (IQR)	77.5 (73.6 – 82.3)	76.9 (71 – 83.1)	0.61
Male sex, n (%)	123 (100)	119 (96.8)	0.44
Race			
Asian/Pacific Islander	4 (3.3)	3 (2.4)	0.98
African American	22 (17.9)	23 (18.7)	
White	89 (72.4)	89 (72.4)	
Other/unknown	8 (6.5)	8 (6.5)	
Hispanic ethnicity, n (%)	10 (8.1)	12 (9.8)	0.76
Comorbid conditions, n (%)			
Cancer	29 (23.6)	29 (23.6)	>0.99
Chronic kidney disease	56 (45.5)	56 (45.5)	>0.99
Coronary artery disease	72 (58.5)	67 (54.5)	0.52
Diabetes	64 (52.0)	62 (50.4)	0.80
Heart failure	65 (52.9)	67 (54.5)	0.80
Hypertension	110 (89.4)	108 (87.8)	0.69
Stroke	34 (27.6)	34 (27.6)	>0.99
Social History, n (%)			
Alcohol misuse	13 (10.6)	15 (12.2)	0.69
Smoking	30 (24.4)	25 (20.3)	0.44
Indication for Anticoagulation, n (%)			
Atrial fibrillation	99 (80.5)	99 (80.5)	>0.99
Pulmonary embolism	14 (11.4)	12 (9.8)	0.68
Deep venous thrombosis	2 (1.6)	1 (0.8)	0.56
Anticoagulant and Antiplatelet Agents, n (%)			
Apixaban	108 (87.8)	95 (77.2)	0.03
Edoxaban	0 (0)	5 (4.1)	0.24
Rivaroxaban	15 (12.2)	23 (18.7)	0.16
Aspirin	38 (30.9)	46 (37.4)	0.28
Cilostazol	0 (0)	1 (0.8)	0.32
Clopidogrel	13 (10.6)	14 (11.4)	0.84
Ticagrelor	1 (0.8)	0 (0)	0.32
HCC score, median (IQR)	2.7 (1.8 – 4.4)	2.6 (1.8 – 4.2)	0.94
Charlson comorbidity index, median (IQR)	6 (4 – 9)	7 (4 – 9)	0.75
NIHSS*, median (IQR)	2 (1 – 6)	4 (1.5 – 10)	0.55
Rurality, n (%)			
Urban	84 (68.3)	82 (66.7)	0.84
Rural	20 (16.3)	22 (17.9)	
Unknown	19 (15.5)	19 (15.5)	
Type of Hemorrhage, n (%)			
Intracerebral hemorrhage	83 (67.5)	83 (67.5)	0.89
Subarachnoid hemorrhage	13 (10.6)	11 (8.9)	
Subdural hematoma	27 (22.0)	29 (23.6)	
Outcomes	**AA Group (n=123)**	**4F-PCC Group (n=123)**	**P value**
Mortality, n (%)			
In-hospital mortality	25 (20.3)	30 (24.4)	0.44
30-day mortality	33 (26.8)	39 (31.7)	0.40
90-day mortality	38 (30.9)	45 (36.6)	0.35
Hospital length of stay, median (IQR)	9 (4 – 14)	6 (3.5 – 12)	0.11
30-day thrombotic events, n (%)	14 (11.4)	3 (2.4)	<0.01
Deep venous thrombosis	4 (3.3)	2 (1.6)	0.41
Myocardial infarction	3 (2.4)	0 (0)	0.08
Pulmonary embolism	1 (0.8)	0 (0)	0.32
Ischemic stroke	8 (6.5)	1 (0.8)	0.02
Blood product use within 7 days, n (%)			
Cryoprecipitate	0 (0)	3 (2.4)	0.81
Fresh frozen plasma	1 (0.8)	9 (7.3)	0.01
Packed red blood cells	11 (8.9)	8 (6.5)	0.47
Platelets	13 (10.6)	16 (13.0)	0.55
Adjunctive hemostatic agents, n (%)			
Desmopressin	5 (4.1)	6 (4.9)	0.76
Tranexamic acid	2 (1.6)	1 (0.8)	0.56
Vitamin k	2 (1.6)	9 (7.3)	0.31

Abbreviations: IQR= interquartile range, HCC= Hierarchical Condition Category; NIHSS=National Institutes of Health Stroke Scale
*N= 26 (AA n=11, 4F-PCC n=15); after adjustment N=19 (AA=11, 4F-PCC n=8)

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83 Circadian Pattern for Stroke Presentations to the Emergency Department

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Study Objectives: Acute cardiovascular events, including strokes, are historically thought to occur more frequently in the morning hours. There is new alternative

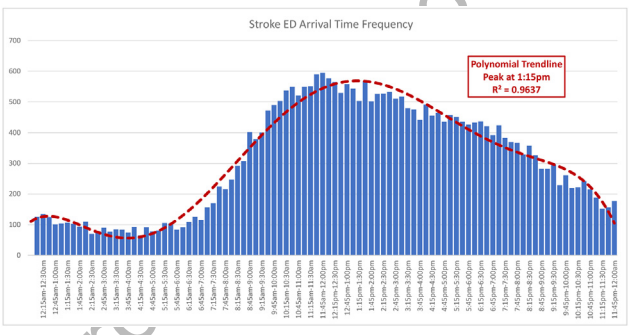
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evidence that this may not be true or there may be a second peak of presentation in the afternoon/evening. Furthermore, hemorrhagic strokes may present at different times than ischemic ones. We would like to study this from a large database to determine if there are shifting patterns or a diurnal variation of stroke presentation to the emergency department (ED). Our objective is to determine the peak time for stroke presentation to the ED.

Methods: We performed a deidentified retrospective study of an electronic medical record database from a national healthcare organization. We included all adult ED patients from a 3-state division from January 1, 2017 – December 3, 2023. Patients had to be diagnosed with a stroke (ischemic, hemorrhagic or transient ischemic attack [TIA]) with ICD-10 codes. Patients > 90 years old were excluded per Safe-Harbor deidentification guidelines. From this cohort we collected their demographical information, comorbidities, diagnosis codes, final status and ED arrival times. Our main outcome was to calculate the frequency and proportion of ED arrival time by 15-minute increments, dichotomized into stroke types and 4-hour groupings. Secondary outcome was to determine if any factors were associated with higher inpatient mortality. Mann-Whitney U-test was used to compare groups and their characteristics. Chi-squared tests were used to compare the proportion of stroke patients in each arrival period. Logistic regression modeling was used to determine if any factors were associated with an increased mortality.

Results: 35,097 encounters met our initial criteria. After exclusions, duplicates, and missing data, we analyzed 29,984 unique ED stroke patients. 50.7% of patients were female, 68.5% were white race, and 93.9% were non-Hispanic ethnicity. The stroke types included 15,806 (52.7%) ischemic strokes, 5,388 (18.0%) hemorrhagic strokes, and 8,790 (29.3%) TIAs. The average age was 67.0 ± 14.4 years. The average length of stay was 4.5 ± 8.3 days and 861 (2.9%) of the patients died during their hospital stay. The 4-hour arrival period with the most stroke patients (all types) was 12pm-4pm (27.9%), and the least occurred at 12am-4am (5.2%). 6-order polynomial trendline showed that stroke patient ED arrival time peaked at 1:15pm (R^2=0.9637, **Figure**). Proportional analysis showed there were significantly more ischemic strokes during the 4am-8am and 8am-12pm arrival periods that the other 4 time periods, and more hemorrhagic strokes in the 12am-4am time period that in the other 5 time periods (Chi-squared 257.297, df 10, $p < 0.001$). Lastly, logistic regression showed male gender, older age, and higher Elixhauser comorbidity index each had higher odds of inpatient mortality. The odds of mortality for those that arrived between 12am-4am were significantly higher than most other time periods, and 12pm-4pm was significantly lower than the 4am-8am time period.

Conclusions: Data from our southeastern regional hospitals showed that stroke patients most commonly presented to the ED in the midday, peaking around 1:15pm. Ischemic strokes seem to proportionally be more likely in the early morning and hemorrhagic stokes be proportionally more likely in the overnight hours. Lastly, our percentage of hemorrhagic strokes seemed to be higher than national averages, maybe a consequence of the well-known poor health statistics of the "bible belt" or Southern United States.



No, authors do not have interests to disclose

84 Impact of a Recovery-Promoting Intervention on Analgesic Use in Older Adults

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Study Objective: Central nervous system (CNS) depressing analgesics have undesirable adverse effects in older adults including delirium and physiological dependence. We sought to assess if a recovery-promoting intervention for acute musculoskeletal pain (MSP) in older adults could decrease long-term utilization of CNS depressing analgesics.

Methods: We conducted a secondary data analysis of the Brief Educational video plus Telecare To Enhance Recovery (BETTER) Trial, a three-arm randomized clinical trial carried out in emergency department and urgent care settings between 2020 and 2023. BETTER participants ≥50 years old presenting with acute MSP (baseline pain intensity ≥4) were randomized to either: 1) usual care, 2) interactive educational video, or 3) interactive educational video, nurse telecare, and primary care provider message. Both intervention groups were provided education on appropriate analgesic use, analgesic side effects, and non-pharmacologic recovery behaviors. Self-reported CNS-depressing analgesic use, including opioid, gabapentinoid, muscle relaxant, benzodiazepine, and antidepressant use, was measured at 1 week, 1 month, 3 months, 6 months, and 1 year. We assessed pairwise differences in absolute risk reduction (ARR) on the frequency of CNS depressing analgesic use at each time interval and across all three study arms over one year with generalized estimating equations (GEE). The GEE model included the interaction between treatment and time, using an unstructured working correlation matrix. Pairwise analyses over all time intervals were also completed.

Results: CNS depressing analgesic use frequencies among participants (N=330, mean age 65 years, 69% female, 73%white) are shown in the **Table**. At one year, there was no difference in the ARR of CNS depressing analgesic use between the usual care and video-only intervention (ARR 2.2%; 95% CI: -7.4% to 11.8%; see **Table**). However, there was a statistical difference between usual care and the full intervention at one year with an ARR 8.5% (95% CI: 0.2% to 16.7%). Our GEE model across all three study arms did not show any difference in CNS depressing analgesic use over time (χ^2 12.1; df=10; p=0.27). Pairwise GEE analyses on usual care vs video-only (χ^2 2.67; df=5; p=0.75) and usual care vs full intervention (χ^2 9.09; df=5; p=0.11) also did not demonstrate any differences in CNS depressing analgesic use.

Conclusion: Overall, differences in CNS depressing analgesic use across trial arms and time points were not observed. Although our results were not statistically significant, confidence intervals trend in favorable directions (ie, reduced long-term CNS analgesic use) among patients in the intervention arms. Further research is required to better elucidate how recovery-promoting interventions impact long-term analgesic use after an episode of acute MSP.

Table 1. Use of central nervous system (CNS) depressing analgesics and absolute risk reduction by trial arm over time.

	Usual Care % (n/N)	Video* % (n/N)	Full# % (n/N)	Usual Care vs. Video ARR† (95% CI)	Usual Care vs. Full ARR† (95% CI)
Baseline	27.0% (30/111)	26.2% (28/107)	18.8% (21/112)	--	--
1-Week	26.9% (29/108)	29.6% (29/98)	27.5% (30/109)	–2.7% (–15.1%, 9.6%)	–0.7% (–12.5%, 11.2%)
1-Month	19.6% (21/107)	21.8% (22/101)	11.9% (13/109)	-2.2% (–13.2%, 8.9%)	7.7% (–2.0%, 17.4%)
3-Month	15.4% (16/104)	11.0% (11/100)	6.7% (7/104)	4.4% (–4.9%, 13.6%)	8.7% (0.2%, 17.1%)
6-Month	14.6% (15/103)	10.4% (10/96)	8.5% (9/106)	4.1% (–5.0%, 13.3%)	6.1% (–2.6%, 14.7%)
1-Year	14.3% (14/98)	12.1% (11/91)	5.8% (6/103)	2.2% (–7.4%, 11.8%)	8.5% (0.2%, 16.7%)

* Video = interactive educational video intervention on analgesic and recovery-promoting behaviors.
# Full = combination of an educational video, nurse telecare, and primary care provider message interventions to encourage adoption of recovery-promoting behaviors in the management of musculoskeletal pain.
† ARR = Absolute Risk Reduction = $\%^{intervention} - \%^{control}$

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85 Efficacy of Ketamine for Acute Trauma Pain in Emergency: A Systematic Review and Meta-Analysis

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Study Objectives: This study aimed to assess the analgesic efficacy of ketamine compared to other drugs in trauma patients of any causes treated in emergency settings. Pain management is a key priority in the initial assessment of trauma, although it's often undertreated. While opioids remain the standard of care, ketamine, an NMDA receptor antagonist, has emerged as a promising alternative for a multimodal approach, potentially reducing opioid use and its associated risks, such as abuse and dependence.

Methods: We searched PubMed, Embase, and Cochrane databases for randomized controlled trials (RCTs) up to December 12, 2024. After removing duplicates using Zotero, two independent reviewers screened titles and abstracts, followed by a full-text assessment for eligibility. Discrepancies between the authors were resolved through discussions. Exclusion criteria were pediatric patients, ICU patients, sedated or intubated patients, non-trauma patients, and non-RCTs. The random-effects model with 95% confidence intervals was used to estimate mean differences. The I^2 statistic and Cochran's Q Test were used to determine heterogeneity. All meta-analyses and forest plots were generated using Review Manager (RevMan) 5.4. The protocol was registered in PROSPERO (CRD420251009954, on March 14, 2025). PRISMA guidelines were used to ensure transparency and methodological rigor. We segmented the studies into subgroups by route of administration of ketamine: intravenous (IV), nebulized (NBZ), and intranasal (IN). Our primary outcomes were pain score reduction post-intervention, following time points (15 minutes and 30 minutes), and the requirement for rescue analgesics. The secondary outcome was collateral effects, which will be discussed in a separate abstract.

Results: A total of 18 RCTs were included with 3,355 patients (1,717 ketamine vs 1,648 control). The mean age was 34.2 years, with 28.78% female patients. There was a significant mean difference in pain after ketamine IN versus control at 15 minutes (MD -0.31; CI -0.51, -0.10; p=0.003; I^2 = 0%) and at 30 minutes (MD -0.49; CI -0.92, -0.05; p=0.03; I^2 45%). We also found a significant difference in mean pain after ketamine IV versus control at 15 minutes (MD -1.12; CI -2.06, -0.19; p=0.02; I^2 94%). NBZ route (15 minutes, p=0.4 and 30 minutes, p=0.56) and IV route (30 minutes, p=0.1) were not statistically significant. Ketamine did not significantly reduce the need for rescue analgesics via IV (p=0.89) or IN (p=0.10). For the nebulized route (NBZ), the reduction was statistically significant (p=0.001), but this result should be interpreted with caution as it was derived from a single RCT.

Conclusion: Ketamine significantly reduced pain at 15 and 30 minutes when administered nasally and at 15 minutes administered intravenously. However, the high weight of one study (Bouida 2020) in IN analysis and the high heterogeneity in IV studies (I^2 = 94%) suggests prudence in interpretation. While the results support ketamine as a potential opioid-sparing analgesic in the emergency setting, it did not significantly reduce the need for rescue analgesics via IV or IN. The reduction observed in the NBZ requires caution. Further, high-quality RCTs are needed to optimize dosing strategies and evaluate long-term efficacy.

Figure 1A: Intranasal ketamine significantly reduced trauma pain at 15 minutes compared to control.

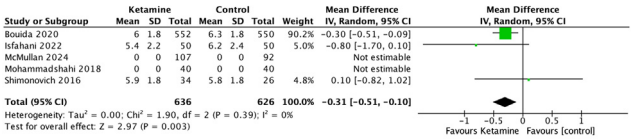


Figure 1B: Intranasal ketamine significantly reduced trauma pain at 30 minutes compared to control.

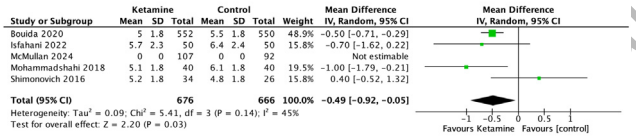
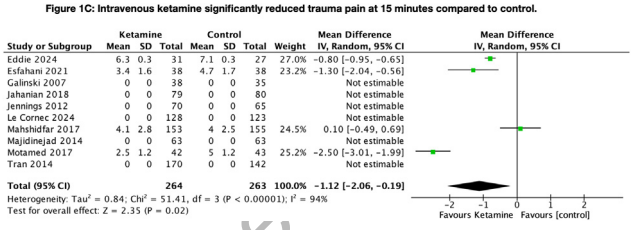


Figure 1C: Intravenous ketamine significantly reduced trauma pain at 15 minutes compared to control.



No, authors do not have interests to disclose

86 Pain Coach Education and Integrative Toolkit Program Qualitative Analysis of Patient Perspectives

Curtis M, Menze N, Munson T, Lott M, Cleveland L, Feeney S, Crisp A, Storch I, Sheikh S, Hendry P/University of Florida College of Medicine - Jacksonville, Jacksonville, Florida

Study Objectives: Integrative pain management techniques in the emergency department (ED) and hospital settings are often underutilized despite mounting evidence of support. To address this gap, a model pain coach education and toolkit program was developed and implemented in an urban safety-net healthcare system providing nonopioid education and integrative self-pain management toolkits. A qualitative analysis was performed to delineate program aspects most helpful in managing pain at home one month after a coaching session and to obtain feedback for improvements.

Methods: Urban ED and hospitalized patients ≥ age 14 with acute or chronic pain were eligible to participate in an educational session and a 1-month follow-up survey. The survey assessed toolkit utilization, value, and questions about perceived program helpfulness, ability to better manage pain at home, and feedback for improvement. Two years of qualitative data from November 2021 to December 2023 were transcribed and coded using qualitative thematic analysis. Sociodemographic, clinical and pain coach session data were collected. Descriptive statistics were reported as unique patients (n=328) and performed using R statistical program.

Results: Qualitative feedback was provided by 341 surveys. Majority of patients received a session in the ED (56%). Most patients presented for acute pain (55%), and identified as Black (56%), female (71%), and lived in socioeconomic disadvantage (Area of Deprivation Index *M*=75, *SD*=20, range 13-100). Average age of unique patients was 51 years (*SD*=16). One month after a session, most patients (79%) frequently used toolkit items at home (37% daily and 42% weekly). The most common items used at home were aromatherapy (53%), heat/cold therapy (49%) and chronic pain stress ball analogy (37%). Patients reported their session as very helpful/helpful on a 5-point Likert scale (*M*=4.5, *SD*=0.8). Most (87%) would recommend the program to others. Themes identified by participants include improvement of overall healthcare experience, program was helpful in managing pain, toolkit item benefits (easy to use, complements medications, provides distraction, calming effects), and positive interactions with educators.

Research Embargoed Until Date/Time

Participants recommended no changes to the program overall. Some suggested program expansion to other facilities or more sessions. Some chronic pain participants did not find the program as helpful due to severity of pain, but noted contents provided distraction.

Conclusion: Patients in ED settings often experience acute and chronic pain, and may benefit from a pain coach education session and resources to manage their pain effectively once they return home. Our program demonstrates this in a disadvantaged population with limited resources to utilize nonpharmacologic pain management modalities. One month after a session, participants endorsed the program as supportive adjuncts to pain management and reported value in toolkit items in managing pain at home. The positive feedback highlights the importance of educating patients about nonpharmacological pain management techniques, especially in a fast-paced environment, such as the ED, who serves disadvantaged populations. The education session complements traditional medical treatments, potentially leading to more comprehensive and effective pain management, thus improving patients' experience in the ED. Recommendations for expanding the program to other facilities or increasing the number of sessions emphasize its perceived value and the potential for broader impact across healthcare settings. The lack of suggestions for changes indicate that the program is well-received. Providing patients with the knowledge, tools, and self-empowerment to manage their pain more effectively, both at home and in the clinical setting, can lead to better patient outcomes, improved quality of life, and positively impact ED experience.

No, authors do not have interests to disclose

87 Inspired for Life? Long Term Practice of Ultrasound-Guided Nerve Blocks a Decade After Training

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Introduction: Ultrasound-Guided Nerve Blocks (UGNB) are a valuable adjunct for pain management in the emergency department (ED). Despite prior exposure to procedural point-of-care ultrasound, Emergency Medicine (EM) physicians in Porto Alegre, Brazil, had not routinely integrated UGNB into clinical practice as of 2013. To address this educational and practice gap, a structured UGNB workshop was conducted in March 2013 for EM residents at Hospital de Pronto Socorro (HPS).

Study Objectives: This study evaluates the longitudinal impact of this hands-on training, assessing both short-term skill retention at 10 months and long-term practice integration at 10 years.

Methods: This education intervention included 15 EM residents at HPS, with seven residents participating in a 4-hour UGNB course incorporating didactic instruction and hands-on training, while eight served as controls. Baseline knowledge was assessed using a modified needs assessment questionnaire, and initial skill retention and clinical integration were evaluated at 10 months. A 10-year follow-up survey examined UGNB utilization, career impact, and sustained clinical adoption. Descriptive statistics were used to compare UGNB integration rates between groups, with stratified analysis to assess differential impact based on training level. Differences and 95% CI are reported.

Results: At 10 months, UGNB integration was observed in 42.9% (3/7) of course participants compared to 12.5% (1/8) of non-attendees (difference 30.4%, 95%CI –13.5 to 64.1%, p=0.20), with higher uptake among senior residents. By 10 years, 83.3% (5/6) of trained residents had incorporated UGNB into their routine practice, whereas only 14.3% (1/7) of controls reported ongoing use (difference 69%, CI 9.3 to 81.7%, p=0.025). Additionally, 50% (3/6) of trained residents had had additional UGNB training at 10-year follow-up, while none (0/7) of the controls reported additional training (difference 50%, CI 2.8 to 81.2%, p=0.04). These findings suggest that structured, hands-on UGNB education has a durable effect on clinical practice patterns.

Conclusion: This 10-year follow-up study demonstrates the sustained impact of a hands-on UGNB training course on emergency physician practice patterns. Participants exhibited significantly higher long-term adoption rates, underscoring the importance of structured procedural education in emergency medicine. Additionally, it is likely that participating in the UGNB training during residency motivated the residents to pursue additional training during their careers. This finding suggests that early exposure to specialized medical techniques can serve as a catalyst for long-term professional development, even when immediate impact is not apparent. Competency, procedural success rates, and outcomes require further study. This study highlights how a single hands-on workshop on procedural training can translate into routine clinical care a decade later.

No, authors do not have interests to disclose

88 Suprascapular Nerve Block for Analgesia in Traumatic Scapular Fractures: A Case Series

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Study Objectives: 1. To evaluate the efficacy of suprascapular nerve block (SSNB) in providing acute pain relief for patients with traumatic scapular fractures in the emergency department (ED). 2. To identify any complications or adverse events associated with SSNB in the emergency setting.

Methods: This is a case series of 10 patients who had presented to the ED of a level one trauma center with a footfall of 50,000 patients per year. Patients were retrospectively identified from medical records maintained by emergency physicians, specifically those who had undergone suprascapular nerve block. Inclusion criteria were patients with traumatic scapular fractures who presented with severe pain (defense and veteran pain rating scale >=7) to the ED, and data were extracted from clinical documentation and procedural records. These blocks were administered after initial resuscitation in the trauma bay and following completion of CT imaging. Patients were then transferred to the monitoring area of the red zone for further observation. To standardize the process and reduce performance bias, residents underwent structured training:

Training phase: The residents were taught the basic technique of ultrasound guided nerve blocks under the supervision of experts. It included: Visualization and identification of normal anatomy of nerves and vessels with ultrasound in 20 normal individuals; Visualization and identification of suprascapular nerve in 20 patients; The images and video were recorded, retrieved, and reviewed by the experts (faculty of emergency medicine) after every 5 scans.

Execution phase: It was the actual intervention phase in which the senior residents performed the procedure and data were collected for study purposes.

The ED pain team (one faculty, senior resident, and nurse each per shift) were trained in point of care ultrasound, needle tracking, hand eye coordination and routinely performed SSNB in trauma patients with scapular fractures. The nursing officer monitored the patient for side effects and assessed the pain. Pain score was calculated on Defence and Veteran Pain (DVP) score, where 1/10 was no pain and 10/10 was the worst pain experienced by the patient.

Results: Pain Reduction - Significant pain relief was observed across all 10 cases within 30 minutes post-SSNB, with most cases achieving a DVPRS (Defense and Veterans Pain Rating Scale) score of 1/10 by 120 minutes. Cases with a slightly slower decline in pain may indicate variations in response, injury severity, or technique efficacy. Mechanisms of Injury - The most common cause was two-wheeler (2w) skid and fall, followed by high-impact trauma (fall from height, train hit, assault, and motor vehicle rollover). This highlights the relevance of SSNB in polytrauma settings where early pain relief can aid patient stabilization. Unilateral Distribution - All fractures were unilateral, with a relatively equal distribution between right and left scapula involvement.

Conclusion: Suprascapular nerve block is safe and effective block that can be performed by emergency physicians in the ED setting for addressing acute pain due to traumatic scapular fractures.

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Table : Patient Demographics and Pain Scores (DVPRS) Over Time

S. No.	Age/Sex	Mechanism of Injury	Diagnosis	DVPRS (0 min)	DVPRS (30 min)	DVPRS (60 min)	DVPRS (120 min)
1	18/M	2W skid and fall	Right scapula fracture	9/10	1/10	1/10	1/10
2	53/M	2W skid and fall	Right scapula fracture	8/10	3/10	1/10	1/10
3	20/F	Hit by train	Left scapula fracture	8/10	4/10	4/10	2/10
4	32/M	2W skid and fall	Right scapula fracture	9/10	3/10	1/10	1/10
5	55/M	2W skid and fall	Right scapula fracture	9/10	4/10	2/10	1/10
6	21/M	3W vs 4W followed by 3W turnover	Right scapula fracture	8/10	3/10	2/10	1/10
7	17/M	Assault by unknown blunt weapon	Left scapula fracture	10/10	2/10	1/10	1/10
8	24/M	Fall from height (30 feet)	Left scapula fracture	9/10	3/10	1/10	1/10
9	39/M	3W turnover	Right scapula fracture	10/10	2/10	1/10	1/10
10	28/M	2W vs divider	Right scapula fracture	9/10	3/10	1/10	1/10

Abbreviations:

- **2W**: Two-wheeler
- **3W**: Three-wheeler
- **4W**: Four-wheeler
- **DVPRS**: Defense and Veterans Pain Rating Scale

No, authors do not have interests to disclose

89 Sex Differences in Medication Dosing During Procedural Sedation in the Emergency Department

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Study Objectives: Procedural sedation (PS) in the emergency department (ED) requires tailored choices of agent and dose for each patient. Although the influence of sex on pharmacokinetics and pharmacodynamics is known, sparse evidence is available regarding sex and gender differences for PS in the ED. This study examined differences in dosing of propofol used for PS in the ED between sexes. A secondary objective assessed sex differences in adverse events during PS.

Methods: This retrospective cohort study utilized independent chart review from eight EDs in the Southeast United States in 2024. Adult patients (^{3}18 years old) who underwent PS in the ED with propofol. Patients sedated for intubation, agitation, mechanically ventilated, or missing sex or medication data were excluded. The primary outcome of interest was total weight-based dosing of propofol. This study also investigated the adverse events associated with PS, ED length of stay (ED LOS), time to propofol, and sedation duration. ED length of stay was defined as the time from ED arrival to ED departure. Time to medication was defined as the time from ED arrival to receiving propofol. Chi-square tests assessed differences in distribution of demographic and clinical characteristics by sex. Quantile regression was used to assess differences in the median weight-based dose of propofol, time to propofol, sedation duration, and ED LOS. This analysis was repeated stratified by procedure type (fracture reduction vs dislocation reduction).

Results: The majority of the 468 patients receiving propofol for PS in the ED were White (79.5%) and female (52.1%), with an urgent/less urgent acuity (62.0%) and an average age of 53.8 years (STD=21.0). Propofol for PS was used in 276 cases (59%) and propofol/ketamine combination was used in 192 cases (41%). [JS1] The median sedation duration was 17 minutes (IQR=13) and the median ED length of stay was 313 minutes (IQR=207.5). Females receiving propofol for PS were significantly older than males (59.5 years vs 47.6 years, p <.0001), less likely to have a higher acuity complaint (45.2% vs 54.8%, p=0.0154), and more likely to have an ASA classification of 2 (61.6% vs 38.4%) or 3 (60.0% vs 40.0%, p <.0001). Females were much more likely to receive sedation for a fracture reduction (61.0% vs 39.0%, p=0.043) and for a procedure involving a lower limb (58.5% vs 41.5%, p=0.0028) than males. Females were also more likely to have hypoxia or respiratory depression as an adverse event (55.0% vs 45.0%, p=0.099). Overall, females received a lower median dose of propofol than males (propofol singly, 0.3025 mg/kg, p=0.0037), including when used with ketamine (propofol 0.250 mg/kg, p=0.0114[JS2]). There were no statistically significant differences in the medians for ED LOS, time to propofol, or sedation duration by sex. Fracture reduction (n=146) and dislocation reduction (n=276) were the two most frequent reasons for PS in both sexes. When stratified by fracture and dislocation reductions, females received a median dose of propofol that was 0.366 mg/kg lower than males during a dislocation reduction. There was no significant difference in the median weight-based dose of propofol by sex for fracture reductions.

Conclusion: Preliminary results from this study highlight reduced dosing of propofol in females vs males during PS in the ED. Differences in female's age, comorbidities, and indication for PS, as well as adverse intraprocedural events may play a role in physician's dosing for PS. Better understanding of sex differences may assist emergency physicians in performing sedations with greater precision in patient care.

No, authors do not have interests to disclose

90EMF Expert Panel Research Priorities to Advance Diagnostic Excellence in Emergency Departments

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Study Objective: Our objective was to discover and prioritize research questions to guide diagnostic excellence research activities related to emergency department (ED) care for the coming decade.

Methods: We used a modified RAND/UCLA panel method, which included six basic steps. Step 1: We conducted a literature review to 1) identify existing frameworks that have been used to categorize research related to diagnostic excellence and 2) identify examples of research that has been conducted in the ED setting as well as other care settings. Step 2: We recruited 11 multidisciplinary expert panelists with experience delivering care in the ED setting, providing care that interfaces with the ED, and/or researching diagnostic excellence. Potential panelists were nominated by specialty societies and interviewed by the research team to select a group that was diverse in professional role, clinical practice setting, geography, and personal exposure to diagnostic error. Step 3: We provided pre-reading materials to panelists that summarized existing research related to diagnostic excellence in the ED setting according to 14 domains that emerged from the literature review. Step 4: We asked panelists to rate the importance of the 14 research domains using a 1-to-9 scale (with 9 being the highest rating; ratings done asynchronously via REDCap). Step 5: We asked each panelist and each member of the research team to, after reflecting on the ratings from Step 4, submit up to five specific research questions that would be prioritized by the expert panelist group in the final step. Step 6: Panelists were asked to rate the overall importance of each submitted research question using a 1-to-9 scale. The primary measure of interest is the summed score (sum of all 11 panelist ratings) at the level of the research question (maximum possible score 11 x 9 = 99).

Results: Panelists rated 77 research questions nested within 14 domains. The domain with the most questions was "Disparities" (12), followed by "Incidence and Contributing Factors" (10), "Culture, Workflow, and Work System Issues" (9), and "Measurement" (8). See **Table** for the top 20 research questions, ranked by summed score. The research question with the highest summed score was: "Which diagnostic processes in the ED are most amenable to improvement using artificial intelligence solutions?", which had a summed score of 91. This was followed by "What are the most common contributing factors that lead to diagnostic missed opportunities and patient harm in the ED setting?" (89) and "How can EDs and their health systems accurately track and report diagnostic missed opportunities?" (88).

Conclusion: This study leveraged a multidisciplinary expert panel to discover and prioritize research questions related to diagnostic excellence in the ED setting. Researchers, quality improvement teams, and funders should consider referencing our results when selecting projects to pursue in the next decade.

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Table: Top 20 Proposed Research Questions to Advance Diagnostic Excellence in Emergency Departments

Research Domain	Proposed Research Question	Summed Score
12: Artificial Intelligence	Which diagnostic processes in the ED are most amenable to improvement using artificial intelligence solutions (e.g., history-taking, differential diagnosis generation, diagnostic test ordering, diagnostic test interpretation)?	91
1: Incidence & Contributing Factors	What are the most common contributing factors that lead to diagnostic missed opportunities and patient harm in the ED setting?	89
10: Implementation	How can EDs and their health systems accurately track and report diagnostic errors?	88
6: Health Information Technology	Which information technology interventions in EDs are the most promising for improving diagnostic processes and patients' health outcomes?	87
4: Culture, Workflow, and Work System Issues	How can improved communication and coordination of care among ED physicians, advanced practice providers, and nurses reduce diagnostic missed opportunities?	85
4: Culture, Workflow, and Work System Issues	How do gaps in communication among interdisciplinary ED care teams affect diagnostic decision-making and disposition decisions?	84
4: Culture, Workflow, and Work System Issues	How can improved communication and coordination of care among ED physicians, consultants, and hospitalists reduce diagnostic missed opportunities?	83
13: Triage	Does use of an artificial intelligence tool to collect a patient's information in ED triage affect diagnostic quality and safety of the entire ED evaluation?	83
1: Incidence & Contributing Factors	How often does divergent practice among ED clinicians lead to diagnostic missed opportunities?	81
13: Triage	How often do patients whose primary language is not English experience delays in triage due to unavailability of interpreter services?	81
13: Triage	In ED triage, how often does inadequate patient assessment lead to avoidable harm?	80
11: Special Populations	Do health systems with age-friendly practices (e.g., addressing hearing needs, including a care partner, etc.) have better diagnostic outcomes for older adults than those that do not?	80
4: Culture, Workflow, and Work System Issues	How do boarding and crowding contribute to diagnostic missed opportunities?	79
5: Disparities	How often do patients whose primary language is not English experience delays in diagnosis due to miscommunication or mistranslation?	79
13: Triage	What best practices should be implemented in triage to ensure efficiency and accuracy of diagnostic evaluations while also ensuring equity?	79
2: Measurement: Data & Methods	When patterns in misdiagnosis are identified by ED administrators, what are the recommended next steps that they can use to identify and address the root causes?	78
4: Culture, Workflow, and Work System Issues	How can EDs effectively provide timely and accurate diagnoses while also minimizing wait times and length of stay for ED patients?	78
12: Artificial Intelligence	How can artificial intelligence tools use data obtained during ED encounters to generate differential diagnoses and suggested diagnostic test orders?	78
5: Disparities	How often do patients from vulnerable backgrounds experience misdiagnoses in the ED?	78
5: Disparities	What specific solutions would address the common contributing factors that affect the diagnostic process for at-risk patients such as those from rural areas and those with low health literacy?	78

No, authors do not have interests to disclose

91EMF Vaccine Knowledge and Uptake in Undocumented Latino Immigrants in the Emergency Department

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Study Objectives: Although other investigators have assessed the uptake of specific vaccines in general populations, there have been no reported investigations assessing vaccine uptake in one of the most medically vulnerable and rapidly growing populations in the US: undocumented Latino immigrants (UDLI). As the primary healthcare access point for undocumented immigrants, the emergency department (ED) is uniquely positioned to address this health service gap. The specific objectives of this project are to determine and compare 3 ED populations (UDLI, Latino legal resident/citizens (LLRC), and non-Latino legal residents/citizens (NLRC)) with respect to: (I) the knowledge and receipt of CDC-recommended vaccines and (II) the acceptance of these vaccines in patients who have not previously received them.

Methods: We conducted this cross-sectional survey study in English and Spanish at 9 EDs in 7 geographically representative US cities from June to December 2024 enrolling non-critically ill adult patients. Our key outcome questions were: I) prior knowledge and receipt of CDC recommended vaccines X, Y, Z, and II) for those participants who had not previously received vaccines X, Y, Z, would they accept those vaccines if they were offered in the ED. We asked about the 9 following CDC-recommended vaccines: Influenza, Shingles, Tetanus, Measles, Mumps, Rubella (MMR), Human Papillomavirus (HPV), Hepatitis B, Respiratory Syncytial Virus (RSV), COVID-19, Varicella, and Pneumococcal. In addition, we report key demographic questions, including insurance status and access to primary care. We categorize participants into UDLI, LLRC, and NLRC groups by using the following direct questions: What is your race/ethnicity? Are you a legal resident/citizen of the United States? We report our findings as proportions and test for differences between groups by comparing differences in proportions with 95% confidence intervals (CIs).

Results: Of 4,171 eligible patients approached, 3,119 (74.8%) agreed to participate. Their median age was 50 years; 1,708 (54.8%) participants identified as women; 253 (8.1%) participants were UDLI, 679 (21.8%) were LLRC, and 2,187 (70.1%) were NLRC. UDLI had higher rates of being uninsured than NLRC (42.7% vs 5.7%; difference 37%; 95% CI 30.9% to 43.2%) and LLRC (42.7% vs 8.1%; 34.6% difference; 95% CI 28.2% to 41%). Fewer UDLI had access to primary care than NLRC (49.8% vs 83.7%; difference 33.9%; 95% CI 27.5% to 40.2%) and LLRC (49.8% vs 78.6%; 28.8% difference; 95% CI 21.9% to 35.6%). More UDLI had not heard of one or more vaccines than NLRC (74.3% vs 43.9%; 30.4% difference; 95% CI 24.3% to 35.8%) and LLRC (74.3% vs 55.5%; 18.8% difference; 95%CI 12.0% to 25.0%). More UDLI had not received one or more vaccines than NLRC (92.1% vs 84.6%; 7.5% difference; 95% CI 3.3% to 10.7%) and LLRC (92.1% vs 85.4%; 6.7% difference; 95% CI 2.0% to 10.6%). UDLI had higher rates of acceptance of one or more missing vaccines if offered in the ED than NLRC (69.6% vs 30.4%; 34.6% difference; 95% CI 28.2% to 40.1%) and LLRC (69.6% vs 41.8%; 24.8% difference; 95% CI 17.7% to 31.4%).

Conclusions: UDLI had significantly lower vaccine knowledge and uptake compared to NLRC and LLRC. Notably, UDLI exhibited the highest willingness to receive vaccines if offered in the ED. Given their higher rates of uninsurance and limited access to primary care, UDLI often rely on the ED as their main healthcare access point. These findings highlight an opportunity for the ED to serve as a critical intervention site—both to educate this population about recommended vaccines and to facilitate vaccination uptake, ultimately addressing disparities in preventive healthcare access.

No, authors do not have interests to disclose

92EMF Identifying Key Priorities for an Emergency Department Intervention for Youth With Substance Use

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Study Objectives: Youth substance use can lead to significant morbidity and mortality. The emergency department (ED) provides a critical access point for youth at risk for substance use disorders (SUDs), yet targeted interventions focused on linkage to care for these youth are understudied. The BNI-ART Institute's brief negotiated interview (BNI) is a motivational interviewing-based brief substance use intervention that has been used in the ED. In this study, we aimed to identify the key priorities of ED youth for a substance use intervention in order to inform our adaptation of the BNI to support linkage to care for ED youth with higher risk substance use.

Methods: Employing the ADAPT-ITT framework to guide adaptation of the BNI, we conducted semi-structured interviews with youth patients in an academic, urban pediatric emergency department (PED). We enrolled youth 14-21-years-old who screened positive for monthly or more substance use (higher risk for a SUD) from September to December 2024. Interview questions focused on 5 domains: problematic substances, program design/components, referral thresholds, referral strategies, and parent/caregiver involvement. Interviews were audio recorded and transcribed. Three researchers summarized responses and categorized them into themes/subthemes by consensus.

Results: We conducted 20 interviews with PED patients (age range: 15-21 years (9 interviews with patients < 18 years); 45% female, 50% Hispanic). Most reported using cannabis (85%) and alcohol (50%), and 40% reported using more than one substance. Participants identified cannabis, alcohol, and opioids (fentanyl or prescription opioids) as the most problematic substances for youth. Regarding priorities for an ED intervention, several themes emerged, including: the importance of engaging with youth, educating youth on the harms of substance use, providing positive coping strategies, and options for support/advocates (peer or mentors). Participants reported that prompt linkage to care was most important for youth with illicit substance use, whereas alcohol and cannabis use were perceived to be less problematic. Use of texting and/or a phone application were preferred strategies for outpatient referrals, and frequent reminders, incentives, and having a support person to ensure follow up were identified as potential facilitators for successful linkage to care. The majority of youth identified advantages of parent/caregiver involvement, including: overall value of having a parent's support, accountability, and increased understanding of the youth. Disadvantages of parent/caregiver involvement included fear of consequences/reaction and judgement. Youth highlighted the importance of confidentiality and having a discussion with youth prior to involving their parent/caregiver, since parent/caregiver involvement may be best determined on an individual level.

Conclusion: Youth with higher-risk substance use provided important perspectives and identified key components to prioritize for an ED-based intervention to support linkage to care. These findings will inform initial adaptation of the BNI intervention, which subsequently will be further tested/adapted and then examined for its utility in improving linkage to care for ED youth with substance use.

No, authors do not have interests to disclose

93EMF Feasibility and Acceptability of Oura Ring Sleep Monitoring for Older Adults Admitted from the Emergency Department

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Study Objectives: Sleep deprivation is common among hospitalized older adults and is associated with adverse cardio-metabolic effects and delirium. Overnight emergency department (ED) occupancy is associated with higher mortality among older adults, with

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sleep interruptions implicated as a possible causal link. While wearable technologies are a promising approach to investigate sleep interruptions among older patients admitted via the ED, their feasibility and acceptability have not been tested.

Methods: This was a single-site prospective cohort study enrolling a convenience sample of ED patients ≥65 years admitted to a non-surgical floor bed to wear an Oura Ring Gen 3 (Oura Health Ltd, Oulu, Finland) which uses multiple sensors to measure sleep, heart rate, oxygen levels, and other parameters. Patients without decisional capacity were eligible to enroll via a legally authorized representative (LAR). Enrollment occurred between 1p and 11p on weekdays with enrolled patients were included for up to four hospitalization days or until the day of discharge, whichever was first. In addition to wearing the Oura Ring, study procedures included cognitive impairment testing (MoCA) and an Oura Ring acceptability survey. Our feasibility outcomes were the proportion of patients approached who enrolled and the proportion of subjects with >75% device wear time as measured by the device. Our acceptability outcome was the proportion of patients who disagreed or strongly disagreed with the statement that the Oura Ring bothered them during the study. Our secondary outcomes included the median hours per sleep per 24-hour period and daily patient reports of sleep quality the night before (5-point Likert scale) along with the types of sleep interruptions (eg, noise, pain, light, room changes, etc). The study was approved by the Beth Israel Deaconess Medical Center IRB (2024P000977).

Results: A total of 29 patients were approached for enrollment, of whom 11 declined to participate or had an LAR decline, 2 who did not have capacity and had no LAR, and 15 agreed to participate or had an LAR agree (52%). One participant withdrew immediately after enrollment. The median age was 78 years (IQR: 75 – 82), 7 were female, 7 male, and one patient identified as Black non-Hispanic while the remainder identified as White non-Hispanic. Eleven patients completed the MoCA assessment with a median score of 20 (IQR 18-22). The median number of study nights per participant was 2 (IQR 1-3). Thirteen (93%) participants had available data for greater than 75% of their study participation period – the one patient without data had delirium at study enrollment. Ten participants responded to the exit survey and, of these, 8 disagreed or strongly disagreed with the statement that the ring bothered them (80%). Participants had a median 4.3 hours of sleep per 24 hours during the study (IQR: 2.9-7.0) as measured by the Oura Ring and reported that 47% of hospital nights had good or very good sleep. Only 16% of nights had no patient reported sleep interruptions, with the most common reported interruptions being vital signs (68%), phlebotomy (63%), noise (42%), and medication administration (32%).

Conclusion: In this pilot feasibility and acceptability study, 80% of enrolled older ED patients did not find the Oura Ring bothersome and 93% wore the device for >75% of their participation period, suggesting that the device is both feasible and acceptable in this cohort. Both Oura Ring sleep data and the patient reported outcomes indicate significant barriers to hospital sleep among older adults admitted via the ED.

No, authors do not have interests to disclose

94EMF Lipoprotein(a) Is Not Predictive of Cardiac Events in Patients Presenting With Acute Chest Pain

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Study Objectives: Lipoprotein(a) [Lp(a)] is a lipid biomarker associated with atherosclerotic cardiovascular disease and may be useful for risk stratifying emergency department (ED) patients with acute chest pain. This study seeks to determine if Lp(a) is an independent predictor of 30-day cardiac events among ED patients with acute chest pain.

Methods: We conducted a secondary analysis of the prospective, multisite STOP-CP cohort, which enrolled patients ≥21 years old being evaluated for acute coronary syndrome at 8 U.S. EDs (1/25/2017-9/6/2018). Serum high-sensitivity cardiac troponin T (hs-cTnT), Lp(a), and low-density lipoprotein cholesterol (LDL-C) were measured using blood from the patient's ED visit. An Lp(a) of ≥50 mg/dL was considered elevated. The primary outcome was cardiac death or MI at 30 days. The secondary outcome was major adverse cardiac events (MACE: cardiac death, MI, or revascularization) at 30 days. Outcomes were adjudicated by three expert reviewers. Chi-square tests were used to compare the proportion of patients with an elevated Lp(a) measure between patients with and without 30-day outcomes. To further assess the association between Lp(a) and cardiac death or MI and MACE at 30 days, we used logistic regression to control for hs-cTnT and LDL-C.

Results: Among 1,416 STOP-CP patients, 45.8% (648/1,416) were female, 57.7% (817/1,416) were White, and the median age was 57 (IQR: 49-66) years. At 30 days, cardiac death or MI occurred in 12.9% (183/1,416) and MACE in 14.3% (203/1,416). Lp(a) was ≥50 mg/dL in 26.7% (378/1,416). The proportion of patients with elevated Lp(a) did not significantly differ between patients with and without 30-day cardiac death or MI (32.2% [59/183] vs 25.9% [319/1,233]) (p=0.07). However, more patients with 30-day MACE had an elevated Lp(a) measure (32.5% [66/203]) compared to those without MACE (25.7% [312/1,213]) (p=0.04). When adjusting for hs-cTnT and LDL-C, Lp(a) was not associated with 30-day cardiac death or MI (aOR 1.09, 95%CI 0.73-1.62) or 30-day MACE (aOR 1.15, 95%CI 0.80-1.67).

Conclusion: Lp(a) is not independently associated with adverse cardiac events at 30 days among ED patients presenting with acute chest pain.

Yes, authors have interests to disclose

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95TF Improving Resident Feedback and Milestone Evaluation Through Implementation of EMMA

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Study Objectives: Receiving both written and verbal feedback is a crucial component of an emergency medicine (EM) resident's training. However, attending physicians often find it challenging to remember to complete written evaluations or provide verbal feedback, particularly at the end of a busy shift in the emergency department (ED). To address this challenge, a mobile application, the Emergency Medicine Milestone Application (EMMA), was developed and implemented at our institution. It was hypothesized that EMMA would lead to a 15% increase in the number of written evaluations completed by attending physicians within the first six months following its deployment compared to the total number of written evaluations completed in the 6 months prior to deployment.

Methods: A mobile application was created through a partnership with the Heinz College of Information Systems & Public Policy at Carnegie Mellon University. The application was designed to appropriately shift map attendings and residents' schedules to provide prompted notifications at the start and end of both the attending and resident shifts. These notifications were linked to specific Accreditation Council for Graduate Medical Education (ACGME) milestone topics, which the attending could provide verbal feedback on during the shift and complete a written feedback and evaluation form at the end of the shift. The resident evaluation form allowed for self-reflection by the resident. The application was downloaded onto the mobile phones of 34 residents and 20 attending physicians on August 5, 2024. The initial study ran for six months, concluding on February 5, 2025. The study was conducted in a three-year emergency medicine residency program at a Level 1 trauma, academic medical center.

Results: During the six-month pre-implementation period of EMMA, only 19.7% (359/1,823) of resident evaluations were completed by attending physicians using the Quick Response (QR) code system. This percentage was calculated by comparing the total number of resident shifts during the six months prior to the implementation with the total number of evaluations collected via the QR code system. In the post-implementation period, 70.6% (1,178/1,669) of attending evaluations were completed. Using a one-sided two-proportion Z-test, we found a p-value of < 0.0001. In total we collected 20 pre- and post-implementation resident surveys and 13 pre and post-implementation attending surveys. Based on the survey results, we found that before implementing EMMA, the average satisfaction rating for the QR code feedback evaluation system was 4.65 among residents and 4.46 among attendings on a 10-point Likert scale. Following the implementation of EMMA, the resident's average satisfaction rate increased to 7.95 and the attending's satisfaction rate increased to 8.23. Overall, using a two-sided paired T-tests, our analysis shows a statistically significant difference in mean satisfaction pre- and post-EMMA implementation for both residents (p-value < 0.0001, 95% CI = [-4.44, -2.16]) and attendings (p-value < 0.0001, 95% CI = [-5.05, -2.48]). We also observed a significant increase in verbal feedback. Before the implementation of EMMA, only 15.79% of residents estimated that they received verbal feedback on

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more than six shifts during a 28-day rotation block. After implementing EMMA, quantitative data from the mobile application revealed that residents reported receiving verbal feedback on 79.6% of their total shifts.

Conclusion: The implementation of this application led to an increase in both the quantity of written feedback for emergency medicine residents and the subjective on-shift oral feedback, as documented by the residents. Additionally, there was a significant improvement in satisfaction with the new evaluation system. By linking topics specifically to ACGME milestones, the application enabled more accurate resident evaluations during our Clinical Core Competency (CCC) meetings. The next step is to conduct a validation study at other EM residency programs.

No, authors do not have interests to disclose

96TF Training Emergency Physicians to Provide Outpatient Procedural Sedation: A Pilot Project

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Introduction: It is estimated that 78% of US hospitals have experienced a shortage of anesthesiology providers. There is a growing demand for procedures that require sedation. In some environments this has limited the access to time-sensitive outpatient procedures such as colonoscopy and endoscopy. Emergency physicians have technical expertise in emergency department (ED) sedation. A single-institution, pilot project was launched using sedation services provided by EM attending physicians for provision of care outside the ED for patients and environments deemed as low risk sedation encounters.

Study Objectives: This study was a qualitative assessment of the training program used to educate and credential EM providers. The goals were two-fold: 1) Design and implement an interactive curriculum to prepare emergency physicians to provide sedation services for non-complex sedation cases in a non-ED setting. The curriculum was designed to characterize common complications and adverse events encountered during non-ED sedation with the use of simulated cases. 2) Evaluate the effectiveness of the curriculum by a critical analysis of the participant patient experiences, provider perspectives, and barriers within and external to the training program.

Methods: A training needs assessment was conducted to prioritize the objectives required to prepare EM providers to perform sedation services. This assessment provided the structure for a multi-phased curriculum. Emergency physicians were asked to volunteer for the program with a minimum qualification of 30 ED procedural sedation encounters in the prior 36 months and willingness to participate in the educational curriculum. Throughout the process learners completed anonymous surveys addressing experience, perspective, and barriers to provision of this service. Phase 1 of the curriculum included a self-study of the introductory material, and a locally designed operating room crisis manual. Phase 2 consisted of high-yield brief lectures from technical experts including anesthesia, pharmacy, risk management, and administration followed by cases in the simulation lab. Phase 3 included 2 shadow shifts observing an anesthesiology provider followed by 5 anesthesia directly-proctored and 5 indirectly-proctored cases.

Results: 18 ED providers were identified to initiate the program. Eighteen providers completed the first 2 phases. Phase 3 is currently in progress. Total time of completion of the first 2 phases was 6 months from the initial idea to the implementation of the curriculum. Phase one and phase two developed educational materials focused on skills including medication administration, case documentation, sedation provision during unfamiliar procedures in a non-ED environment, and critical actions in response to common complications. Simulation lab cases for phase 2 included difficult conversations, respiratory depression/apnea, aspiration, laryngospasm, anaphylaxis, and cardiac arrest. These complications were integrated into 4 simulated, clinical scenarios. Phase 3 clinical shadow and proctored cases are to be completed later this year.

Conclusion: This single-institution, pilot project for low-risk sedation encounters performed by emergency physicians outside the ED was launched and implemented in a 6 month time frame, from inception to the educational course. Phase 3 has been delayed but is expected to start soon. Benchmark clinical success indicators will be reported in quarterly intervals as follow-up to the pilot program.

No, authors do not have interests to disclose

97TF Mock Emergency Medicine Certifying Exam: An Innovative Simulation Course

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Study Objectives: Oral Boards and Certification have been critical in assessing the knowledge and practical skills of emergency physicians since 1980, 4 years after the American Board of Emergency Medicine (ABEM) was founded. The oral component of Board Certification specifically tests skills that cannot be properly assessed in the written portion of the examination. Beginning January of 2026, ABEM will implement a novel oral examination, called the Certifying Examination, which will replace the former Oral Examination. A statement from ABEM discusses that this change was initiated to better assess a physician's communication with patients and organization of information and tasks, while applying them to realistic simulated clinical scenarios. There are two case types the make up the certifying exam: 1) clinical care cases (to include the content of clinical decisionmaking and prioritization), and 2) communication and procedural cases (to include the content of reassessment/troubleshooting, difficult conversations, managing conflict, patient-centered communication, ultrasound, and procedures). Currently, our residency program doesn't have a structured mock Certifying Exam curriculum or assessment for our residents based on the new content. The goal of our new simulation-based initiative is to pilot a simulation-based course to ensure practice and achieve familiarity and practice with the structure and content of the communication-style cases.

Methods: Two sets of four cases were created to mimic the format and content of the new Certifying Examination (as shown in the videos released by ABEM, detailing the tasks and case scenarios). These cases fell into the categories of reassessment/troubleshooting, difficult conversations, managing conflict, and patient-centered communication. Residents participated in multiple 10-minute simulated cases in February 2025 and April 2025. Participants were scored using a modified grading scale that mimics that of the ABEM Oral Examination; items were scored on a scale of one to eight (1-8), with a score of > 5.75 considered passing. For critical actions, participants were scored 5 or higher if the action was completed, and less than 4 for that specific domain if missed. A score of 1 or 2 was deemed "very unacceptable" and included grossly negligent or dangerous actions, or actions leading to serious morbidity or mortality. Immediately following the mock exams and prior to residents receiving their individualized score report, participants completed a satisfaction survey via Google Form. The survey utilized a 1-5 Likert Scale to assess the relevance, appropriateness, and utility of the cases, as well as overall satisfaction. Performance scores were tabulated and averaged collectively for all residents as well as individually for each post graduate year (PGY) class.

Results: The average scores of participating PGY-1, PGY-2, and PGY-3 residents for the February session of Mock Oral boards on a scale of 1-8 (1 = worst possible, 8 = best possible) was 6.62, 7.31, and 6.89, respectively. Only one case was failed of all 32 cases run. We have yet to acquire data for the second session, scheduled for April 15, 2025. After this data is collected, we plan to conduct a statistical analysis determining improvement in scores after familiarity with the style, complexity, and requirements of cases. Overall, residents were very satisfied with the simulation experience with a mean score of 4.93 on a Likert Scale of 1-5 (1 = poor, 5 = excellent). 100% of residents strongly agreed or agreed that the simulation experience has better prepared them for future Emergency Medicine Certifying Exam.

Conclusion: Our innovative simulation-based mock Certifying Exam appears to be well received by residents in training and is relevant to the practice of emergency medicine in light of the changes made to ABEM's Oral Examination (Certifying Exam). Data from the second mock exam simulation session is pending at this time but will be ready for ACEP2025.

No, authors do not have interests to disclose

98TF Longitudinal Gamification of Simulation in Emergency Medicine Education

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Study Objectives: Simulation is a hallmark of emergency medicine (EM) resident education. While the ACGME dictates specific requirements regarding resident attendance at didactics, including five hours per week of educational experiences and a cumulative attendance rate of $> 70\%$, there are no specific attendance policies or mandates for simulation education on a national level. Individual programs may or may not incorporate attendance at simulation events into their didactics policies. For programs without such policies, participation in simulation events can vary widely throughout the academic year. This in turn complicates the organization and planning of simulation education. The purpose of our project is to create and implement a longitudinal point-based system during EM residency simulation events with the following goals: 1) To evaluate the impact of a longitudinal points-based system on EM residency simulation attendance, 2) to assess its impact on learner perceptions of engagement and motivation, and 3) to

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identify barriers and facilitators in the implementation of a longitudinal gamified learning environment.

Methods: This will be a retrospective cohort study performed at a suburban academic EM residency in the Midwest. We will implement a point-based game that spans each academic year in which residents compete for individual and class-year prizes. Points will be awarded for attendance at simulation events throughout the year with additional points awarded to the teams that perform the best as judged by faculty at each simulation station. Attendance data will then be compared to prior residency classes. Additionally, residents will be surveyed regarding motivation to attend simulation events, level of desire to perform well during simulation events, and sense of engagement and class camaraderie as it relates to the gamified system.

Results: Attendance at simulation events will be compared to values from prior residency years and we hypothesize that overall attendance at simulation events will improve following implementation of our intervention. We also hypothesize that residents will respond positively to longitudinal gamification where positive is defined as a score of 4 or 5 on a 5-point Likert scale.

Conclusion: Attendance and engagement are key components of a successful didactics curriculum. Our project aims to improve both in the context of EM simulation via the implementation of a longitudinal gamified environment.

No, authors do not have interests to disclose

99TF Exploring Pertinence

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Study Objectives: The purpose of this lecture curriculum is to equip resident physicians to: 1) Understand what is meant by pertinent positive and negative findings; 2) Analyze patient cases for relevant positive and negative history and exam findings in support of differential diagnoses; 3) Compose stronger patient records with clear pertinent positive and negative evidence for given differential diagnoses. The primary audience is PGY1-3 resident physicians, but this can be very easily adapted, to secondary learners, including but not limited to, medical students.

Methods: (includes curricular development and evaluation) This curriculum was born out of a response to recurrent feedback I was providing my residents regarding their documentation. With the changes in billing guidelines for documentation, residents are appropriately much more focused on our medical decisionmaking sections, but occasionally, to the detriment of detail in their HPI and exam sections. I surveyed our department to assess if other attendings felt there was a similar lack of pertinent positive and negative support in the history and exam sections of our resident's documentation. I found not only support of this finding, but I found that little feedback was being given to the residents to improve their charting. The residents self-assessed that they were not often including pertinent, and attending physicians supported they often added it back into the charts. In response, I designed a curriculum to further develop resident clinical reasoning by educating them on utilizing pertinent positives and negatives. Designed to be delivered in 6, 15–20-minute presentations, I wrote cases using chief complaints with wide differential diagnoses utilizing our residency program's chosen board review book the AAEM's study guide chapter 4 Signs/Symptoms/Presentation as a model. During these sessions learners were presented with a patient age and chief complaint, to simulate what they would be given, clinically, prior to assessing a patient. Through audience participation, they provided a widely exhaustive differential diagnosis. I utilized Miro Board to keep track of their answers in real time. Once we identified the differential diagnosis list, the learners referenced their list to ask questions of the patient. As I provided them with answers from the patient's history and exam, I sorted the answers into pertinent positive and negative categories, visually point them toward a diagnosis. Once the Miro board was complete, one resident would provide a summary as if they would be documenting the patient's chart. Allowing the learners to visually assess these positive and negative factors in history and exam, helped them create comprehensive patient histories.

Results: Ultimately, the sessions were well received by both residents and faculty. I experienced excellent participation, even when one week moved to a virtual format. The quick paced, interactive nature kept their attention. After the curriculum completed, residents rated the experience highly and recommended return of the curriculum next year. They self-evaluated to have improved their clinical reasoning and documentation with 90% of them indicating they now more consistently document pertinent negatives in history and exam. Resident feedback was considered during the curriculum, and suggestions taken for chief complaint. Some also expressed the desire to have a longer discussion of the content or engagement with it in small groups, which are excellent future directions.

Conclusion: Ultimately, it is very important to assess a learner's level of clinical reasoning and teach it when lacking. This curriculum is a simple method to bring residents back to the basics and ensure they are always keeping in mind a wide differential diagnosis and ultimately enhancing their patient documentation.

No, authors do not have interests to disclose

100 Enhancing Pediatric Emergency Medicine Training: Reframing Morning Report With Simulation

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Study Objectives: Pediatric emergency care presents unique challenges, and emergency medicine (EM) residents often have limited opportunities to practice critical pediatric skills in real-time. Traditional didactic methods may not fully bridge the gap between knowledge and clinical practice. Case-based teaching, such as morning reports combined with simulation, offers innovative, immersive, and realistic learning experiences to better prepare residents for pediatric emergencies. This study assesses the effectiveness of integrating pediatric simulation cases into morning report sessions during EM residency.

Methods: Residents in a four-year EM residency participate in daily morning reports, of which one per week is designated for pediatric EM (PEM). These PEM morning reports were enhanced by 1-2 monthly pediatric simulations from September 2021 to August 2024. These 30-minute sessions, conducted in a meeting room adjacent to the emergency department, utilized an interactive simulation-based learning resource with patient videos and vital signs monitor. Working in interdisciplinary teams, residents managed pediatric emergency cases followed by debriefings with a PEM attending. Post-session surveys assessed changes in self-confidence, knowledge, clinical and teamwork skills using a 3-point Likert scale, with data analyzed using descriptive statistics.

Results: Of 189 participants, a total of 133 (70.7%) survey responses were collected from September 2021 to August 2024, with 75% residents (n=98), 11% medical students (n=15), 9% attending physicians (n=12), and 5% other healthcare professionals (n=8) as respondents. The simulation cases conducted over the study period included pediatric seizure, anaphylaxis, non-accidental trauma, newborn resuscitation, and supraventricular tachycardia. The **Table** demonstrates the frequency of simulation case scenarios and their utilization. Ninety-one percent (n=121) of respondents reported improved knowledge of pediatric acute care, 88% (n=116) reported increased comfort, and 92% (n=120) noted enhanced teamwork and communication after these sessions. Furthermore, when respondents were asked if they would recommend the sessions to a colleague, 79% (n=105) reported "strongly agree" and 11% (n=15) reported "agree."

Conclusion: Integrating a low-fidelity pediatric simulation into an existing EM residency morning report format enhanced learners' confidence, knowledge, and teamwork in pediatric emergency care. This approach provides a model for incorporating hands-on learning in other specialties with limited pediatric exposures in a clinical setting.

Table 1: Frequency of Simulation Case Scenarios and Their Utilization

Simulation Scenario	Number of times the case was used
Newborn Resuscitation	3
Pediatric Seizure	5
Supraventricular Tachycardia	3
Sepsis	1
Anaphylaxis	4
Respiratory Depression	1
Non-accidental Trauma	4
Other*	
*Blunt Abdominal Trauma	1
*Toxidrome- Anticholinergic	2
*Pediatric Burn	1
*Status Asthmaticus	1

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101 Incidence and Severity of Unanticipated Opioid Overdoses in Patients Younger Than 5 Years of Age

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Study Objectives: Pediatric opioid overdoses have increased in young children over the past decade. Characterization of the presentation and management of unanticipated opioid overdoses in children is limited. We sought to describe all cases of unanticipated opioid toxicity and determine the incidence and longitudinal trend of cases in children less than five years of age over a five-year period.

Methods: We performed a retrospective chart review to identify all cases of opioid toxicity in patients less than five years old. The study took place in a large regional health care system comprised of 11 emergency departments (EDs) over a five-year period between 2018-2023. Inclusion criteria included patients with an ED diagnosis of altered mental status, encephalopathy, cardiac arrest, or respiratory arrest and with clinical features of opioid toxicity. Descriptive analyses were used to characterize the presentation and management of these patients.

Results: A total of 637 ED encounters were identified in the initial screening of patients less than five years old. After chart review, a total of nine cases met inclusion criteria for confirmed opioid overdose with an incidence rate of 2.83 cases per 1,000 person-years. Table 1 includes the demographic information for these patients. Five patients were female. All patients were two years old and younger. Table 2 outlines each case in detail. There were increased cases after the peak of the COVID pandemic and a trend towards increasing severity over the study period. All but one patient were seen or transferred to the regional children's hospital ED. Most required hospitalization (7/9; 77.7%) and were admitted to the ICU (6/7; 85.7%). The majority of patients who had confirmed opioid overdose required naloxone administration (6/9 = 66.7%), with many requiring multiple doses (4/6= 66.7%). All patients survived.

Conclusion: In this descriptive cohort, we found a low but clinically important incidence of unanticipated opioid toxicity in children less than five years of age presenting with altered mental status, encephalopathy, cardiac arrest, or respiratory arrest. Most patients required naloxone administration and ICU care, highlighting that opioid exposure in young children is likely to be severe and life-threatening.

Category	Variable	Total N [9]	Percent
Age (y)	0-1	3	33%
	2	6	67%
	3	0	0
	4	0	0
Sex	Male	4	44%
	Female	5	56%
Insurance Status	Private	4	44%
	Medicaid	5	56%
	Uninsured	0	0
Race/Ethnicity	White non-Hispanic	5	56%
	Black	2	22%
	Asian	0	0
	Hispanic/Latino	1	11%
	Middle Eastern	0	0
	Other	1	11%

Table 1: Demographic data for opioid exposures in children younger than 5 years of age.

Year	Age (years)	Arrival	Exposure	Source	Naloxone Dose/ Route	Time to/Source of 1st Naloxone (minutes)	Charcoal	CPR	Intubation	Admit	ICU	LOS
2019	2	EMS	Tramadol	Grandparent	None	N/A	0	0	0	1	0	17 h
2019	2	Trnnsfer (POV)	Unknown	Unknown	1.2 mg IM	135 (OSH)	0	0	0	1	1	25 h
2020	2	EMS	Oxycodone	Father	None	N/A	1	0	0	1	1	5 h
2020	1	POV	Tramadol	Dog	None	N/A	0	0	0	0	0	6 h
2021	<1	EMS	Suboxone	Mother	0.85 mg IV x2	18	0	1*	0	1	1	34 h
2022	<1	Transfer (EMS)	Fentanyl	Mother	1 mg IV, 0.4 mg IV	43 (OSH)	0	1	1	1	1	7 days
2023	2	POV**	Morphine	Grandfather	1 mg IN	30	0	0	0	0	0	5 h
2023	2	Transfer (EMS)	Unknown	Unknown	1 mg IV, 2 mg IN	PTA (EMS)	0	0	0	1	1	5 days
2023	2	Trnnsfer (POV)	Unknown	Unknown	1.4 mg IV x2	5	0	1	1	1	1	11 dnys

Table 2: Table outlining exposure data, interventions and disposition for confirmed opioid overdoses. Time to naloxone administration was calculated as the time from presentation to dose. LOS was rounded to nearest hour or day (if greater than 48h). Transfer indicates an EMS transfer from a community emergency department to the pediatric tertiary care center ED, with arrival method to outside ED described in parentheses. For administration of medications, interventions, and disposition: 1=yes, 0=no.

*Parent administered CPR.
**Patient discharged from community ED.

Abbreviations: EMS: emergency medical service; LOS: length of stay; IM: intramuscular; IN: intranasal; IV: intravenous; POV: privately owned vehicle; OSH: outside hospital; PTA: prior to admission (to system).

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102 Parent Perceptions of Cannabidiol Products May Put Children at Risk for Unintentional Exposure

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Study Objectives: Increasing legalization and widespread promotion has dramatically increased the use of cannabidiol (CBD) products for medical and non-medical purposes in recent years. At the same time, the number of young children presenting to the emergency department (ED) with CBD intoxication after exposure in the home is increasing. This suggests that parents and caretakers may perceive CBD products as non-harmful, not taking precautions to secure them as they might other medications. The objective of this study is to describe public perceptions regarding CBD products and determine if perceptions differ between individuals with children in the household who report using CBD vs those that do not.

Methods: A prospective, observational study was performed at a single academic hospital. Flyers (English and Spanish) with a QR code linked to an online survey were posted in the adult and children's EDs and pediatric outpatient clinic from August to December 2024. Participants indicated their age, whether they lived with/cared for children, whether they keep CBD products in the home and answered general questions regarding CBD products. Chi-square analysis was used to compare answers of participants who use CBD products with children in the home vs those that do not use CBD products with children in the home ($p < 0.05$ = significance).

Results: 674 adults completed the survey (mean age = 38). 50.7% have children in their household with 30.9% of those reporting the use of CBD products by someone in their home. Respondents who have children in the household and use CBD were more likely than those that don't use CBD to respond that CBD is not addictive, cannot induce "high" feelings, is safe for use in children, cannot be fatal at high doses, and is FDA-regulated.

Conclusions: Significant inconsistencies exist in public understanding surrounding what is known about potential risks of CBD products. This may put children at risk of experiencing accidental injuries in the home. Results should be used towards developing CBD safety education and emergency physicians should be prepared to counsel patients on the potential risks of CBD in children.

No, authors do not have interests to disclose

103 Perceived Facilitators and Barriers to Universal Adolescent Suicide Screening by Emergency Department Clinicians

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Importance: Suicide is the second leading cause of death amongst teenagers and young adults aged 10 to 34 years old. Several pediatric health organizations have declared pediatric mental health a public health emergency, as mental-health related emergency department (ED) visits have increased over the past decade. As the safety net for the healthcare system, the ED offers a unique touchpoint to capture and intervene upon many youths' lives. While validated suicide screening tools exist, such as the Ask Suicide Questionnaire (ASQ), wide variation exists in screening rates by ED clinicians (17-86%).

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Feedback from key organizational partners and collaborators is needed to understand barriers and facilitators to suicide screening in the ED for institutions.

Study Objectives: To assess the perceived barriers and facilitators of an ED-based universal suicide screening initiative of adolescents aged 12-17 years using the ASQ from relevant key partners (nurses, social workers, physicians) at a large, safety net urban teaching hospital that serves a diverse patient population.

Methods: This was a prospective, observational, qualitative study that aimed to recruit approximately 22 participants (10 nurses, 10 physicians, and 2 social workers), or until thematic saturation. Individuals were electronically recruited via departmental list serves and participated in 25-30 minute virtual semi-structured interviews with open-ended questions to elicit existing perceived barriers and facilitators for universal suicide screening. Interviews were audio-recorded and transcribed. Data collection is currently ongoing. The transcripts will be analyzed with Dedoose software to identify patterns and themes in semantic content. This research study is determined IRB-exempt by both Harbor-Lundquist and UCLA.

Results: To date, 12 participants have completed the interview: 10 physicians (emergency medicine, psychiatry, and pediatrics), 1 nurse, 1 social worker. While data collection is still ongoing, several themes have emerged from the physicians' perspective, which include systems and individual level factors. Overall, participants acknowledged that pediatric mental health is prevalent and is an important concern to address. However, physicians voiced concern about lack of privacy as well as time constraints (unable to provide a final disposition in a timely manner). Physicians from all specialties expressed concern about the increased burden on the psychiatry team and ancillary resources, which are perceived as already being stretched thin. From an individual level, physicians endorsed that the parents/guardians of adolescents who are seen for a non-mental health complaint may not be receptive to the screener, given existing stigma and cultural considerations. To ensure implementation success, participants voiced a need for a protocolized approach with multi-disciplinary buy-in prior to the implementation, and also the need to demystify this screening process when speaking with adolescents and their parents/guardians. Further, all participants acknowledged the need for more staffing personnel, including psychiatry providers, medical assistants, and sitters, anticipating the potential increase in those who screen positive on the ASQ. We plan to complete the nurses and social workers interviews by May 2025 to gain a more holistic view on perceived barriers and facilitators at this single institution.

Conclusion: In our qualitative study, we have identified themes to better understand barriers and facilitators to ED-based universal suicide screening in youth.

Table 1. Emerging Themes from Semi-Structured Interviews (n=12)

A) BARRIERS

Systems-level factors	Supporting Quotes
Physicians voice concern regarding lack of privacy to deliver universal suicide screening.	"For sure, the patient would have to be alone. Like they couldn't be with a guardian or a parent or anything like that, I think, in order to get the most effective answer and also not have the parents completely flip out." (Physician 2)
Physicians note that the potential increase in time it will require to provide the final patient disposition, should a patient screen position.	"Like if a child comes in with a cough and a sore throat and then the screening comes back positive for thoughts of suicidality it's like... Well, now this is another problem to address in an already busy emergency room. So then so many more consults need to be placed, because what if it's a social work consult as well as a psychiatric consult? Maybe the child's not safe to go home. Maybe DCSF is now involved. So I think you could, definitely, I think it could possibly slow things down. (Physician 9)
Physicians note the potential increased burden on the psychiatry consult team, anticipating an increase in patients requiring a psychiatric consult or resources.	"So yeah, I think it's important. I think it's something we should be doing, but I also don't think we have the resources to fully provide for all of the kiddos who actually would need help if screened positive." (Physician 5)
Individual-level factors	
Physicians anticipate that parents/guardians of adolescents seen for a primary non-mental health complaint may be suprised by the suicide screening, given existing cultural attitudes and stigma.	"I think if they're like, I just brought my child for a stubbed toe, why are they now in a hold and getting transferred to the psych unit? Like, I think that would be really traumatizing for some parents who literally have no idea... And I think culture would play a big part in it as well if the parents are like immigrants who maybe are not exposed to mental health as a concept in general." (Physician 2)
Physicians of varying backgrounds voice that key personnel in the screening and response process (nursing, psychiatry, social worker) may not welcome the added responsibilities due to screening.	"I don't think they'll be thrilled. I think at least from the psych department, I imagine it's honestly the same for the emergency department as the medical emergency department as well. I think again, the concern is that the workflow will be quite a bit slower, and it won't really change anything for the patient if they weren't there for psychiatric reasons, and the parents didn't already link them up with psychiatric care." (Physician 7)

B) FACILITATORS

Systems-level factors	Supporting Quotes
All interviewees voice a need for a protocolized approach with multi-disciplinary buy-in prior to the implementation.	"I think for a universal screening, my main concern would be just making sure we have an appropriate protocol in place to give them the resources. And we have like our buy-in from the psychiatry team to be and they have the bandwidth to be able to provide resources, care for those patients, get them appropriately plugged in. Then, making sure that we have like we also need like buy-in from, I think, nursing too." (Physician 1)
Interviewees mention that it may be best to integrate the screening into the workflow so it is not missed.	"I think it's also just like anything we do in the ED where it's just so regimented and there's so many buttons to click that if it was integrated in the EMR, and it was just something that they had to click through prior as part of their like a formal triage." (Physician 2)
Interviewees acknowledged the need for more staffing personnel, including psychiatry providers, medical assistants, and sitters, anticipating the potential increase in those who screen positive on the ASQ.	"I do also feel like hopefully being able to take that a step further and to be able to connect them to mental health resources when we do have that buy-in from the patients and families could be a positive addition to the workflow, but I could see how we would need more manpower and more support and that's that conversation of funding and new positions and things. Because right now I don't know that we have the bandwidth or capability to do that." (Social Worker 1)
Individual-level factors	
Interviewees believe that they and their colleagues would overall be supportive of the initiative.	"I think people would be very accepting and wanting to push it forward, because I think we have a huge mental health crisis. And so if you can catch kids who are thinking about it before they've made actual attempts or gestures, I think you would be able to help a lot of people." (Physician 8)
Interviewees voice the need to normalize this screening when speaking with adolescents and their parents/guardians to ensure implementation success.	"It's a standardized question. There's no extra bias put on it. It's literally just Here's this question, here's this question, here's this question, here's this question." (Physician 4)

No, authors do not have interests to disclose

104 Improving Pediatric Residents' Confidence in Managing Neonatal Hypoglycemic Seizures

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Study Objectives: Medium-chain Acyl-CoA Dehydrogenase (MCAD) deficiency is the most common defect of mitochondrial fatty acid β-oxidation. MCAD patients cannot metabolize medium-chain fats, which can lead to hypoglycemia, liver dysfunction, and death in periods of fasting or metabolic stress, and despite newborn screening programs, MCAD deficiency remains a potentially life-threatening condition with mortality rates of 13-43% at initial crises. Diagnosis can be challenging due to the rarity of the condition and its non-specific initial symptoms, which can mimic more common childhood illnesses. Neonatal seizures due to hypoglycemia, particularly those caused by metabolic disorders like MCAD deficiency, present a significant challenge in pediatric care. Additionally, 4-8% of affected neonates may become symptomatic before screening results are available, further complicating early detection. This study aimed to assess the effectiveness of a simulation-based educational intervention in improving pediatric residents' confidence in managing these complex cases, particularly focusing on neonatal seizures due to hypoglycemia caused by MCAD deficiency.

Methods: A pre-post simulation study was conducted with 104 pediatric residents. Participants engaged in a high-fidelity simulation scenario featuring a neonate with hypoglycemic seizures due to MCAD deficiency. Confidence levels in managing neonatal seizures, identifying their causes, and evaluating metabolic etiologies were assessed using a validated rubric before and after the simulation.

Results: The simulation-based educational intervention significantly improved pediatric residents' confidence across all measured outcomes. Managing neonatal seizures showed a 32.61% improvement (pre: 1.84, post: 2.44), while identifying causes increased by 28.65% (pre: 1.92, post: 2.47). The most substantial gain was observed in evaluating metabolic causes, with a 41.29% improvement (pre: 1.55, post: 2.19). Overall confidence scores increased by 33.79% (pre: 5.31, post: 7.10). The 95% confidence interval for the mean difference in scores is (0.4975, 0.6965), indicating a substantial and consistent positive effect of the simulation. These results strongly suggest that the intervention effectively enhanced residents' confidence in managing neonatal hypoglycemic seizures, particularly those related to metabolic disorders like MCAD deficiency.

Conclusions: This simulation-based intervention effectively enhanced pediatric residents' confidence in managing neonatal hypoglycemic seizures, particularly those related to rare metabolic disorders like MCAD deficiency. The significant improvement in evaluating metabolic causes highlights the value of this educational approach in preparing residents for complex, time-sensitive clinical scenarios. These findings underscore the importance of incorporating rare but high-stakes conditions into residency training programs, potentially improving early recognition and management of metabolic crises in neonatal care.

No, authors do not have interests to disclose

105 Investigating Adolescent Physical Activity Level of Medicaid Recipients at an Urban Pediatric Emergency Department

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Study Objectives: Utilization of healthcare settings to educate children about physical health practices is an important intervention to help start healthy habits early and improve the physical and mental health of adolescents. Few studies have examined the pediatric emergency department (ED) as a setting to reach adolescents, especially individuals from underserved communities, to provide health education on the topic of physical activity. Previous study suggests an ED-based physical activity (PA) intervention is feasible. 1. To assess physical activity behaviors of adolescents from underserved backgrounds presenting to the pediatric ED and its associations with age, gender/sex, race, and ethnicity. 2. To assess willingness to participate in an ED-initiated physical activity education intervention after the ED visit. 3. To assess ongoing physical activity behaviors after an ED-initiated physical activity education intervention.

Methods: Adolescents ages 10 to 18 years with Medicaid insurance were recruited in a large, urban ED in a free-standing pediatric hospital from November 2023-February 2025. The study consists of an introductory Physical Activity Questionnaire (PAQ-A) followed by the offer to enroll in a two-week physical activity educational intervention after the ED visit. The PAQ-A score ranges from 1, low physical activity,

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to 5, high physical activity. Demographic information was collected. Adolescents were sent follow-up surveys each week to assess participation and a small monetary incentive was provided after completion of the follow-up. One-way ANOVAs were performed to investigate for age, gender/sex, race, and ethnicity.

Results: 144 patients enrolled to date, 58% female, with a mean age of 14 years (SD 2.6). Patients mainly identified as White (36.2%), Other/Biracial (34.2%), Black/African American (28.3%), and 52.0% identified as Hispanic/Latino. The overall mean ED PAQ-A activity score is 2.44 (SD 0.78). 69.2% of patients indicated an interest in physical activity education while in the emergency department. After one week (n=44), the follow-up PAQ-A activity score is 2.37 (SD 0.71). After two weeks (n=36), the follow-up PAQ-A activity score is 2.21 (SD 0.65). The initial follow-up PAQ-A activity scores were statistically similar. The PAQ-A activity scores and willingness to receive physical activity education were also found to be similar across gender, age, racial, and ethnic groups on Medicaid.

Conclusion: The PAQ-A activity scores from adolescents on Medicaid reported low physical activity levels below the middle score of 3 with similar scores across demographics. Adolescents with Medicaid were willing to participate in ED physical activity education in addition to education after their ED stay education which was also similar across all demographics. Follow-up data shows a slight decline in scores after leaving the ED, but overall, the participants exhibited similar physical activity levels after leaving the emergency department after two weeks. Given the high willingness to participate in health education in the ED, the results of this pilot study show the ED is a suitable location to conduct preventive care education. Further consideration can be given to investigating how to improve accountability and adherence to education after their ED stay including connection to community and primary care resources.

No, authors do not have interests to disclose

106 Comprehensive Outcomes of Cannabis Versus Cigarette Use for Emergency Department Patients

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Study Objectives: Cannabis is one of the most commonly used psychoactive substances worldwide, with 20% of adults in the US reporting using cannabis at least once in the past year. Nicotine dependence is reported in 10% of adults in the United States. This study aims to investigate the relationship between cannabis use and cigarette smoking marked by nicotine dependence on mortality, cardiovascular outcomes, suicide, cancer of lung/bronchus, and reactive airway disease in emergency department (ED) patients.

Methods: This retrospective, propensity matched study utilizing the TriNetX database to analyze records of 120,689,106 patients from 69 healthcare organizations in the United States between 2005–2022. The first cohort consisted of adult patients and grouped based on diagnosis of "Cannabis related disorders" (CRD) within 5 years before or 1 month after an ED visit. The second cohort consisted of adult patients with a diagnosis of nicotine dependence within 5 years before to 1 month after an ED visit. The outcomes evaluated were all-cause mortality, stroke, myocardial infarction (MI), suicide, cancer of lung/bronchus, and reactive airway disease (Asthma/COPD) within 3 years after the ED visit. Patients who previously experienced these outcomes or belonged to both cohorts were excluded from the study. Propensity matching was performed for demographics and 7 pre-existing conditions associated with mortality.

Results: There were 1,682,117 patients identified with ED visits and CRD or cigarette smoking/nicotine dependance. After propensity matching, there were a total of 651,232 adult patients with CRD (n=325,616) or nicotine dependence (n=325,616) within 5-years prior or 1-month after an ED visit. Patients with CRD had a significantly higher rate of mortality (2.35% vs 2.16%, RR 1.09, 95% CI 1.05-1.12), stroke (0.45% vs 0.28%, RR 1.59, 95% CI 1.47-1.73), MI (0.53% vs 0.35%, RR 1.51, 95% CI 1.40-1.63) and suicide (0.62% vs 0.35%, RR 1.77, 95% CI 1.65-1.90) within 3-years of the ED visit compared to patients with nicotine dependence. Individuals with nicotine dependence due to cigarette smoking had significantly higher rates of lung/bronchus cancer (0.16% vs 0.31%, RR 0.53, 95% CI 0.48-0.59) and reactive airway disease; asthma (6.30% vs 7.37%, RR 0.86, 95% CI 0.84-0.87) and COPD (1.65% vs 3.05%, RR 0.54, 95% CI 0.52-0.56) than those with CRD.

Conclusion: The findings of this study showed that cannabis use was associated with higher risks of mortality, stroke, MI and suicide for emergency department patients when compared nicotine dependence as a marker of cigarette smoking. Cigarette smoking/nicotine dependance was associated with higher rates of lung/bronchus cancer and reactive airway disease when compared to those with CRD.

Table 1: Comprehensive Outcomes of THC vs Nicotine Use Before and After Propensity Score Matching

	Before Propensity Score Matching				After Propensity Score Matching			
THC vs Nicotine								
Outcomes	THC (%)	Nicotine (%)	RR (95% CI)	P-Value	THC (%)	Nicotine (%)	RR (95% CI)	P-Value
Deceased	7,752 (2.30%)	52,519 (3.92%)	0.59 (0.57,0.60)	<0.001	7,644 (2.35%)	7,029 (2.16%)	1.09 (1.05,1.12)	<0.001
Stroke	1,459 (0.43%)	7,300 (0.54%)	0.80 (0.75,0.84)	<0.001	1,454 (0.45%)	913 (0.28%)	1.59 (1.47,1.73)	<0.001
MI	1,755 (0.52%)	8,922 (0.67%)	0.78 (0.74,0.82)	<0.001	1,738 (0.53%)	1,152 (0.35%)	1.51 (1.40,1.63)	<0.001
Lung Cancer	533 (0.16%)	10,913 (0.82%)	0.19 (0.18,0.21)	<0.001	533 (0.16%)	1,000 (0.31%)	0.53 (0.48,0.59)	<0.001
Suicide	2,090 (0.62%)	4,111 (0.31%)	2.03 (1.92,2.14)	<0.001	2,017 (0.62%)	1,142 (0.35%)	1.77 (1.65,1.90)	<0.001
Asthma	19,290 (6.36%)	81,607 (6.69%)	0.95 (0.94,0.97)	<0.001	18,454 (6.30%)	21,818 (7.37%)	0.86 (0.84,0.87)	<0.001
COPD	5,274 (1.60%)	84,128 (6.86%)	0.23 (0.23,0.24)	<0.001	5,247 (1.65%)	9,579 (3.05%)	0.54 (0.52,0.56)	<0.001

THC, Tetrahydrocannabinol; RR, Relative Risk; CI, Confidence Interval; MI, Myocardial Infarction; COPD, Chronic Obstructive Pulmonary Disease

No, authors do not have interests to disclose

107 WITHDRAWN

108 Crossover Arm Control: A Safe Restraining Technique In Resisting Subjects?

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Study Objective: Law enforcement agencies often face significant challenges in managing resistant subjects. While use of force incidents are not the majority, each instance has the potential to significantly erode public trust and damage community relations. The Crossover Arm Control (CAC) is a restraint technique designed to limit a subject's mobility without requiring the restrainer to apply their body weight, enhancing safety for all involved. Unlike other restraints, the CAC secures the arms, preventing access to the duty belt and reducing the likelihood of escalation. This study aims to verify the safety of the CAC, ensuring it does not obstruct carotid arteries or impair respiratory functions, despite its appearance which may resemble a choke to the untrained observer.

Methods: Following Institutional Review Board (IRB) approval, adult volunteers were recruited to examine autonomic responses during CAC application. Exclusion criteria were established via a screening questionnaire to rule out participants with contraindications. Patient characteristics including age, sex, height, and weight were recorded. During the test, the CAC applier adopted an adjusted mounted position to optimize stability without compromising the subject's ability to breathe or circulate blood. Participants were instructed to resist the hold for one minute, aiming to elevate their heart rate by at least 30% above baseline. Vital signs were monitored using ECG and a nasal cannula for CO2 analysis, with ultrasonography assessing potential blood flow restriction in the common carotid artery. Cardiac and respiratory functions were monitored and recorded at three points: prior to, during, and after application of CAC.

Results: The study included 20 participants, ages 20 to 65 years of age. The physiological responses observed during CAC application included a heart rate increase greater than 30% from baseline, a 75% increase in respiratory rate, and a 43% decrease in expired carbon dioxide consistent with normal responses to increased physical activity. Throughout CAC, pulse oximetry readings remained stable, indicating sustained oxygen saturation and tissue perfusion. Ultrasonography revealed only minimal changes in blood flow velocity and vessel diameter, with less than a 5% reduction, which remained well below the threshold's indicative of carotid stenosis as peak systolic velocity was maintained far below 100 cm/sec. Additionally, all subjects returned to their pre-test cardiorespiratory status within five minutes of CAC application, confirming a rapid and complication-free return to physiological baseline.

Conclusion: Our results suggest that the Crossover Arm Control (CAC) technique does not impede cerebral blood flow nor cause carotid artery constriction, potentially supporting its safe application in law enforcement and emergency scenarios. The simplicity and effectiveness of the CAC with minimal training investment deserves additional investigation for handling resistant subjects. We recommend ongoing refinement and regular practice of this technique, combined with other de-escalation strategies, to ensure both competency and safety in its application.

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Table 2. Change in Physiologic Parameters after CAC (Standard Deviation)

	Resting	Post CAC	Delta	% change
Pulse	68.75 (8.10)	103.75 (9.73)	35.0 (5.96)	50.90%
RR	14.6 (1.93)	25.65 (2.30)	11.05 (1.67)	75.68%
C02 (mmHg)	34.6 (4.39)	19.6 (4.48)	-15.0 (4.23)	-43.35%
POX	97.9 (1.65)	97.45 (1.36)	-0.45 (0.83)	-0.01%
PSV (cm/s)	32.40 (7.48)	35.25 (6.61)	2.85 (3.66)	8.79%

Abbreviations: CAC – crossover arm control, POX – pulse oximetry, PSV – peak systolic velocity

Yes, authors have interests to disclose

Disclosure: Gaetano Scuderi, MD is a part time jiujitsu instructor and consults with Gracie University for teaching defensive tactics for law enforcement.

Gaetano J. Scuderi, MD

Other

Gaetano Scuderi, MD is a part time jiujitsu instructor and consults with Gracie University for teaching defensive tactics for law enforcement.

Disclosure: Charles Fernandez is currently employed by Gracie University.

Charles Fernandez

Employee

Charles Fernandez is currently employed by Gracie University.

109 The Real World of Universal Screening for Alcohol Use in Emergency Medicine

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Study Objectives: Many emergency departments (EDs) and clinical settings offer evidence-based screenings for alcohol use as part of usual care. Screening tools utilized, such as the AUDIT or AUDIT-C, were originally validated for use in primary care settings, but are being more widely used throughout healthcare settings. The AUDIT/AUDIT-C screening tools are validated with a sensitivity and specificity for an alcohol use disorder (AUD), based on being asked word-for-word in a research-controlled setting. EDs are chaotic environments with limited privacy and are not generally thought of as "controlled settings". Therefore, this study evaluates use of evidence-based screening tools and other methods of identification of alcohol use disorders, to identify real-world efficacy in ED settings.

Methods: This study includes all visits for adult patients ages 18 and older in 13 emergency departments with a Screening, Brief Intervention, and Referral to Treatment (SBIRT) program for alcohol and drug use fully implemented from 2022-2024, using an enterprise electronic health record. Data is included for 1,923,103 visits by 1,028,066 unique patients. "Probable AUD" was defined as an alcohol-related primary or secondary discharge diagnosis (entered by a physician or advanced clinical practitioner), a score of 16 or more on the AUDIT (administered by a social worker or SBIRT health coach), or a score of 8+ on the AUDIT-C (administered by primary nurse). All measures were extracted via a Tableau report out of the electronic health record. Poisson regression was used to compare visit counts between patient groups; crosstabs were used for descriptive analyses. All data was analyzed using IBM SPSS Statistics v26.

Results: Those with a probable AUD identified during any visit between 2022-2024 had 1.91 (95% CI:1.89-1.92) times the number of ED visits compared to those with no identified probable AUD during that period; adjusted for age at most recent visit. Of those with an identified AUD during the 3-year period, their AUD was only identified via AUDIT-C, AUDIT, or primary/secondary diagnosis during 54.2% of their ED visits. 91,421 (4.8%) of visits were for a patient with a probable AUD, and 27,287 (2.7%) of unique patients had a probable AUD within the 3-year period. Of those with a probable AUD during the 3-year period, likelihood of admission was 28.0% if their AUD was identified during that visit, compared to 19.4% if their AUD was not identified during that visit. The most common principal discharge diagnoses for patients with probable alcohol use disorders not identified during that visit were abdominal pain (3.9%), chest pain (3.8%), back pain (1.6%), seizure (1.5%), fall (0.9%), and cellulitis (0.8%).

Conclusion: EDs are caring for many patients with alcohol use disorders, half the time unknowingly, despite universal screening protocols. No chart reviews were performed as part of this study, so it is possible alcohol use disorder was identified in free text notes or other places throughout the chart. Based on principal discharge diagnoses for patients with a probable AUD not identified during a given visit such as chest pain, seizure, and fall, an alcohol use disorder may be playing a "hidden" role in the patient's condition and precipitating reason for their visit. Continuing to offer multiple opportunities to discuss alcohol use with different members of the clinical team is essential to improve identification and treatment of alcohol use disorders during ED visits.

No, authors do not have interests to disclose

110 Standardizing and Normalizing Race Data in the Clinical Emergency Data Registry

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Study Objectives: The American College of Emergency Physicians, Clinical Emergency Data Registry (CEDR) is a qualified clinical data registry that collects structured and unstructured data from participating U.S. emergency departments (EDs) for quality measurement, improvement, and reporting (1,2). A key challenge in leveraging this data is the inconsistency in race classifications. This study aims to standardize and normalize race fields to eliminate redundancies and improve data quality for secondary use, including predictive modeling.

Methods: We analyzed encounter-level data from the CEDR for the calendar year 2023, encompassing 510 unique EDs and approximately 16 million unique encounters. We focused on Race data capture in CEDR from electronic health record (EHR) feeds, narrowing the dataset to 268 EDs and 6,383,846 unique encounters. EHR and data feed variation were standardized to align with the updated United States Census Bureau standards, which define seven co-equal minimum categories for race and ethnicity: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Middle Eastern or North African, Native Hawaiian or Pacific Islander, and White [3]. Additional manual normalization (ie, correcting spelling discrepancies, capitalizations, hyphenations) were also applied *post hoc*.

Results: In 2023, CEDR contained 639 unique Race categories, of which 100 accounted for 99.76% of unique encounters in the dataset. The top 100 contained additional heterogeneity (eg, "BLACK", "BLACK OR AFRICAN AMERICAN", "BLACK / AFRICAN AMERICAN") which was normalized to meet the outlined US Census Bureau. Categories. The **Table** represents the results of this normalization and standardization. Note the inclusion of the *Other*, not outlined by the US Census Bureau, as it captures significant unique encounters within CEDR.

Conclusion: Standardizing and normalizing race data using US Census Bureau guidelines enhances data comparability within and across registries, reduces redundancy, and improves the accuracy of predictive modeling by minimizing input variability. The *Other* category which included entries which could be aligned with one specific US Census Bureau category alone (ie, multiracial, "other" and "chose not to respond") (**Table**). Given the large number of encounters, this group holds significant research value but would require subject matter expert reclassification first. Complete normalization of CEDR's race and ethnicity data could uncover timely, unique demographic patterns and insights into health outcomes. This study identifies a race data standardization pathway which is EHR agnostic. Implementation of this standard can simplify high EHR heterogeneity and potentially reduce physician documentation burden.

Table 1. Unique ED Encounters in CEDR by US Census Bureau Race Category

Race Category	Unique ED Encounters
White	4,430,739
Black or African American	1,558,641
Other	968,806
Asian	241,384
Hispanic or Latino	172,975
Native American/American Indian or Alaska Native	82,873
Native Hawaiian or Pacific Islander	32,489
Middle Eastern or North African	6,630

No, authors do not have interests to disclose

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111 Streamlining Government Assistance Enrollment: Demographic Analysis of In-Person and Remote Models

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Study Objectives: The damaging effects of poverty on physical and psychological health are well-categorized, yet billions of dollars of government assistance go unspent each year. Convoluted applications, limited education about benefits, and understaffed administering agencies hinder the mobilization of this aid. Link Health, a Boston- and Houston-based nonprofit, seeks to dismantle these barriers through combined in-person/remote models. This study examines Link Health's enrollment outcomes and demographic trends across sign-up methods to evaluate its impact on improving health determinants in underserved communities.

Methods: *In-Person Clinics:* At partnering health centers, multilingual Certified Patient Navigators (CPNs) engage patients in waiting rooms. CPNs conduct eligibility screenings and submit applications using an AI-equipped dashboard, which transfers basic information between applications to reduce redundancy; this allows multiple sign-ups during brief interactions. *Remote Model:* Digital CPNs operate a remote infrastructure, assisting patients via text-message to follow-up on incomplete applications. In emergency department (ED) waiting rooms, patients interact with QR codes or near-field communication tags to access a ChatBot that supports applications for three assistance programs. This analysis reviews total enrollment outcomes and demographic characteristics of all applicants, and it evaluates enrollment trends among in-person-only programs (Supplemental Nutrition Assistance Program, SNAP; Transitional Aid for Families with Dependent Children, TAFDC; Home Energy Assistance Program, HEAP; Medicare Savings Program, MSP; Child Care Financial Assistance, CCFA). Statistical tests and figures were generated in R Studio.

Results: From November 2022 to January 2025, Link Health supported 3,036 individuals in submitting 3,425 applications, disbursing $3.42 million in aid. The largest age group was 30–44 years (32.1%, n=977), followed by 45–59 years (26.8%, n=815). Hispanic enrollees constituted the majority (60.6%, n=1,546), followed by Black/African American enrollees (17.8%, n=455). Most enrollees qualified through Medicaid (73.4%, n=1.972) or SNAP (15.3%, n=1,040), with English speakers (47.5%, n=1,444) outnumbering Spanish speakers (31.1%, n=945). Sex distribution revealed significant differences across in-person-only programs ($X^2 = 24.764$, df = 8, $p = 0.0017$). Males were overrepresented in SNAP enrollments (residual = 2.30) but underrepresented in TAFDC (-2.18) and CCFA (-2.11). Females were underrepresented in MSP enrollments (-2.34), while other programs aligned with expectations. Race distribution did not significantly differ across programs.

Conclusion: Link Health reduces barriers to government assistance by employing complementary, culturally-aware in-person and remote strategies. Through the integration of AI tools and multilingual support, the organization empowers diverse populations to access critical aid with greater efficiency. Observed demographic differences, particularly in sex distribution, alongside consistent racial representation across in-person-only programs, underscore the importance of tailored outreach efforts to achieve balanced enrollments. These findings highlight the transformative potential of innovative enrollment solutions in addressing health determinants, especially for underserved populations in clinical and ED settings.

Table 1. Summary of Residuals for Sex Distribution by Program

Program	Male	Female	Unknown	Residual
SNAP	45 (2.30)	55 (1.24)	5 (-4.67)	2.30
TAFDC	10 (-2.18)	40 (-0.42)	20 (3.13)	-2.18
Childcare Financial Assistance	5 (-2.11)	15 (-0.98)	30 (3.90)	-2.11
Medicare Savings Program	20 (0.06)	10 (-2.34)	15 (3.88)	-2.34
HEAP	15 (0.91)	25 (0.60)	10 (-1.88)	3.90

a. Residuals are calculated by subtracting the expected count of male and female enrollees from the observed count. If positive, this means there are more people of that sex in the program than expected; if the residual is negative, it means there are fewer people of that sex in the program than expected.

No, authors do not have interests to disclose

112 CHAPTER4: Challenging the 4-Hour Allergy Premedication Time in the ER, a Multicenter Study

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Introduction: The 2024 American College of Radiology (ACR) Manual on Contrast Media recommends a 4-hour intravenous (IV) premedication wait period for patients with a documented iodinated contrast allergy requiring IV contrast-enhanced computed tomography (CT) imaging. This may lead to delays in timely diagnosis, treatment, and throughput in the emergency department (ED). This multicenter, retrospective cohort study compares the incidence of allergic reactions between patients who receive IV contrast less than 4 hours prior to scan and those who received it more than 4 hours prior to determine if an association exists and measures CT order-to-start (OTS) times as a surrogate marker of operational delay.

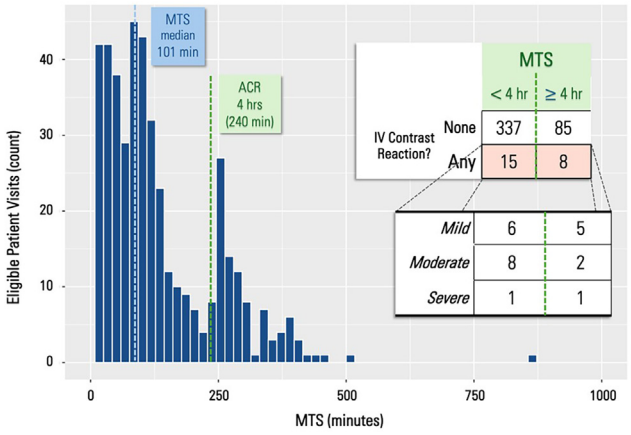
Study Objective: To determine if there is a relationship between the ACR 4-hour cutoff and any IV contrast reaction among ED patients with a documented allergy and who received IV contrast.

Methods: This study was conducted at five centers, including three tertiary EDs and two community EDs. We performed a retrospective chart analysis of adult ED patients from 1/1/2022 to 12/31/2024 who underwent contrast-enhanced CT imaging and had a documented iodinated contrast allergy. Each chart was systematically examined for premedication (IV steroid and IV antihistamine), iodinated contrast administration, and the severity of allergic reaction as defined by the 2024 ACR Manual. We defined medication to start time (MTS) as the time between premedication and IV contrast administration (ie, start of CT) and divided patients into MTS <4-hour and MTS 4-hour groups. Descriptive statistics were performed to characterize the patients, and chi-square analysis was used to determine if there was a difference in the frequency of allergic reactions between the two groups, using a p-value of 0.05. We further defined order to start time (OTS) as the time between the CT order and IV contrast administration.

Results: We identified 1247 patient visits and excluded 802 visits due to only a gadolinium contrast allergy or non-compliance with the medications in the ACR premedication protocol. The resulting 445 eligible visits included 304 (68%) females with an average age of 62.4 (stdev = 16.5 years). The median MTS time was 101 minutes [IQR, 50—194], which is notably 139 minutes shorter than the recommended ACR 4-hour premedication period. The median OTS time was 150 minutes [IQR, 81—271]. Of the eligible patient visits, 422 (94.8%) had no allergic reaction, 11 had mild reactions (2.5%), 10 had moderate reactions (2.2%), and 2 had severe reactions (0.4%) requiring intramuscular epinephrine. There was a single severe reaction in each of the groups (<4-hour and 4-hour). Chi-square analysis resulted in $p = 0.156$, showing no association between the incidents of allergic reactions and compliance with the ACR 4-hour protocol. The odds ratio of not having an allergic reaction was 2.12 with 95% CI [0.87—5.15]. There were no differences between reaction incidents and premedication time periods based on gender or age.

Conclusion: This multicenter, retrospective study suggests that the ACR 4-hour cutoff premedication period for patients with documented IV contrast allergy does not result in any decrease in allergic reactions due to contrast. Severe allergies were exceedingly rare in our study. The reactions were primarily mild and moderate. Moreover, implementation of a premedication time results in an operational delay of at least 150 minutes (OTS). Within study design limitations, our results provide a rationale and reasonable measure of safety to proceed with a prospective study investigating the safety of a shorter premedication protocol for those with a documented IV contrast allergy who require an IV contrast CT.

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No, authors do not have interests to disclose

114 Optimizing Emergency Department Flow: The Impact of a Split Flow Model on Efficiency Metrics

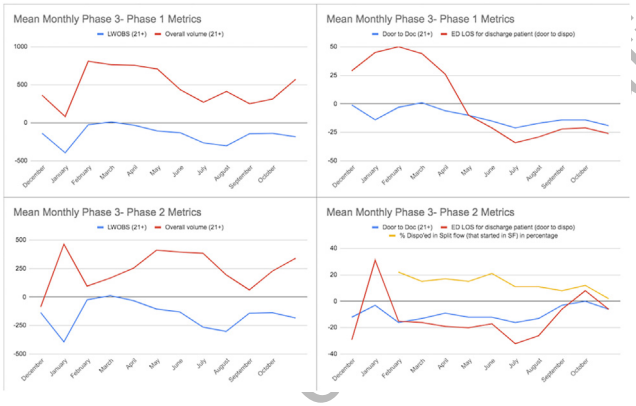
Smith K, Kolster L, Laterza C, Silverman M/Morristown Medical Center, Morristown, New Jersey

Study Objectives: Rising emergency department (ED) volumes and increasing wait times pose challenges that impact patient outcomes and satisfaction. The split flow model streamlines triage by directing lower-acuity patients to a fast-track lane while maintaining conventional triage for high-acuity patients. This study evaluates the impact of a split flow implementation on key ED efficiency metrics, including door-to-doctor time, left without being seen (LWOBS) rates, door-to-disposition time, and overall patient volume.

Methods: This quality assurance study analyzed ED operational metrics before and after implementing a split flow model. Data were extracted from the electronic health record (EHR) system using Epic SlicerDicer for patients aged ≥21 years presenting to a suburban tertiary ED (>100K annual visits). Three phases were defined: Phase 1 (Nov 2021–Oct 2022, pre-implementation): Standard triage, with all non-critically ill patients awaiting provider evaluation in a single queue. Phase 2 (Nov 2022–Oct 2023, initial implementation): Introduction of split flow process with an intake area managed by an advanced practice provider (APP), who initiated orders before patients returned to the waiting room. A designated disposition physician later reviewed results, reassessed appropriate patients, and discharged those patients. Phase 3 (Nov 2023–Oct 2024, sustained implementation): Full integration with process refinements including staffing adjustments and extended intake area hours. Key metrics analyzed included door-to-doctor time, LWOBS rates, percentage of patients discharged from split flow, and door-to-disposition time. Monthly ED volumes were tracked. Comparisons between phases were conducted using a two tailed independent T-test, with $p < 0.05$ and 95% confidence intervals.

Results: The split flow model significantly improved ED efficiency. Door-to-doctor time decreased by 11 minutes in Phase 3 vs Phase 1 ($p < 0.002$, 95% CI [6.48–15.68]). LWOBS rates declined by 152 patients per month ($p < 0.001$, 95% CI [77.06–227.43]) despite a mean monthly ED volume increase of 478.42 patients ($p < 0.001$, 95% CI [326.59–630.23]). Compared to Phase 2, Phase 3 showed a 9.58-minute reduction in door-to-doctor time ($p < 0.001$, 95% CI [6.18–12.98]) and a 56.25 patient decrease in LWOBS per month ($p < 0.05$, 95% CI [8.03–104.47]). The percentage of patients dispositioned through split flow increased by 13.4% ($p < 0.05$, 95% CI [9.12–17.68]). Door-to-disposition time decreased by 12.25 minutes from Phase 2 to Phase 3 ($p < 0.05$, 95% CI [1.13–23.37]) but increased by 2.58 minutes from Phase 1 to Phase 3, though not statistically significant ($p=0.79$, 95% CI [-18.43–23.60]).

Conclusion: The split flow model significantly improved door-to-doctor time and LWOBS rates, supporting its effectiveness in optimizing ED throughput despite increasing volumes. The slight increase in door-to-disposition time compared to pre-implementation was not statistically significant and may reflect increased patient boarding trends between 2022 and 2024. Limitations include the retrospective nature of this QA study, variability in staffing and patient acuity, and reliance on EHR-derived operational data which may not capture all confounders. Additionally, this study was conducted at a single high-volume ED, which may limit generalizability. Future research should assess the long-term sustainability of split flow improvements, impacts on length of stay and readmission rates, and adaptation in community or lower-volume EDs to evaluate broader applicability.



No, authors do not have interests to disclose

115 Impact of Universal, Opt-Out HIV Screening on Emergency Department Utilization in a Safety-Net Hospital

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Study Objectives: Routine opt-out HIV screening in emergency departments (EDs) enhances early diagnosis and linkage to care, particularly in safety-net health systems. However, individuals diagnosed with HIV often continue to rely on ED services due to barriers to outpatient care, including unstable housing, mental health disorders, and substance use. This reliance contributes to ED overcrowding, a growing public health concern associated with delayed treatment, decreased quality of care, and increased hospital mortality. While ED-based HIV screening improves detection rates, its impact on subsequent healthcare utilization remains unclear. This study examines whether individuals newly diagnosed with HIV in an urban ED experience changes in ED utilization patterns following diagnosis.

Methods: We conducted a retrospective analysis of patients diagnosed with HIV through routine opt-out screening in an urban safety-net ED between January 2016 and December 2017. We compared ED utilization in the six months before and after diagnosis using electronic medical records. Patient demographics, comorbidities, and visit characteristics were analyzed. Mixed-effects negative binomial regression models were used to assess changes in the rate of ED visits per month post-diagnosis, adjusting for multiple observations per patient.

Results: A total of 287 patients were newly diagnosed with HIV during the study period. The majority were male (74.6%) and Black (85%), with a median age of 34.5 years. Following diagnosis, the rate of HIV-related ED visits increased significantly from 0.004 visits per month pre-diagnosis to 0.017 visits per month post-diagnosis (Rate Ratio [RR] = 4.21, 95% CI: 1.93–9.22, $p < 0.001$). Additionally, non-HIV-related ED visits also increased, from 0.025 visits per month pre-diagnosis to 0.045 visits per month post-diagnosis (RR = 1.80, 95% CI: 1.29–2.53, $p < 0.001$).

Conclusions: ED-based HIV screening identified a high-risk population with increased healthcare needs following diagnosis, despite access to outpatient HIV care. These findings highlight the pivotal role of EDs in HIV care and emphasize the need for enhanced linkage strategies and integrated support services to reduce unnecessary ED utilization and improve long-term health outcomes. Future interventions should address barriers to sustained outpatient care and optimize resource allocation for newly diagnosed HIV patients.

Yes, authors have interests to disclose
Disclosure: Gilead Sciences
Anna Yaffee, MD
Consultant/Advisor
Gilead Sciences

Research Embargoed Until Date/Time of Presentation

116 Use of Epic Secure Chat Can Improve Antibiotic Administration Times in Emergency Department Patients With Sepsis

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Introduction: Severe sepsis and septic shock have demonstrated decreased mortality with appropriate antimicrobial administration within 1 hour. In line with the Surviving Sepsis Campaign Guidelines and New York State sepsis initiatives, antibiotic administration within 1 hour has remained a consistent Quality/Safety goal at NYU Langone Health (NYULH). Timely order-to-antibiotic administration is an important contributory sub-metric to this goal. We sought to determine if the real-time use of Epic's Secure Chat could improve administration antibiotic times for ED patients meeting Sepsis Protocol criteria by facilitating interdisciplinary communication between team members (see **Figure 1**) regarding the status of antibiotic verification, preparation, delivery, and/or administration.

Study Objectives: To assess whether use of a templated Secure Chat message in the ED improves the rate of antibiotic order-to-administration time within 30 minutes for patients who meet Sepsis Protocol criteria.

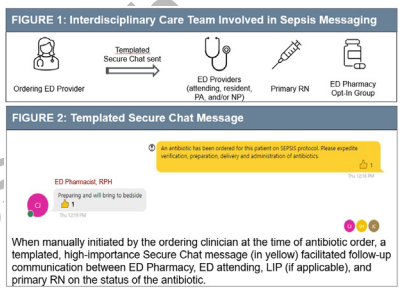
Methods: *Implementation:* In April 2024, our Information Technology partners helped us create a new, templated, high-importance Secure Chat message (see Figure 2) to help facilitate communication regarding antibiotic orders for ED patients on Sepsis Protocol. ED clinicians at our Manhattan and Brooklyn sites were requested via e-mail and staff meetings to initiate a new Secure Chat thread with the ED attending, LIP (if applicable), primary nurse, and site-specific ED Pharmacy Opt-in group at the time of the antibiotic order using this template. ED pharmacists were encouraged to provide updates on antibiotic verification, preparation, and when able, to deliver the antibiotic to the patient's bedside to expedite administration. Additionally, ED pharmacists used this channel to provide recommendations on alternative antibiotic selection or dosing, if needed. *Data collection:* From 5/1/24 to 8/25/24, we tracked antibiotic order-to-administration times for ED patients in which the templated Secure Chat message was initiated within 15 minutes of antibiotic order placement. For comparison, we also tracked order-to-administration time for all cases within the same date range for which the templated Secure Chat message was NOT utilized within 15 minutes of antibiotic order placement AND one of the following criteria below for Sepsis Protocol were met:

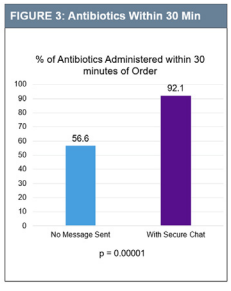
- Patient documentation as a "Sepsis Patient" via nursing narrator after nursing/clinician huddle
- 2+ SIRS + [lactate > 2 OR SBP < 90 or MAP < 65] + broad spectrum antibiotic ordered

We paused data collection on 8/26/24 due to changes in the method of administration of Piperacillin/Tazobactam at all NYULH ED sites. Statistical significance was determined via two-tailed Chi-Square test.

Results: 38 patients who met criteria for Sepsis Protocol had a templated Secure Chat initiated within 15 minutes of antibiotic order, constituting 2.7% (38/1,391) of eligible cases. With the use of Secure Chat, 92.1% (35/38) received antibiotics within 30 minutes of order. In the comparison cohort without use of Secure Chat, only 56.6% (766/1,353) received antibiotics within 30 minutes of order. Compliance rates for administration within 30 minutes significantly improved with the use of the templated Secure Chat message (p=0.00001; see **Figure 3**).

Conclusion: Provider initiation of a high-importance, templated Secure Chat resulted in significantly improved rates of antibiotic administration within 30 minutes of order placement. Use of the template was limited by provider ability to remember to initiate the Secure Chat and the need to manually copy in all members of the clinical team. Next steps include exploring the potential automation of this technology to maximize impact.





No, authors do not have interests to disclose

117 Impact of Secure Chat on Efficiency and Emergency Department Critical and Urgent Result Communication Rates

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Study Objectives: Breakdown in communication of important imaging results is a patient safety and medicolegal risk. To facilitate direct closed-loop communication, we developed a unique radiology reporting system utilizing a Secure Chat function within the electronic medical record (EMR) that communicates critical and urgent test results directly with the emergency physician (EP). This system was compared to our current system of a verbal phone call directly from the radiologist to the EP. The primary objective was to understand users' initial experiences utilizing this system. Secondary objectives assessed radiologist efficiency and test result communication rates.

Methods: This was a prospective cohort analysis of emergency radiology physicians and a survey analysis of emergency medicine and emergency radiology physicians within a large integrated healthcare system across multiple hospitals in Florida and Ohio. The study cohort was comprised of 19 participants from a section of 37 emergency radiologists who voluntarily participated. All critical and urgent results between June 10, 2024 – December 31, 2024, were communicated via Secure Chat from the emergency radiology physician to the EP as the initial direct closed loop communication. A 5-minute verbal communication failsafe was implemented for completion of direct closed loop communication if no acknowledgement was received from the EP by Secure Chat. Secure Chat read receipts alone were not considered a valid acknowledgement. Six months after program implementation, a survey was sent to all EP and emergency radiology physicians. We also compared radiology efficiency and communication rates in the radiology study cohort pre and post intervention. Our internal quality reporting system was tracked for any adverse events directly related to the use of secure chat. To assess efficiency impacts, the percentage efficiency change (percent change in number of total exams interpreted) was calculated for each radiologist in the study cohort and compared to the 6-month period immediately prior to the pilot. Data was weighted to number of workdays. Paired T testing and regression analysis assessed correlation between the number of Secure Chat uses and change in efficiency. To assess impacts on communication rates we compared the total number of critical and urgent result communication events pre-intervention (verbal communication alone) to the study period (Secure Chat use) using the same 19 radiologists, with a paired t test. A simple regression analysis was then applied at 95% CI to assess the strength of correlation.

Results: For the survey, 47 EPs and 16 emergency radiology physicians responded. 77% of EP and 93% of radiology physicians preferred secure chat over verbal communication and the same number felt it made communication easier. 70% of EP and 87% or radiology physicians felt it decreased stress of receiving critical radiology results. 50% of EP and 80% of radiology physicians felt the use of Secure Chat would help to decrease burnout. We found an 18.8% increase in test result communication rate in the cohort after implementation of Secure Chat (p= 0.02; 95%CI: 0.77-31.61) and this showed a weak correlation (Significance F=0.81). We found a 1.88% (p = 0.41; 95% CI: -177.03-217.41) change in efficiency and this showed a weak correlation (Significance F=0.50). There were no quality reporting events identified related to the 1,082 uses of Secure Chat to communicate critical or urgent radiology results during the 6-month study period.

Conclusion: We successfully implemented Secure Chat within a large integrated healthcare system and validated its use as a reliable means of direct closed loop communication of critical and urgent radiology results. Most emergency medicine and radiology physicians preferred secure chat as a first line communication option over verbal communication alone, felt it made communication easier, and decreased stress and burnout. Use of Secure Chat significantly improved communication rate by radiology physicians without decreasing efficiency.

No, authors do not have interests to disclose

118 Optimal Chest Compressions May Lie 4 cm Left of the Sternum

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Study Objectives: Current American Heart Association guidelines recommend mid-sternal chest compressions during CPR; however, emerging evidence suggests that this location often misses the ideal area of maximal compression (iAMC), potentially impairing perfusion during resuscitation. This study aimed to identify the optimal site

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for chest compressions using transthoracic echocardiography (TTE) to localize the iAMC and left ventricular outflow tract (LVOT). By mapping these landmarks on a standardized two-dimensional grid, we sought to define their spatial relationship relative to the sternum. Understanding this relationship may inform more effective hand placement during CPR and improve outcomes in cardiac arrest.

Methods: In this cross-sectional observational study, a convenience sample of 79 adult emergency department patients (29 female, 50 male) underwent TTE to identify the locations of the iAMC and LVOT (**Tables 1**). A standardized 1 × 1 cm two-dimensional grid (**Figure 1**) was used to measure and record the horizontal and vertical distances of the iAMC and LVOT relative to the xiphoid process. Continuous variables were summarized using medians and interquartile ranges (IQR), while categorical variables were reported as frequencies and percentages. The correlation between the horizontal positions of the iAMC and LVOT was assessed using Pearson's correlation coefficient with a 95% confidence interval (CI) and visualized with a scatter plot (**Graph**). Heat maps were generated to illustrate the distribution patterns of iAMC and LVOT locations (**Figure 2**).

Results: The median age of participants was 59 years (IQR 41–70); 64.6% identified as White and 32.9% as Black/African American. The median horizontal distance from the sternum was 4 cm (IQR 3–5) for the iAMC and 1 cm (IQR 1–2) for the LVOT (**Table**). The LVOT was located within 0–1 cm of the sternum in 58.4% of participants, compared to only 2.5% for the iAMC. One iAMC and one LVOT measurement extended beyond the vertical limits of the grid. A moderate positive correlation was observed between the horizontal distances of the iAMC and LVOT ($r = 0.528$; 95% CI, 0.347–0.671; $p < 0.001$).

Conclusion: In this cohort, the iAMC was located approximately 4 cm lateral to the sternum, whereas the LVOT was positioned much closer to midline, at just 1 cm from the sternum. These findings suggest that current guideline-recommended hand placement may inadvertently compress the LVOT, potentially impairing effective circulation during CPR. Targeting the iAMC instead may enhance perfusion and improve resuscitation outcomes. Further investigation is warranted to evaluate the clinical impact of adjusted hand positioning during cardiac arrest.

Table 1. Measurement Statistics

Measurement Statistics (N=79)	
iAMC Distance to Sternum (cm)	4 (3, 5)
LVOT Distance to Sternum (cm)	1 (1, 2)

Continuous variables summarized as median (IQR).

Figure 1. 2-Dimensional Grid Plotting System. Each box in the grid is 1 x 1 cm. represents the xiphisternal joint and the middle of the sternum as determined with ultrasound.



Graph 1. Scatterplot of iAMC and LVOT distances to the sternum in cm. The size of each point represents the frequency of cases that fall at each point. The Pearson correlation between these two values was 0.528 (0.347, 0.671).

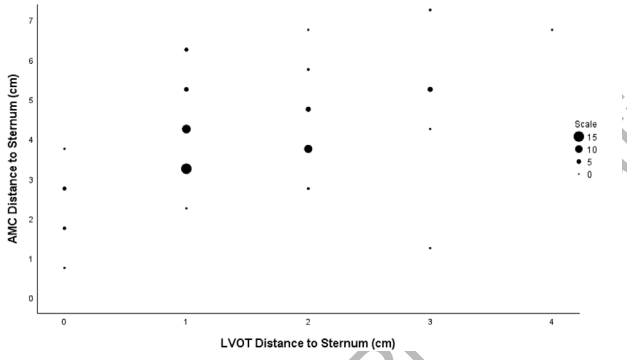
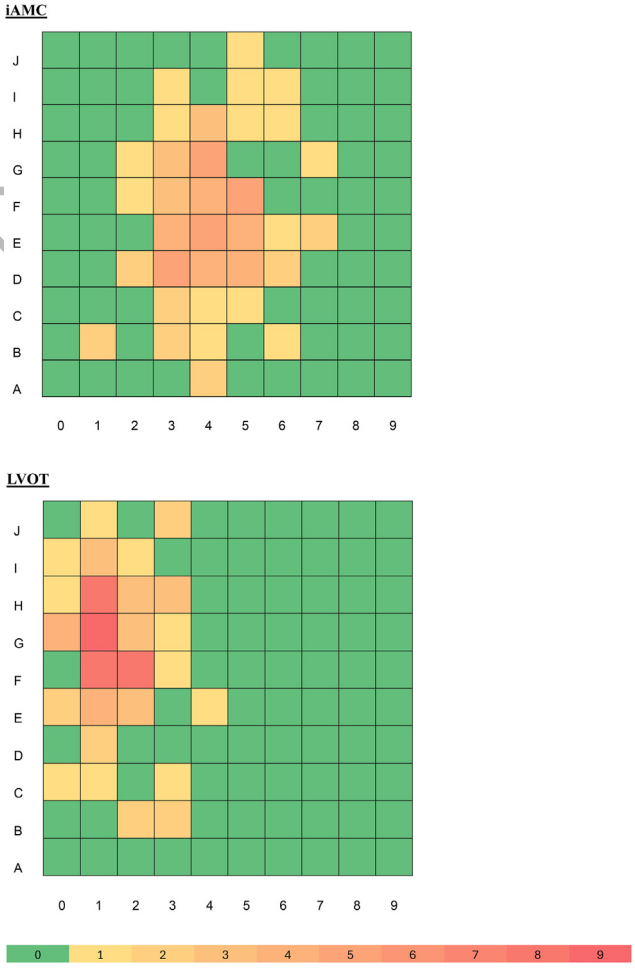


Figure 2. Heat Maps. Heat maps illustrate the frequency with which each grid cell corresponded to the location of the iAMC and LVOT across all patients. Cell color represents the density of observations, with red indicating the highest frequency and green indicating no recorded occurrences. Column "0" represents the location of the sternum.



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119 Endothelial Glycocalyx Shedding and Oxidative Stress as Prognostic Biomarkers After Cardiac Arrest

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Study Objectives: Endothelial glycocalyx (eGC) is a layer of glycosaminoglycans (GAG) attached to proteoglycans that cover the vessel's surface. Recent investigations have shown the eGC as an essential blood-brain barrier constituent. The return of spontaneous circulation (ROSC) after cardiac arrest (CA) is a model of ischemia-reperfusion (I/R). The I/R can cause eGC shedding and oxidative imbalance by producing reactive oxygen species (ROS). This study aims to evaluate if eGC shedding and oxidative stress biomarkers are neurological outcome predictors after ROSC in the CA.

Methods: We included patients with ROSC after out-of and in-hospital CA. Blood and urine samples were collected in the first 24 hours after hospital admission. We measured the eGC damage [syndecan-1(SDC-1), CD44s, hyaluronan (HA), sulfated GAG], endothelial cell damage [thrombomodulin (TBML)], and oxidative stress [malondialdehyde (MDA), total hydroperoxides, total antioxidant capacity (TAC), reduced glutathione (RGSH) and superoxide dismutase (SOD)] biomarkers. The neuron damage was evaluated through neuron-specific enolase (NSE) measurement. The clinical outcomes were neurological prognosis evaluated through the modified ranking scale (mRS) at 28 days. We considered a poor neurological prognosis a mRS $\geq$4.

Results: We included 71 patients from January 2021 through February 2024. Among the eGC biomarkers, the SDC-1 1875 ng/ml (IQR 863-8000) vs 642 ng/ml (IQR 425-4601), p= 0.002, CD44s 615 pg/ml (IQR 327-1037) vs 352 pg/ml (IQR 209-730), p=0.018 and HA 15ng/ml (IQR 5-53) vs 8 ng/ml (IQR 3-13), p=0.012 levels were higher in patients with poor neurological outcomes. Among the oxidative stress biomarkers, the MDA 183 nmol/g (IQR 159-201) vs 157 nmol/g (IQR 146-172), p=0.0005 and SOD 48 IU/ml (IQR 37-105) vs 36 IU/ml (IQR 30-40), p=0.0003 levels were statistically higher in patients with poor neurological outcomes. A positive correlation was observed between NSE (neuron damage) and SDC-1 (r=0.32; p=0.006), CD44s (r=0.36; p=0.002), HA (r= 0.27; p=0.020), TBML (r=0.66; p <0.0001) and SOD (r=0.25; p=0.031). In multivariable analysis adjusted for the CA time duration, shockable rhythm and adrenaline use during CA, the SDC-1 > 796 ng/ml Adjusted odds ratio (OR) 8.94 (95%CI 1.36-58.72), p= 0.02, the TBML > 446 pg/ml adjusted OR 5.97 (95%CI 1.14-31.17), p= 0,03 and MDA >179 nmol/g adjusted OR 8.04 (95%CI 1.11-57.84), p=0.03 levels were independent predictors of poor neurological outcomes.

Conclusion: The eGC damage (SDC-1), endothelial cell injury (TBML), and oxidative stress (MDA) biomarkers can help in neurological prognosis stratification after CA.

No, authors do not have interests to disclose

120 Biphasic, Protracted, Fatal, and Near-Fatal Anaphylactic Reactions to Iodinated Contrast Media

Gao H, Lu L, Neto ES, McDonald J, McDonald R, Mullan A, Hagan J, Li J, Campbell R/Mayo Clinic, Rochester, Rochester, Minnesota

Study Objective: The use of iodinated contrast media (ICM) in computed tomography (CT) scans carries a rare but life-threatening risk of anaphylaxis. Most reactions are monophasic and respond well to treatment, but some can be biphasic, protracted, fatal, or near-fatal. The primary objective of this study was to determine the frequency of such reactions. A secondary objective was to describe their characteristics and management.

Methods: A retrospective observational study (January 2014–June 2024) was conducted using electronic health records (EHR) from the Mayo Clinic (Rochester, MN) across outpatient, inpatient, and emergency department (ED) settings. Anaphylaxis cases were identified based on National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network (NIAID/FAAN) criteria and classified as monophasic (lasting less than 4 hours), biphasic (recurrence at least 1 hour after resolution and within 48 hours without re-exposure), or protracted (lasting 4 or more hours). Near-fatal cases, defined as those who survived after endotracheal intubation or chest compressions, and fatal cases were also identified. Descriptive statistics and 95% confidence intervals (CIs) were calculated.

Results: Among 362 suspected ICM hypersensitivity cases, 124 met the anaphylaxis criteria. The median age was 58 years (IQR 41–71), with more females (n = 76, 61%) and predominantly White patients (n = 110, 89%). Thirty-five (28%) of the patients were originally ED patients but an additional 45 (36%) cases were transferred to the ED from the inpatient or outpatient setting; a total of 80 (65%) patients were managed in the ED. Prior ICM exposure varied: 24% (n = 30) had never received ICM, 48% (n = 59) had previously tolerated it, and 28% (n = 35) had known ICM allergies, of whom 69% (n = 24) had been premedicated. Biphasic reactions occurred in 3.2% (n = 4, 95% CI: 1.0–8.6%), with a median onset time of 16.5 hours (IQR 5.5–22 hours). Protracted reactions occurred in 7.3% (n = 9, 95% CI: 3.6–13.7%), and fatal (n = 1) or near-fatal (n = 13) reactions in 11.3% (n = 14, 95% CI: 6.5–18.5%), all requiring endotracheal intubation, with 7 (50%) also requiring chest compressions. Mucocutaneous (n = 116, 94%) and respiratory (n = 111, 90%) symptoms were the most common, followed by cardiovascular (n = 54, 44%) and gastrointestinal (n = 34, 27%) symptoms. Common treatments included antihistamines (n = 96, 77%), steroids (n = 71, 57%), albuterol (n = 26, 21%), and epinephrine (n = 68, 55%). Overall, 23% (n = 28) required ICU admission. All patients with protracted (n = 9) or near-fatal reactions (n = 13) received epinephrine and were admitted to the ICU. The single fatality occurred in an inpatient who was pronounced dead in the radiology suite. Among the 4 patients with biphasic reactions, 2 (50%) received epinephrine and were admitted to the ICU.

Conclusions: Although uncommon, ICM anaphylaxis carries significant morbidity and mortality, often requiring ED management. Most cases are monophasic, but a notable minority experience protracted or biphasic reactions, necessitating extended monitoring. The relatively low epinephrine use suggests a potential management gap, while the high rates of ICU admission and life-threatening cases underscore the need for rapid recognition and treatment.

Yes, authors have interests to disclose
Disclosure: Bryn Pharma
Ronna Campbell
Consultant/Advisor
Bryn Pharma
Disclosure: UpToDate
Ronna Campbell
Consultant/Advisor
UpToDate

121 Effect of High Versus Low Mean Arterial Pressure on Arrhythmias in a Model of Post-Arrest Shock

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Study Objectives: Cardiogenic shock occurs in 50-70% of patients resuscitated from cardiac arrest, and there is limited data indicating an ideal mean arterial pressure (MAP) to target after return of spontaneous circulation (ROSC). Some studies have shown a higher MAP post-arrest is correlated with better neurological recovery. However, vasopressors also exert a proarrhythmic effect, with a dose-dependent correlation with ventricular arrhythmias. Therefore, there is a balance to establish with a target MAP that promotes perfusion and recovery post-arrest without elevating the risk of arrhythmogenic rearrest. The purpose of this study was to determine the effect of high (MAP goal 65 mmHg) vs low (MAP goal 50 mmHg) NE infusion rates on arrhythmogenic substrates in a porcine model of ischemic cardiac arrest.

Methods: Adult pigs (n=10) were anesthetized and intubated, and groups were determined prior to initiation. Electrophysiological catheters were placed in the great coronary vein, right ventricle, and left ventricle under fluoroscopic guidance, with signals recorded by an Ensite Classic recording system. The proximal left anterior descending artery (LAD) was then occluded via a balloon catheter until ventricular fibrillation occurred spontaneously or was induced after 45 minutes. Advanced cardiac life support was initiated after 4 minutes of arrest and continued until ROSC. After ROSC, a NE infusion was initiated and titrated to a MAP of 65 mmHg for the normotensive (NORMO group, n=3) and 50 mmHg for the hypotensive (HYPO, n=3) group. LAD reperfusion occurred 60 minutes after occlusion and continued for 3 hours until study end. Incidences of VF/VT and survival along with ventricular ectopy and cardiac alternans were recorded during the 3-hour monitoring period post-reperfusion. Electrogram recordings reviewed at multiple time points to determine the following arrhythmia substrates: ectopy/min, activation recovery interval (ARI), ARI variation dispersion, earliest and latest repolarization dispersion, and the duration of the peak of T-wave to end. Statistical

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analysis was performed using SPSS (version 29, IBM Corp) with repeated measures and student's t test when appropriate.

Results: There was no difference between groups in ROSC achieved prior to NE infusion (3/5 in each group). There was a significant difference between the NORMO group and HYPO group in both NE infusion (1.32±0.37 mg vs 0.33±0.25 mg, p=.02) and MAP over the duration of the experiment (66±2 mmHg vs 55±5 mmHg, p=.04). For arrhythmia substrates, there was an increase in earliest and latest repolarization dispersion in the HYPO group vs the NORMO group over time (average 10.8 ms, p=.035), but no significant differences in other substrates. Two arrhythmic rearrests occurred in one subject of the HYPO group and none in the NORMO group. All subjects achieving ROSC survived the post-arrest period in each group.

Conclusions: Increased NE dosing and a higher MAP goal did not worsen arrhythmia substrates or induced arrhythmias in our model of cardiogenic shock after ischemic cardiac arrest. Future studies to identify ideal MAP goals for neuroprotection and long-term outcomes are warranted.

No, authors do not have interests to disclose

122 Diagnostic Accuracy of Ultrasound Blood Flow Patterns During Compression to Detect Return of Spontaneous Circulation

Dalpiaz A, Nelson M, Solomon E, Young E, Li T, Haddad G, Jafari D, Rolston D, Khurana P, Cohen A/Northwell Health, Manhasset, New York

Study Objectives: Chest compressions are one of the most important factors driving cardiac arrest outcomes, and differentiating between persistent cardiac arrest or return of spontaneous circulation (ROSC) without interrupting chest compressions may improve survival. Patients in cardiac arrest have a unique blood flow pattern with chest compressions; however, limited research has been performed to understand these unique patterns and their potential utility in managing the patient. The morphology of the various doppler waveforms could be useful in determining which patients have ROSC prior to a pulse check. A pilot study by this author team identified 4 unique doppler waveform morphologies that occur with compressions: antegrade dominant, pulsatility through compression, bidirectional blood flow, and compressions without flow. The primary outcome of this study was to assess the diagnostic accuracy of doppler ultrasound blood flow patterns, the sensitivity of anterograde blood flow, and the specificity of bidirectional blood flow during chest compressions to detect subsequent ROSC with any pulse on an arterial line.

Methods: We conducted a prospective, diagnostic accuracy study on a convenience sample of adult, emergency department (ED) cardiac arrest patients. All patients had a femoral arterial line in place, which served as the gold standard in determining ROSC. Prior to a pulse check a linear probe was placed in the inguinal canal to identify the femoral artery in short axis. Prior to and during a pulse check femoral doppler ultrasound clips were recorded. All ultrasound clips were stored on QPathe archival system for review. Study personnel independently reviewed all clips and interpreted the doppler waveform pattern. 2 study personnel were assigned to review each waveform, if there was disagreement a third study member reviewed the image. Study personnel were blinded to the arterial line tracing which determined whether the patient had ROSC. Sensitivity, specificity, and accuracy of the flow patterns were calculated by using the generalized estimating equation (GEE) approach with an exchangeable covariance structure, which adjusted for correlation within patients.

Results: 44 patients with 123 Doppler flow patterns and subsequent pulse checks were analyzed. The sensitivity of pulses through compressions or anterograde dominant blood flow was 98.1% (95% CI: 87.2%-97.3%). Absence of bidirectional blood flow for detecting the presence of an arterial line pulse was highly sensitive at 99.9% (95% CI: 91.3%, 100%). The specificity of bidirectional blood flow for detecting the absence of a pulse was 61.3% (95% CI: 77.3%, 91.7%) The overall accuracy for the absence of bidirectional blood in detecting an arterial line pulse was 85.6% (95% CI: 77.3%, 91.7%). Patients without bidirectional blood flow have 36.9 times the odds of having an arterial line pulse (95% CI: 9.45,144.46).

Conclusions: The results of our study suggest that arterial Doppler ultrasound blood flow patterns during active chest compressions are highly accurate for detecting ROSC in cardiac arrest patients. This study is one of the first to identify and discover unique doppler waveform patterns in cardiac arrest patients that could potentially change the way these patients are managed. Among ED cardiac arrest patients, the absence of bidirectional blood flow on Doppler ultrasound during chest compressions was highly sensitive for detecting a subsequent arterial line waveform and SBP >0 mmHg.

No, authors do not have interests to disclose

123 Balanced Crystalloid Solution in Diabetic Ketoacidosis Does Not Improve Treatment Time

Bennion D, Groat D, Adamson M, Jephson A, Bunnell RJ, Newbold D, Peltan I, Madsen T, Braun F, Bledsoe J, Smith A/Intermountain Health Park City, Park City, Utah

Study Objectives: The optimal intravenous (IV) fluid choice for the treatment of diabetic ketoacidosis (DKA) remains unresolved, with prior studies providing mixed results when comparing balanced crystalloid solutions to normal saline (NS). This study aimed to evaluate the impact of a protocol encouraging the use of lactated Ringer solution (LR) on DKA-related outcomes, including insulin discontinuation, DKA resolution, and hospital-based metrics.

Methods: We performed a secondary data analysis of the I USE LR type II hybrid implementation study, identifying a subset of patients with DKA across 22 hospitals in Idaho and Utah. The study included adult patients (≥18 years) who received ≥1 liter of intravenous fluid for suspected DKA between November 1, 2018, and February 29, 2020. A system-wide intervention program implemented on July 1, 2019, promoted LR use over NS through order set modifications, electronic alerts, and clinician-targeted education. We utilized a combination of automated queries and manual chart review to identify the cohort of patients with DKA from the parent study. We defined DKA as having an ICD-10 code for DKA and at least one value within 24 hours of each of the following: glucose >250 mg/dL, plasma bicarbonate ≤18 mEq/L, anion gap >10 mEq/L, and presence of ketones. Time to DKA resolution time was defined as the time required for glucose to drop below 200 mg/dL and for at least two of the following to resolve: plasma bicarbonate (≥15 mEq/L), venous pH (>7.3), or anion gap (≤12 mEq/L). We used unadjusted survival analysis to assess differences in the NS period vs the LR period for time to DKA resolution and IV insulin discontinuation. We employed the Wilcoxon rank sum test to compare hospital-free and ICU-free days within 30 days of presentation.

Results: A total of 762 patients were included, with 473 in the NS period and 289 in the LR period, of which 99% received treatment through the emergency department. The median NS use decreased from 100% to 27% after transitioning to the LR period. Both groups were similar in demographic and clinical characteristics. Median total fluid volume administered was comparable between groups (4375 mL in the NS period vs 4390 mL in the LR period). Median time to DKA resolution was 14.2 hours in the NS period vs 13.1 hours in the LR period (p=0.4). Time to insulin discontinuation was slightly longer in the LR period (16.4 vs 18.6 hours, p=0.026). Hospital-free days (28.1 vs 28.0, p >0.9) and ICU-free days (29.3 vs 29.3, p=0.4) within 30 days of presentation did not differ between periods.

Conclusion: We found no significant improvement in DKA resolution or hospital-free days with LR compared to NS. Furthermore, time to insulin discontinuation was slightly prolonged when LR was the predominant fluid administered. These findings suggest that routine use of LR in DKA management may not confer a meaningful clinical advantage over NS.

No, authors do not have interests to disclose

124 Resident Physician Awareness of Barriers to Post-Discharge Care From the Emergency Department

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Study Objective: Physician awareness of barriers to safe and effective transitions of care following emergency department (ED) discharge is crucial. Limited data exists evaluating the rates of resident physician awareness of these barriers. Our objective was to quantify this level of awareness in comparison to their patient's reality.

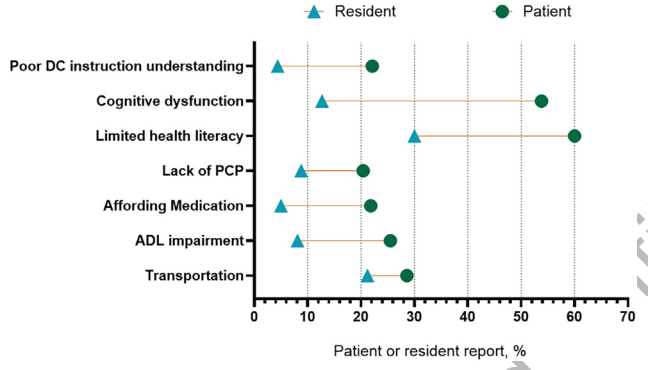
Methods: We performed a secondary analysis of a prospective convenience sample of patients ≥18 years old at a single urban safety-net hospital with an EM residency program between 10/2024 and 1/2025. Barriers assessed included transportation difficulty, difficulty affording medications, need for assistance with activities of daily living, and lack of a primary care physician. Low health literacy, risk for cognitive dysfunction, and patient understanding of discharge instructions were measured by use of the REALM-R, MiniCog, and scoring of recorded comprehension questionnaires, respectively. The discharging physician completed a

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brief written survey immediately after the patient was discharged. The primary outcome was physician detection of these patient reported barriers, reported as sensitivity (patients reporting barriers that are identified by physicians / all patients reporting the specific barrier). McNemar's test and Cohen's kappa statistics were utilized to evaluate patient-physician agreement.

Results: The sample included 206 total patients [10 (5%) excluded for missing data] and 179 surveys completed by 36 different PGY 1-3 residents. Median patient age was 59 years; 48% female, and 87% black. Across all domains, patients reported barriers at a higher rate than physicians, including transportation difficulties (29.7% vs 22.2%), need for assistance with ADLs (26.1% vs 8.1%), difficulty affording medications (23.2% vs 5.6%), lack of a primary care physician (18.2% vs 8.7%), limited health literacy (60.4% vs 27.2%), cognitive dysfunction (46.5% of patients >=65 vs 12.7%), and poor understanding of discharge instructions (32.9% vs 3.0%). Sensitivity of resident identification was low across all barriers, with the highest for transportation difficulties (31.7%) and lowest for medication cost concerns (3.1%). Using McNamara's test, there was significant disagreement between patient reports and resident identification. Residents consistently under-identified barriers to ED discharge across all domains, except for transportation difficulty.

Conclusions: Emergency medicine residents often underrecognize critical social and functional barriers that impact patient care after ED discharge. Poor agreement between patient-reported and physician-identified challenges, particularly in health literacy, the presence of a primary care physician, and financial constraints, suggesting a need for enhanced training, systematic screening, and interdisciplinary collaboration. Addressing these gaps is essential to improving discharge safety and reducing preventable adverse outcomes for vulnerable patients.



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125 Contactless Assessment of Vital Signs Using Remote Photoplethysmography in the Emergency Department

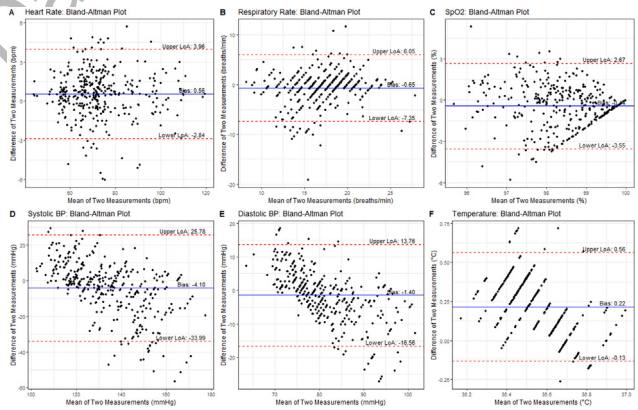
Kin Lam RP, Yue So RH, Kow M, Leung M, Hang Cheung KM, Chin JW, Wong KL, Qiu CC, Yuen Woo JC, Tsang TC, Rainer T/School of Clinical Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong Island, Hong Kong

Study Objectives: Automating vital signs acquisition can increase the operational efficiency of the emergency department (ED). Remote photoplethysmography (rPPG) enables estimation of vital signs by using artificial intelligence (AI) algorithms to analyse the subtle changes of light reflected from the skin in facial videos captured by smartphone cameras. However, its accuracy in the ED settings remains understudied. Furthermore, an all-in-one contactless vital sign measurement platform that covers heart rate (HR), respiratory rate (RR), SpO_2, blood pressure (BP), and body temperature is currently lacking. The aim of this study was to evaluate: (1) the accuracy of a proprietary AI-based rPPG algorithm in contactless estimation of the HR, RR, SpO_2, BP, and body temperature based on facial videos captured by smartphones; and (2) patient comfort and satisfaction with different measurement methods.

Methods: A prospective observational cross-sectional study was conducted in a university-affiliated ED of a tertiary hospital in Hong Kong (NCT06536647). A convenience sample of clinically stable and ambulatory adult patients of HK ED triage category 4 (Semi-urgent) and 5 (Non-urgent) were recruited after obtaining informed written consent. Vital signs were measured manually by a research nurse using standard hospital equipment as reference standards. Facial videos of 25 seconds in length were recorded simultaneously using an iPhone 14 and analyzed with a proprietary convolutional neural network-based AI algorithm for contactless estimation of vital signs. The accuracy of contactless estimations was evaluated using Pearson correlation coefficient (r), root mean square error (RMSE), and Bland-Altman plots. Patient satisfaction and comfort, assessed using a 100 mm visual analogue scale (VAS), were compared between the two measurement methods using the Wilcoxon signed-rank test.

Results: From October to November 2024, 360 videos obtained from 126 patients (79 women and 47 men; mean age 54 years) with sufficient signal quality were analyzed. Contactless HR estimations had a high level of agreement with manual measurements (r 0.992, $p < 0.05$; RMSE 1.82 bpm). The respective values for other vital signs were: RR (r 0.589, $p < 0.05$; RMSE 3.48 breaths/min), SpO_2 ($r > 0.173$, $p < 0.05$; RMSE 1.65%), systolic BP (r 0.710, $p < 0.05$; RMSE 15.77 mmHg), diastolic BP (r 0.677, $p < 0.05$; RMSE 7.85 mmHg), and temperature (r 0.555, $p < 0.05$; RMSE 0.28°C). The Bland-Altman plots on the agreement between the contactless and manual measurements for individual vital signs are shown in the **Figure**. Patient comfort (median rPPG comfort VAS 100 mm vs manual comfort VAS 85.6 mm, $p < 0.001$) and satisfaction ratings (median rPPG satisfaction VAS 95.7 mm vs manual VAS 90.3 mm, $p < 0.001$) were significantly higher with contactless measurements compared to manual measurements.

Conclusions: AI-based rPPG technology is highly accurate in HR estimation in the ED for stable and ambulatory adult patients. More work is needed to train and improve the AI algorithm for other vital signs. This proof-of-concept project demonstrates the great potential of AI-based rPPG in automating vital sign acquisition in clinical settings, which may save manpower and reduce the risk of infection in future pandemics.



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Board Member/Officer/Trustee
PanopticAI
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Jing Wei Chin
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126EMF EchoNext: A Deep Learning Model to Identify Patients At-Risk for Structural Heart Disease

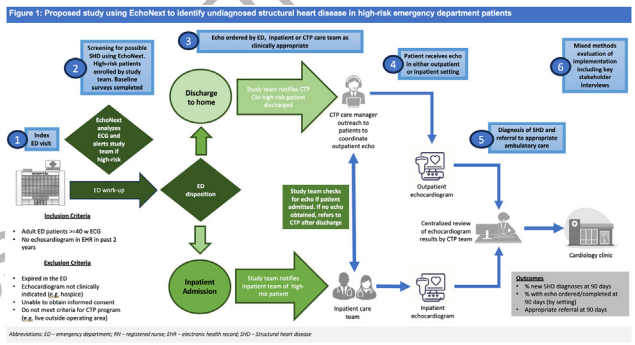
Daniels B, Ellison M, Ruhl J, Malta P, Castillo M, Probst M, Elias P/Weill Cornell, New York, New York

Study Objectives: Patients who frequently use the emergency department (ED) as their primary source of care experience disproportionate rates of under-diagnosis of structural heart disease (SHD). Given the relative unavailability of transthoracic echocardiogram (TTE) in the ED, better methods are needed to screen for SHD. We implemented a diagnostic pathway (**Figure**) including a validated deep learning model (EchoNext), which analyzes ECGs collected as part of routine ED care and accurately identifies patients at high risk for SHD and likely to benefit from subsequent TTE. To reduce burdens on ED resources, high-risk patients are referred after ED discharge to a mobile integrated health program (MIH) to schedule TTEs, follow-up positive results and coordinate necessary care. We describe the implementation and optimization of this pathway and preliminary results of this innovative screening program.

Methods: The EchoNext diagnostic pathway was implemented at eight academic and community EDs at a large, urban health system. All ECGs are screened by EchoNext with eligible patients referred to an existing MIH program employing community paramedics, nurse care managers and telehealth physicians to conduct post-acute care coordination. Patients were excluded if they had a TTE within the past two years, had a previous diagnosis of SHD, TTE would not improve quality of life, or did not meet criteria for MIH referral. Using the Model for Improvement we identified the optimal model for successful TTE completion based on the following process measures: referred patients successfully contacted, TTEs scheduled, TTEs completed, positive TTE cases, and positive TTE cases contacted. We employed different methods (texting before calling, messaging via patient portal, contacting family members) and timing (calling immediately after discharge, daily calls) of outreach, varying team members (coordinator, nurse care manager) for performing outreach, approaches to TTE scheduling (patient schedules, direct scheduling during call), and relaying results (all results, all positive TTEs, positive TTEs requiring follow-up). Chart reviews were conducted on all patients with positive TTEs at 90 days to identify any changes in management.

Results: Model iteration began in December 2024. The optimal model consists of initial outreach by coordinator with direct TTE scheduling during initial call, sending text message prior to calling, and using a care manager to relay only positive TTE results. As of March 2025, 1,374 ED patients were identified as high-risk by EchoNext and 582 (42%) were included. TTEs were successfully completed in 82 (14%) and 279 are in active follow-up (48%; active outreach, TTE scheduled, TTE reschedule; TTE not yet scheduled). SHD was newly diagnosed in 34 (41%) patients with completed TTE; all patients with a positive TTE were successfully contacted by MIH. At 90 days the following changes in management were observed: clinical referrals (6), medication changes (3), surgical intervention (1) and cardiac catheterization (1).

Conclusions: We have successfully implemented the EchoNext diagnostic pathway and are able to identify clinically significant, previously undiagnosed SHD on routinely collected ECGs among patients discharged from the ED. Further optimization of the pathway to ensure successful post-ED discharge outreach is needed prior to beginning the clinical trial.



No, authors do not have interests to disclose

127 Outcomes and Etiologic Agents in Women With Lower Urinary Symptoms and Negative Urine Cultures in the Emergency Department

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Study Objectives: Lower urinary tract symptoms (LUTS) are a common reason for emergency department (ED) visits among women of reproductive age. Historically, it was believed that women with LUTS without vaginal discharge had a 95% probability of urinary tract infection (UTI). However, recent studies suggest only about 60% have positive urine cultures. This study aimed to: 1) determine the rate of negative urine cultures among women presenting with LUTS, 2) compare symptom evolution between patients with positive versus negative cultures, and 3) identify alternative diagnoses, particularly the prevalence of Ureaplasma parvum, in patients with negative cultures.

Methods: We conducted a prospective observational study in a tertiary hospital ED. We enrolled 117 women aged 18-45 years who presented with LUTS suitable for outpatient management. Patients who had taken antibiotics within one week prior to consultation were excluded. Urine cultures were obtained from all patients, with positive culture defined as $\geq 10^3$ colony-forming units/mL. Patients with negative cultures underwent PCR testing for genitourinary pathogens, including Ureaplasma parvum, Mycoplasma genitalium, Chlamydia trachomatis, Neisseria gonorrhoeae and Tricomona vaginalis. Telephone follow-up was conducted at 3, 7, 14, and 30 days to assess symptom resolution, complications, unscheduled return visits, and final diagnoses. Symptom burden was evaluated using a validated symptom severity score.

Results: Among 117 enrolled patients, 45 (38.0%) had negative urine cultures despite presenting with classic urinary symptoms. At 72-hour follow-up, both groups showed similar symptom improvement patterns ($p > 0.05$), with approximately 72% of positive culture patients and 61% of negative culture patients experiencing symptom reduction. However, by day 7, significant differences emerged ($p < 0.001$): 67% of patients with positive cultures were asymptomatic compared to only 40% in the negative culture group. Furthermore, 20% of patients with negative cultures reported no change in symptoms at 7 days versus only 5% in the positive culture group. Notably, 10% of patients with negative cultures received a new antibiotic course or had their initial antibiotic treatment extended during outpatient follow-up visits based on physician assessment. Despite these interventions, 90% of patients with negative cultures still had no definitive etiological diagnosis at 14 and 30 days of follow-up. PCR testing of patients with negative cultures revealed Ureaplasma parvum in 22 patients (46.8%), Chlamydia trachomatis in 5 patients (10.6%), and Mycoplasma genitalium in 3 patients (6.4%). No cases of Neisseria gonorrhoeae were detected. Unscheduled return visits were significantly higher in the negative culture group. At 14-day follow-up, symptom burden remained significantly higher in the negative culture group (mean score: 4.3 vs 1.7, $p < 0.001$).

Conclusion: This study demonstrates that a substantial proportion (38%) of women with LUTS have negative urine cultures and experience persistent symptoms despite empiric antibiotic treatment, with significant differences in symptom resolution becoming apparent after 72 hours. Ureaplasma parvum was the most commonly identified potential pathogen in women with negative cultures, though its pathogenic role remains controversial. These findings challenge the traditional approach of empiric antibiotic treatment for all women with LUTS and highlight a significant diagnostic gap, as 90% of patients with negative cultures remain without a definitive diagnosis despite multiple healthcare encounters. There is a clear need for improved diagnostic algorithms to identify patients who would benefit from targeted antimicrobial therapy versus those who require more comprehensive investigation for alternative diagnoses. Addressing this diagnostic gap could reduce inappropriate antibiotic use and improve clinical outcomes for women with LUTS.

No, authors do not have interests to disclose

128 A Natural Experiment Comparing Three-Year and Four-Year Training Models

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Study Objectives: The optimal duration of emergency medicine (EM) residency training remains a critical unresolved question in graduate medical education. This study leverages a natural experiment—a single program's transition from a three-year to

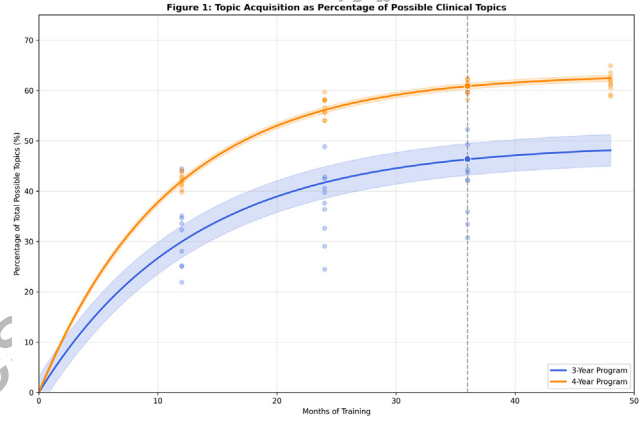
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a four-year structure—to provide direct comparative evidence on how residency duration affects clinical experience acquisition and learning efficiency.

Methods: This study conducted a retrospective analysis at a single-site academic institution that transitioned from a three-year to a four-year residency program. We examined a total of 374,799 clinical cases managed by emergency medicine residents (n=114), which included 130,499 cases from the three-year program (classes 2015-2018) and 244,300 cases from the four-year program (classes 2020-2023). The analysis involved 52 residents from the three-year program and 62 residents from the newly implemented four-year program. To assess case exposure, clinical notes were mapped using Natural Language Processing (NLP) to SNOMED CT and categorized according to the American Board of Emergency Medicine Model for Clinical Practice of Emergency Medicine (MCPEM). Building on our established NLP methodology for tracking clinical experiences, we compared case volumes, topic acquisition trajectories, and learning efficiency between cohorts, with comprehensive adjustments for confounding variables.

Results: Four-year program residents managed significantly more cases (3,940.3 ± 465.3 vs 2,509.6 ± 409.4 cases per resident; p <0.001), representing a 57.0% increase in clinical exposure. Topic acquisition analysis demonstrated that four-year residents encountered 21.2% more unique clinical topics by the 36-month mark (535.0 vs 441.2 topics, 95% CI: 18.7-23.8%) and 28.3% more by program completion (566.0 vs 441.2 topics, 95% CI: 25.1-31.6%). The four-year program showed a pronounced early advantage in learning trajectory, with 57.2% (95% CI: 49.8-64.6%) more topics in PGY1, 20.5% (95% CI: 15.7-25.3%) more in PGY2, and 16.9% (95% CI: 12.4-21.4%) more in PGY3. When analyzing learning efficiency metrics, we found the four-year program demonstrated higher topic diversity per case (0.138 vs 0.114 topics per case, p <0.001, 95% CI for difference: 0.020-0.028), while the three-year program showed slightly higher, but not statistically significant, monthly learning rates (12.26 vs 11.79 topics per month, p=0.08, 95% CI for difference: -0.06 to 0.99). After adjustment for confounding variables (ED volume, staffing changes, case mix), the program effect decreased by 15.3%, indicating moderate confounding but persisting significant differences.

Conclusion: This study provides robust empirical evidence on the educational differences between three-year and four-year Emergency Medicine residency programs. Our findings demonstrate that the four-year structure offers substantial advantages in terms of clinical exposure and topic acquisition, with particularly pronounced differences in the first year of training. The consistency in learning trajectories among four-year program residents suggests more standardized educational experiences, potentially leading to more consistent competency development. Building on our previous work that established the typical learning curves of emergency medicine residents, this comparative analysis reveals that program structure significantly influences these learning trajectories. The finding that four-year residents encounter significantly more topics by the equivalent 36-month mark suggests that many residents in three-year programs may be graduating before reaching optimal clinical exposure levels. Ultimately, decisions about residency duration should balance educational benefits with considerations of workforce needs, training costs, and resident well-being. This study contributes valuable evidence to inform this complex and consequential decision regarding residency length and documents tangible educational advantages to the four-year training model.



No, authors do not have interests to disclose

129 Improving Emergency Department Care for Sexual Assault Patients: A 2-Part Quality Improvement Study

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Study Objectives: The emergency department (ED) often serves as the first point of contact for sexual assault patients. Despite established guidelines recommending STI prophylaxis, HIV and hepatitis screening, HIV non-occupational post-exposure prophylaxis (nPEP), emergency contraception, and forensic examination, adherence remains inconsistent. This two-part quality improvement study aimed to (1) describe demographic and clinical characteristics of sexual assault patients in the ED and identify gaps in guideline adherence, and (2) explore healthcare provider-perceived barriers to delivering optimal care.

Methods: Part 1: A retrospective chart review was conducted for patients aged ≥18 years presenting to a large academic ED with sexual assault-related ICD codes between January 1, 2018, and January 31, 2023. Demographics and receipt of standard interventions (STI prophylaxis, HIV screening/nPEP, emergency contraception, forensic exam) were analyzed using descriptive statistics. Part 2: Semi-structured interviews were conducted with 11 healthcare providers (physicians, nurses, social workers) involved in sexual assault care. Interviews were transcribed and analyzed thematically to identify barriers and opportunities for improvement.

Results: A total of 120 patient encounters were reviewed; mean age was 30.7 years, with 90% female. The hospital uses a referral system directing sexual assault patients to a rape crisis center; 25.5% declined transfer. Among patients declining referral, 44% received STI prophylaxis, 31.6% received HIV nPEP, and 23.1% of females received emergency contraception. HIV and Hepatitis B screenings were completed in 47.5% and 9.2% of all cases, respectively. A forensic exam by a Sexual Assault Nurse Examiner (SANE) occurred in 7.1%. Provider interviews identified four main barriers: (1) lack of space and privacy; (2) prolonged ED stays contributing to patient attrition; (3) transfer process flaws, including transportation challenges; and (4) limited provider familiarity with sexual assault protocols. Providers also noted difficulty balancing medical care with forensic evidence preservation.

Conclusion: This study demonstrates significant gaps in adherence to sexual assault care standards, particularly among patients declining referral. Key barriers include ED crowding, inefficient transfers, and limited provider training. Addressing these issues through standardized protocols, provider education, improved transport, and streamlined workflows is critical to improving ED care for sexual assault patients.

No, authors do not have interests to disclose

130 Gender Bias in Emergency Physician's Assessment of the Likelihood of Pulmonary Embolism

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Study Objectives: Gender and sex bias influences on physician's perception have been reported in various condition. This study aimed to evaluate whether patient sex influences the likelihood that emergency physicians consider pulmonary embolism as « the most likely diagnosis.

Methods: This is a retrospective analysis of three prospective cohorts (PERCEPIC, PROPER, and MOGLIANI) from France and Belgium, including 4,382 patients admitted to the emergency department (ED) for suspected pulmonary embolism with a three-month follow-up. At inclusion, the treating physician recorded whether pulmonary embolism was considered the most likely diagnosis. A structured clinical probability of pulmonary embolism was assessed using the revised Geneva score, dichotomized as low or intermediate/high (<4, ≥4), and in quartiles (<2, 2-3, 4-5, >5). The proportion of patients in whom pulmonary embolism was the most likely diagnosis was compared between men and women. A subgroup analysis was performed after excluding patients on estrogen therapy. A sensitivity analysis was conducted based on revised Geneva score probability categorized into quartiles.

Results: Among the 4,382 analyzed patients (mean age 49 years), there was 2,407 women (54.9%) and 975 men (45.1%). The diagnosis of pulmonary embolism was confirmed in 180 cases (4.1%), with no significant difference

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between women and men (3.9% vs 4.3%, difference of -0.4% [95% CI -1.5% to 0.6%]). Pulmonary embolism was considered as the « most likely diagnosis » more often in women than in men (17.9% vs 13.4%; difference of 4.5% [95% CI 2.4%–6.7%], $p < 0.001$). In the low Geneva score group, the prevalence of pulmonary embolism was 2% (1.1% women vs 2.0% in men, difference 0.9% [95% CI -0.1% to 1.8%], $p = 0.082$). Pulmonary Embolism was more often considered the most likely diagnosis in women than in men (16.4% vs 12%, difference 4.6% [95% CI 1.7% to 7.2%], $p < 0.01$). In the intermediate/high Geneva score group, the prevalence of pulmonary embolism was 3.5% (3.0% in men vs 4.0% in women; difference -1.0% [95% CI -2.3% to 0.3%], $p = 0.206$). Pulmonary embolism was more frequently considered the most likely diagnosis in women than in men (19.7% vs 15.5%, difference 4.2% [95% CI 0.8% to 7.6%], $p = 0.02$). After excluding women on estrogen therapy, the difference remained significant in the low Geneva score group (16.5% vs 11.3%, difference 5.2% [95% CI 2.1% to 8.2%], $p < 0.01$) and in the intermediate/high score group (19.3% vs 13.6%, difference 5.7% [95% CI 1.6% to 9.7%], $p = 0.012$). In patients with a Geneva score of 0 or 1, pulmonary embolism was more frequently considered the most likely diagnosis in women than in men (17.5% vs 11%; difference of 6.5% [95% CI 2.3%–10.6%], $p = 0.003$). There were no significant differences in the other quartiles of revised Geneva score.

Conclusion: This study suggest that emergency physicians may have a gender bias in the assessment of pulmonary embolism likelihood, and considered more often pulmonary embolism as the most likely diagnosis in women compared to men.

	Total (n = 4382)	Men (n = 1975)	Women (n = 2407)	Difference	CI (95%)	p-value
Age (mean ± standard deviation)	48.7 ± 18.6	49.4 ± 17.6	48.4 ± 19.5	0,9	-0,42 ; 1,82	0,039
Confirmed pulmonary embolism, n (%)	180 (4,1 %)	71 (3,6 %)	109 (4,5%)	-0,9%	-2,1 % ; 0,3 %	0,13
Most likely PE, n (%)	687 (15.9%)	260 (13.3%)	427 (18%)	4,7%	+2,5 % – +6,8 %	< 0,001
Geneva low risk, n (%)	2435 (55,6%)	1168 (48 %)	1267 (52 %)	4,1%	1,3 % – 6,9 %	0,005
Geneva intermediate/high risk, n (%)	1947 (44 ,4%)	807 (41,4%)	1140 (58,6 %)	17,1%	14,0 % – 20,2 %	< 0,001
Chest pain, n (%)	1096 (25 %)	437 (22,1%)	659 (27,4%)	5,3%	+2,7 % – +7,8 %	< 0,001
Dyspnea, n (%)	1959 (44,7%)	796.0 (40.3%)	1163.0 (48.4%)	8,1%	5,1 % – 11,0 %	< 0,001
Immobilization, n (%)	206.0 (4.7%)	90.0 (4.6%)	116.0 (4.8%)	0,2%	-1,0 % – 1,5 %)	0.737
Cancer, n (%)	122 (2,8%)	58 (2,9%	64 (2,7%)	0,2%	-0,7 % ; 1,1 %	0,68
History of PE or DVT, n (%)	298 (6,6%)	138 (7,0%)	160 (6,6%)	0,4%	-0,4 % ; 1,2 %	0,31
Heart rate (mean ± standard deviation)	86.8 ± 15.1	86 ± 15,4	87.5 ± 14,8	1,5	0,6 ; 2,4	0,003

Table 1 Main characteristics of all patients

No, authors do not have interests to disclose

131 "It Creates a Culture of Substandard Care": Evaluating Boarding's Impact on Physicians and Learners

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Study Objectives: Boarding in the emergency department (ED) is a well-documented issue associated with negative patient outcomes, including increased mortality, higher readmission rates, prolonged hospital stays, decreased patient satisfaction, and increased costs; however, limited research focuses on the subjective experience of attending and resident physicians. This study seeks to capture physicians' perspectives on the impact of boarding on clinical education, professional fulfillment, and patient care experiences to understand potential physician-informed, patient-centered strategies to alleviate it.

Methods: This study consists of an exploratory qualitative analysis of a structured survey consisting of 5-point Likert scale questions and free-response prompts to assess the impact of ED boarding on emergency physicians at an urban, safety-net, academic-affiliated Level I trauma center. The 12 survey questions assess 1) the impact of boarding on education and clinical training and 2) its effects on patient experiences and clinical care, 3) current satisfaction with practicing EM and 4) persistent and emerging adaptations in clinical and teaching practices, and 5) potential changes to mitigate the negative effects of boarding. Two researchers conducted an inductive thematic analysis independently coding survey responses for emergent themes related to patient, learner, and provider effects. Thematic discrepancies were discussed amongst the researchers until a consensus was reached. Likert scale questions were analyzed using summary statistics.

Results: We received n = 37 responses (N = 88; 42% response rate) across all levels of training from first-year residents to attending physicians. We identified 4 emerging themes in their narratives during this boarding crisis: 1) less timely procedures, an over-reliance on lab work, and decreased patient privacy lead physicians to perceive patient care as being negatively affected, 2) decreased patient flow and procedure volume coincides with fewer resident training opportunities, 3) structural constraints of boarding impose burdens at the individual level, with physicians experiencing significant moral injury, 4) boarding amplifies inequities in care delivery, and 5) is inappropriately perceived as a unique responsibility of the ED to mitigate (see **Figure**). Quantitively, 86.5% of physicians stated that boarding is "very negatively" impacting patient care, with the remaining responding "somewhat negatively" (13.5%). The majority noted that boarding has "very negatively" (73%) or "somewhat negatively" (24%) affected the education and clinical training of residents. In terms of job satisfaction, a considerable proportion of physicians are dissatisfied with practicing EM ("somewhat negatively" (24%) or "very negatively" (11%) satisfied).

Conclusion: The narratives that emerged characterize how emergency physicians experience boarding, a systemic crisis that has engendered "a culture of substandard care." Working within the system means confronting this "culture" daily, as physicians in this study overwhelmingly perceive boarding as a major barrier that impairs the therapeutic alliance, limits teaching and truncates or delays assessments, all the while exacerbating provider moral injury. The quantitative results align with the qualitative themes, underscoring the negative impact of boarding on physicians and patients. Yet, amidst the moral injury that respondents explicitly or implicitly allude to is a clear emphasis on community—amongst physicians collaborating to find short-term solutions and with the people they serve, where the safety-net hospital embodies the heart of the city. Addressing these challenges appears critical not only for sustaining the integrity of medical education and physician job satisfaction in EM, but also for ensuring the delivery of equitable, patient-centered care. Ultimately, these physician perspectives emphasize the urgent need for a culture of shared responsibility in tackling this nationwide crisis.

Theme	Physician Quotes
Negative Impacts on Patient Care	"Patients receive suboptimal care in this setting. […] it is likely only a matter of time before there is a significant negative patient outcome (e.g. death in the waiting room)." "I had a patient with severe back pain after trauma in a wheelchair in the waiting room and there was no place for the patient to go in the main ED. I was unable to provide basic care including analgesia and to start the work up. He eventually left the ED and presented to another nearby ED at which time it was determined that he had a significant traumatic injury and was transferred back to [omitted] for higher level of care (trauma center)."
Decreased Flow Leading to Fewer Training Opportunities	"[Boarding] leads to structural changes that poorly affect education such as workups started in triage, [and] it compels staff to underprioritize educational activities such as procedure learning when compared to flow interventions such as getting someone up quickly to the ICU." "It's been this way the whole time I've been in residency, so this is my normal. On holidays—when there is less boarding because no elective surgeries and better RN staffing—the ED is fully open, and I feel unprepared and unpracticed to manage the sudden volume that comes my way."
Significant Contributions to Physician Moral Injury	"I am deeply saddened by the needless suffering of patients waiting to be seen and the large numbers of patients who leave […] because of waiting times." "When there are 30 plus patients in the waiting room…, is this the kind of care that is acceptable to provide in the amazing city of [omitted]? That is the moral injury that all of us that work in the ED feel nearly every day when we come to work. It is shameful."
Amplification of Inequities	"Our patients suffering from dementia board longer than their age-matched counterparts in the ED, putting them at higher risk of sedation, restraint, and delirium. It is not just higher risk of restraint and sedation, the patients with dementia actually are restrained and sedated more than age-matched patients in our ED." "I am a PEM provider, boarding often means that pediatric patients don't get rooms because the pediatric rooms are given to adults in need. This means that we often see our patients in the waiting room […]. If we do see them in the waiting room the exams are limited as are discussions."
Lack of Shared Responsibility	"Other services are approved to be able to cap their admissions, while there is pressure on the ED to discharge patients or admit to lower level of service than is appropriate for the patient." "Our department has made major changes to try to adapt, however they are insufficient because we are dealing with limited resources, and the problem is a hospital wide problem not just an emergency medicine problem."

Yes, authors have interests to disclose
Disclosure: FujiFilm-SonoSite
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132 Left Without Being Seen, Against Medical Advice, and Before Treatment Complete in the Emergency Department, 2016-2022

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Study Objectives: Patients who leave before completing medical treatment (elope), leave without being seen, or depart against medical advice are at greater risk of receiving fragmented or suboptimal emergency care. These behaviors may also contribute to increased healthcare costs. The goal of this study was to identify populations at higher risk for these outcomes and examine whether patients who elope, leave without being seen, or leave against medical advice exhibit distinct demographic characteristics. By understanding these differences, we aim to develop strategies to improve patient retention in the emergency department and enhance overall care.

Methods: We performed a retrospective, cross-sectional study of patient encounters at hospital-based emergency departments in the US from 2016-2022 (n=123,040). Data come from the National Hospital Ambulatory Medical Care Survey. We estimated survey-weighted logistic regressions to predict patients leaving before treatment was completed (n=1,157), leaving without being seen (n=1,636), and leaving against medical advice (n=1,206). Predictors included housing status, history of substance or alcohol use disorder, ambulance arrival, and insurance status. Controls included patient age and quadratic age, self-reported race/ethnicity, self-reported sex, injury or trauma-related visit, year of survey, hospital region.

Results: Individuals experiencing homelessness were significantly more likely to leave treatment early (OR=1.58, p=0.003) as were patients with Medicaid or uninsured/unknown insurance compared to patients with private insurance (OR=1.55, p <0.001 and OR=1.72, p <0.001, respectively). Reported alcohol/substance use disorder also increased the likelihood of leaving treatment early (OR=1.53, p <0.001). Similarly, for patients who left without being seen, homelessness (OR=1.65, p=0.015) and Medicaid (OR=1.71, p <0.001) or uninsured/unknown insurance status (OR=2.61, p <0.001) were associated with higher odds of leaving without being seen compared to housed and privately insured patients. Individuals with a history of alcohol/substance use disorder as well as those arriving via ambulance had decreased odds of leaving without being seen (OR=0.54, p <0.001; OR=0.63, p <0.001). In contrast, when predicting patients leaving against medical advice, homelessness did not significantly predict leaving against medical advice (OR=0.99, p=0.946), and patients with Medicaid or uninsured/unknown insurance status were more likely to leave against medical advice compared to their privately insured counterparts (OR=1.71, p <0.001; OR=1.55, p <0.001, respectively). Alcohol/substance use disorder showed a strong positive association with leaving against medical advice (OR=2.02, p <0.001), as did initial arrival by ambulance (OR=1.35, p <0.001).

Conclusions: This study highlights the complex factors associated with patients leaving treatment early, leaving without being seen, and leaving against medical advice. Homelessness, Medicaid, and uninsured/unknown insurance status were consistently associated with higher odds of leaving treatment early or without being seen, while reported alcohol/substance use disorder and age also increased the likelihood of early departure. However, for patients leaving against medical advice, homelessness was not a significant predictor, though insurance type and alcohol/substance use disorder remained strongly associated. These findings emphasize the importance of addressing social determinants of health, particularly homelessness and insurance status, in improving patient retention in treatment.

No, authors do not have interests to disclose

133EMF Payer-Based Disparities in Length of Stay for Patients Discharged to Skilled Nursing Facilities

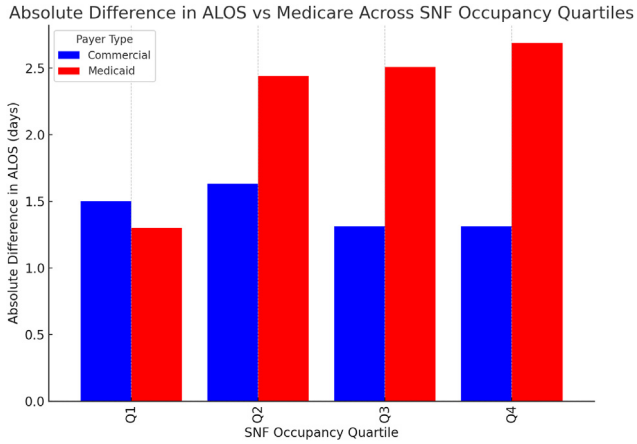
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Study Objectives: Inadequate inpatient capacity remains the primary driver of emergency department (ED) boarding. Inability to discharge patients to post-acute care when their need for acute hospital services has resolved is a key factor contributing to rising hospital occupancy rates, inpatient length of stay (LOS), and ED boarding. Around 1 in 6 inpatients will be transferred to a skilled nursing facility (SNF) after hospital discharge. The goal of this study was to examine how local SNF capacity is associated with delays in discharge by payer and hospital safety net status.

Methods: This was a retrospective cross-sectional study using hospital discharge data from 7 states (AZ, FL, KY, MD, NC, NY, RI) in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases, 2019-2021. Records were linked to data on annual mean SNF occupancy rates, calculated from bed count and patient census data from CMS Provider of Services and Payroll Based Journal files. To assess local SNF capacity, we averaged occupancy rates for all SNFs within a 25-mile catchment area of each hospital. Our study population included inpatient admissions at community hospitals with a discharge disposition to a SNF. We excluded patients already residing in a SNF at the time of admission and hospitalizations from facilities lacking valid hospital identifiers or ZIP codes. The primary outcome was hospital LOS in days. Multivariable linear regression was used to model adjusted LOS (ALOS) as a function of local SNF occupancy (categorized into quartiles of occupancy rate), payer and hospital safety net status (defined as being in the top quartile of Medicaid share), including interaction terms to assess whether the association between SNF occupancy varied by payer and safety net status. Models were adjusted for age, sex, Elixhauser comorbidities, diagnosis related group for the primary discharge diagnosis, as well as year and hospital fixed effects.

Results: There were 1,960,576 inpatient admissions included in our study population. Across all patients, ALOS increased modestly from 8.75 days in the lowest quartile of SNF occupancy to 8.96 days in the highest (2.4% relative increase). However, when stratified by payer, significant disparities emerged (Figure). Medicare patients experienced a very small increase in LOS, rising from 8.50 to 8.64 days—a 1.6% relative increase and 0.14-day absolute increase. In contrast, Medicaid patients experienced a substantial rise in ALOS from 9.80 to 11.33 days—a 15.6% relative increase and a 2.69-day absolute gap compared to Medicare in the highest occupancy quartile days. In contrast, commercially insured patients had a relatively stable ALOS (10.00 to 9.95 days), with the gap between commercial and Medicare patients narrowing as occupancy increased (–0.5% relative change).

Conclusion: As local SNF capacity becomes constrained, Medicaid patients experience disproportionately greater hospital discharge delays compared to those with Medicare or commercial insurance, suggesting possible payer-based selection. These findings highlight inequities in access to post-acute care that may contribute to hospital crowding and underscore the need for policy solutions that strengthen discharge pathways for publicly insured patients.



No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

134 HIV/Syphilis Universal Screening in Emergency Departments: One-Year Implementation Review

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Study Objective: Nevada has one of the highest rates of new HIV diagnosis in the nation and the highest rate in the entire western United States. Clark County is the most populous county in Nevada and has a new HIV infection rate of 19.8, higher than the state rate. To address this growing public health issue, Frontlines of Communities in the United States (FOCUS) program was integrated into Dignity Health St. Rose Hospitals emergency department (ED) policies that encourage universal opt-out HIV and syphilis screenings.

Methods: The FOCUS project implementation included an initial process of leadership approval and support from the ED providers. Specific changes in the ED included the following: workflow for lab testing, development of informational handouts, and frequent rounds through the EDs to review the processes directly with the providers. The screening criteria included patients over 18 years old that needed blood work, with an opt-out option. Provider engagement is also vital, by building meaningful relationships, providing data results and sharing patients' success stories. Through the use of Cerner software we are able to manually pull and collect daily data from each of our three EDs. This allowed the team to analyze test results, compile demographic information and enabled the team to engage in the linkage to care (LTC) process. Those eligible were referred to Dignity Health Medical Group and Ryan White Program for wrap-around medical and support services. Persons who attended scheduled appointments met criteria for LTC or HIV comprehensive prevention services (CPS).

Results: Provider engagement resulted in 9,976 patients screened between November 1, 2023 to November 30, 2024, of which 8 ED providers were responsible for 70% of total screens. A total of 67 ED providers participated in the universal screening project. As a result of the provider engagement, the FOCUS team identified 71 patients with HIV and 115 reactive syphilis screenings, where 100% were provided LTC and CPS based on eligibility criteria.

Conclusion: Implementing universal HIV and syphilis screenings in the ED is a successful method for identifying persons living with HIV and connecting at-risk patients to HIV CPS. Bridging internal structural programs along with developing community partnerships has proven as an effective universal screening program, allowing care teams to link persons to care thus lowering the incidence of HIV in the community.

No, authors do not have interests to disclose

135 Analysis of Social Determinants of Health in Medical Dramas to Enhance Emergency Medicine Training

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Study Objectives: Social determinants of health (SDOH) significantly affect emergency department (ED) patient outcomes and access to care. Television medical dramas often reflect societal issues, including SDOH, shaping public perception and understanding of healthcare challenges. These television shows can illustrate the human side of medicine, including ethical dilemmas and the emotional challenges faced by healthcare professionals. This study aims to analyze how medical dramas portray the impact of SDOH on patients presenting to emergency departments (EDs).

Methods: A systematic content analysis of consecutive episodes of ten prime-time TV programs using a standardized coding framework was conducted. The most recent, complete season of each TV program was analyzed to identify the portrayal of the impact of SDOH on ED patients. Our coding scheme was based on eleven Z codes used in the International Classification of Diseases, 10th Revision (ICD-10) to document factors influencing a patient's health status or reasons for seeking healthcare services (Z55-Z65). After coding, all SDOH incidents were characterized by how well they were addressed in the ED encounter. One investigator performed a blinded critical review of a random sample of 10% of the episodes to determine coding reliability using kappa statistics.

Results: A total of 172 episodes were viewed, and 233 incidents of SDOH were portrayed. The TV dramas with the most depictions were Grey's Anatomy, ER, Chicago Medicine, and Hawthorne. Frequent Z codes portrayed were related to the social environment (18%), housing and poverty (16%), family circumstances (13%), and unemployment (12%). In addition, 9% of SDOH were linked to ethical situations and issues of professionalism in the ED. The SDOH incidents were successfully addressed in 16% of episodes, partially addressed in 52%, recognized but not addressed in 22%, and ignored in 10%. SDOH that were not addressed or neglected generally had poor patient outcomes. The reliability of data collection ($k = 0.76$) showed good agreement.

Conclusions: Television dramas, particularly those set in medical environments, have the unique capacity to depict real-life scenarios that resonate with the experiences of students and emergency medicine residents. These shows can provide valuable lessons beyond traditional medical education by showcasing the complexities of SDOH—such as economic stability, education, social context, and access to healthcare.

No, authors do not have interests to disclose

136 A Health Coverage Screening and Enrollment Pilot in a Pediatric Emergency Department

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Study Objective: This study aims to evaluate the effectiveness of an emergency department (ED)-based health coverage screening initiative in identifying uninsured patients and facilitating enrollment in appropriate insurance programs. Additionally, it explores the potential role of the ED as a critical access point for connecting uninsured individuals to long-term healthcare coverage.

Methods: This was a prospective cohort study utilizing patient survey and post-visit follow-up data. From November 1, 2024, to January 15, 2025, during the Open Enrollment period, trained student volunteers conducted health coverage screenings in the Dell Children's Medical Center pediatric ED. All patients assigned Emergency Severity Index (ESI) levels 3, 4 or 5 were included, excluding patients with social complexity at the physician's discretion. Volunteers used a standardized screening tool to assess eligibility for Affordable Care Act (ACA) Marketplace plans, Medicaid/CHIP, or the local Medical Access Program (MAP). Families who met eligibility criteria were offered immediate enrollment assistance or referred to enrollment specialists with a community partner. Surveys assessed insurance status, financial stress, enrollment knowledge, and patient satisfaction with the navigation service, including its perceived impact and likelihood of reuse or recommendation. Follow-up enrollment data were collected from Foundation Communities, our community nonprofit enrollment partner.

Results: A total of 517 individuals completed screening in the ED. A quarter (25.0%, $n = 129$) of all participants were uninsured before screening, with a significantly higher proportion of adults (70.0%, $n = 90$) compared to children (30.0%, $n = 39$). Of these uninsured participants, 31% ($n = 40$) were eligible for Marketplace plans, 19% ($n = 25$) for Medicaid/CHIP, and 43% ($n = 55$) for MAP, while 7.0% ($n = 9$) were ineligible for any assistance (**Figure**). Most families found eligible for coverage, 60% ($n = 30$), reported having little or no knowledge of how to enroll in health insurance prior to their ED visit, underscoring the need for on-site screening and navigation services to bridge critical knowledge gaps. Among those referred to enrollment specialists, only 38.2% ($n = 13$) attended their scheduled appointments, indicating a significant disparity between initial engagement and follow-through. Despite this, 86% ($n = 43$) of surveyed participants reported increased knowledge of the enrollment process, demonstrating the educational value of ED-based screening.

Conclusion: Health coverage screening in the pediatric ED can be an effective strategy for identifying uninsured families and connecting them to insurance resources. As a critical access point for uninsured patients, the ED is uniquely positioned to serve not only as a site for acute care, but also as a potential entryway to long-term healthcare access. By targeting lower acuity patients, who may be more frequent utilizers of the ED and may have more bandwidth during a visit to participate in healthcare coverage screening, this intervention leverages the ED's role in addressing social determinants of

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health and facilitating primary care access. Despite initial high engagement, follow-through on referrals was limited, emphasizing the need to address barriers to ultimately connecting with the community resources. We hypothesize these barriers to be immigration concerns, insurance literacy, and trust in the system. By integrating insurance navigation into the ED workflow, this model innovates beyond traditional outreach programs by meeting patients where they seek care. Future research could focus on more targeted approaches to improve follow up and enrollment, as well as assessment of long-term effects on healthcare utilization, including reductions in preventable ED visits and increased use of outpatient services.

Figure 1:

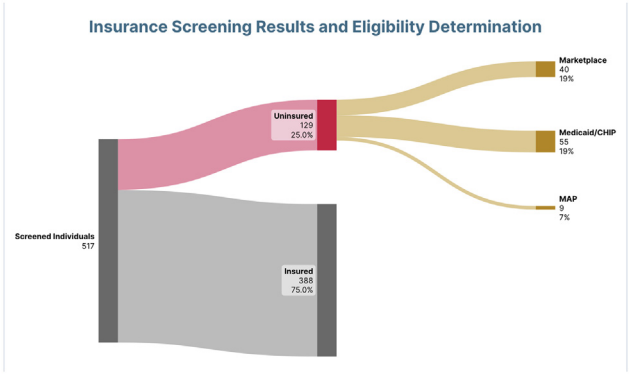


Figure 1. Insurance screening and eligibility of individuals screened in the pediatric ED (MAP = Local Medical Access Program, CHIP = Children's Health Insurance Program)

No, authors do not have interests to disclose

137 Social Work Consultations for Patients Screening Positive for Intimate Partner Violence

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Study Objectives: Emergency departments (EDs) play a key role in identifying intimate partner violence (IPV) and initiating support services. Despite universal screening protocols, gaps persist in connecting IPV-positive patients with follow-up care. This study aimed to determine the proportion of IPV-positive patients receiving social work consultations related to IPV and identify factors influencing consultation receipt.

Methods: We conducted a retrospective cohort study using electronic health record data from a large county hospital system in Southern California between October 1, 2022, and October 31, 2023. The study included adults who screened positive for IPV upon admission from the ED at two hospital sites: Site A, a county hospital serving low-income populations, and Site B, an academic hospital serving affluent communities. IPV-related social work consultations were identified using natural language processing of social work notes. Demographic and clinical variables, including arrival department, age, gender identity, ethnicity, race, language, marital status, insurance status, sexual orientation, substance use, and history of homelessness were analyzed. Logistic regression models were used to estimate odds ratios for receiving IPV-related social work consultations.

Results: Among 553 IPV-positive patients, notable differences in social work consultation receipt were observed between arrival department, gender identity, and sexual orientation. Patients from Site B had 1.57 times higher odds of receiving a consult compared to Site A (OR: 1.57; 95% CI: 0.989–2.490), although not statistically significant. Interestingly, Site A had a majority of the IPV-positive patients (n=412) compared to Site B (n=141). Females had significantly higher odds of receiving a consult compared to males (OR: 2.08; 95% CI: 1.337–3.229), despite males (40.87%) and females (54.43%) being relatively evenly distributed in the cohort. Individuals with "Other/Unknown" sexual orientation had 1.99 times higher odds of receiving a consult compared to straight individuals (95% CI: 1.238–3.189). There were no other significant associations between our primary outcome and the other covariates of interest.

Conclusion: While the proportion of IPV-screened patients receiving social work consultations varied by arrival department, gender identity, and sexual orientation, a key finding was that significantly more female patients received consultations despite similar numbers of male and female IPV-positive patients. This may indicate differences in patient acceptance of services or provider referral patterns. Despite Site A identifying a higher number of IPV-positive patients likely due to its role as a trauma center serving an underserved population, Site B exhibited a higher rate of social work consultations. Further research should investigate both patient-level and systemic barriers to IPV-related social work interventions.

No, authors do not have interests to disclose

138 Complex Care Needs of Congestive Heart Failure Patients Presenting to the Emergency Department

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Study Objectives: Congestive heart failure (CHF) is a major public health issue in the United States, with incidence approaching 10 in 1,000 for those over the age of 65, and cost estimated to reach $70 billion by 2030. An important contributor to this is the high number of readmissions, with a national rate of 21% within one month of discharge. This cycle of readmissions places a particular burden on the emergency department (ED). Social work (SW) and hospital-initiated case management (CM) has been shown to reduce hospital length of stay and readmission in CHF patients. SW and CM providers document crucial demographic and social information that can be used to better understand the social needs of this population. We aim to study the complex care needs recorded and the impact of social interventions offered to CHF patients by analyzing the evaluations done by SW and CM.

Methods: This study presents a pilot data analysis of a larger multicenter retrospective cohort study of 15,000 CHF patients with admission to the hospital, across nine EDs in a large health system in 2019. A total of 2,400 admissions were selected via stratified sampling by biostatistician for data collection to reduce manual chart review. Charts were accessed via electronic medical records to collect demographic and readmission data. SW and CM notes were used to examine the healthcare services present prior to admission and services planned for discharge. Data was stratified by 30-day readmission status to explore any differences in healthcare services. Total quantity of services was calculated and expressed as the number provided per patient in each group.

Results: The pilot dataset represents 479 total patients, with 51.4% males, and a 30-day readmission rate of 18.0%. Both readmitted and non-readmitted groups had a median age of 79. Nearly half of both readmitted and non-readmitted patients had no outpatient services present at the time of admission, as shown in the **Table**. The most common pre-admission services were home health care services, durable medical equipment, and dialysis, which were present at similar rates in both groups. The most frequent discharge plan was to home, with similar rates between readmitted and non-readmitted patients. The next most frequent discharge plans involved home health care services, short-term skilled nursing facilities, and long-term skilled nursing facilities. Each of these three interventions was less frequent amongst the readmitted group. Patients in the readmitted group were referred to a skilled nursing facility only half as often as the non-readmitted group, despite no major difference in rates of patients declining the SW referral. In total the non-readmitted group averaged 0.64 planned discharge interventions per patient, compared to 0.44 interventions per patient in the readmitted group.

Conclusions: More than half of patients presenting to the ED had no prior outpatient services and would benefit from increased SW intervention. Further, these data suggest an association between fewer discharge services and an increased likelihood of hospital readmission among CHF patients.

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Table 1. Summary of the Complex Care Needs and 30-Day Readmission of CHF Patients

	Not readmitted		Readmitted	
	n=393	%	n=86	%
Male	201	51.1	45	52.3
Female	192	48.9	41	47.7
Age (years), median	79		79	
Services Present on Admission				
None	191	48.6	43	50.0
Other	72	18.3	10	11.6
Home health care services	70	17.8	18	20.9
Durable medical equipment	67	17.0	16	18.6
Dialysis	16	4.1	2	2.3
Transportation	11	2.8	1	1.2
Companion services	9	2.3	1	1.2
Physical/occupational/speech therapist	8	2.0	1	1.2
Services per patient, mean	0.72		0.65	
Potential Discharge Plan and Services				
Home	100	25.4	21	24.4
Home health care services	75	19.1	14	16.3
Skilled nursing facility - short term	54	13.7	6	7.0
Skilled nursing facility - long term	26	6.6	4	4.7
No anticipated needs	25	6.4	7	8.1
Durable medical equipment	21	5.3	3	3.5
Transportation	12	3.1	1	1.2
Dialysis	11	2.8	2	2.3
Referral declined	10	2.5	1	1.2
Companion services	8	2.0	1	1.2
Services per patient, mean	0.64		0.44	

No, authors do not have interests to disclose

139 Abdominal Pain + Vaginal Discharge: An Eye-Opening Simulation Case About Human Trafficking Education

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Study Objectives: Healthcare providers, particularly those in emergency departments, are among the few professionals who frequently interact with victims of human trafficking. However, only a small fraction of emergency physicians report receiving training on human trafficking, highlighting a critical need for improved education and awareness. There is a significant gap in knowledge regarding the effectiveness of simulation-based training in enhancing healthcare professionals' ability to identify and assist victims of human trafficking.

Methods: A human trafficking simulation-based training case was developed for emergency medicine residents to evaluate whether simulation-based training improves their understanding and identification of potential victims compared to traditional methods. This case involved standardized patients portraying the victim and the father/trafficker. Resident physicians (postgraduate years 1-4) were tasked with identifying the patient as a victim of human trafficking and providing appropriate clinical care and resources. Participant knowledge on human trafficking was assessed through a 12-item quiz and anonymous educational quality improvement surveys conducted before and after the simulation.

Results: The study employed a pre-post design using linear mixed models to compare knowledge of human trafficking between pre- and post-session surveys. A total of 29 residents participated, showing a significant increase in knowledge from pre- to post-session (Pre: Mean = 59.21; Post: Mean = 65.11, Cohen's $d = 0.39$, $p < .05$). Additionally, residents reported increased comfort in recognizing and managing victims of human trafficking following the simulation.

Conclusion: This research highlights the importance of simulation-based training in addressing a crucial gap in healthcare education. The findings suggest that simulation-based training is effective in improving the identification and management of victims of human trafficking within healthcare settings. This approach provides valuable insights into developing more effective training methods to better prepare healthcare providers for real-world scenarios involving human trafficking.

No, authors do not have interests to disclose

140 Social Determinants of Health and Emergency Department Utilization: Insights From PRAPARE Screening

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Study Objectives: Emergency department (ED) patients are impacted by many social determinants of health (SDOH) which may contribute to both their overall health and acute presentations; however, comprehensive SDOH risk assessments aren't routinely conducted in the ED. The Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) survey tool provides a standardized framework to evaluate SDOH risk. This study used the PRAPARE tool to develop a comprehensive SDOH profile of the patient population seeking care in a large, urban academic ED in the Deep South and explored associations between SDOH and ED utilization.

Methods: During a two-week period in July 2024, trained research assistants (RAs) solicited ED patients to engage in PRAPARE screening, 24/7. Patients aged 18 years or older were eligible for engagement; patients were excluded if they were non-English speaking or unable to directly engage with the RA (eg, critically ill, encephalopathic, otherwise lacking medical capacity). Participation was voluntary. Participants completed the PRAPARE screening tool with RA assistance; RA's verbally recited PRAPARE questions and answer options and then entered responses real-time via tablet into the electronic medical record. An SDOH risk score (0-14) was calculated for each patient based upon responses, with higher scores indicating greater social risk. Additional variables noted included age, race, gender, insurance status, marital status, ED acuity (Emergency Severity Index Level), and 30-day ED revisit. Descriptive statistics and predictive analyses were performed.

Results: Of 434 patients engaged (23% of ED volume during the study period), 283 completed and 101 partially completed the PRAPARE survey. Approximately half were male (50.5%) and Black (52.6%), with a mean age of 43.7 years. Most patients had ESI acuity levels of 3 (38.8%) or 4 (40.1%). Insurance coverage included Private/ Commercial (34.9%), Uninsured/Self-pay (20.6%), Medicaid (16.1%), and Medicare (6.9%). Uninsured patients were more likely to report lower education, poor housing, higher stress levels, and less reliable access to transportation. Patients with high SDOH risk scores (≥ 7) had increased odds of 30-day ED revisit. Patients without full-time employment and those who reported lack of socialization with close relationships also had higher odds of an ED revisit.

Conclusion: Higher social risk, as measured by the PRAPARE, was associated with increased ED reutilization. Social screening in the ED is feasible and may identify social risk kor need which may contribute to ED recidivism.

Table 1. The Number of SDOH Predictors and Return to ED within 30 Days.

	Estimate	Std. Error	t value	P-value
Intercept	0.09091	0.13122	0.693	0.489
SDOH Risk of 2	-0.02194	0.15411	-0.142	0.8869
SDOH Risk of 3	0.11364	0.14671	0.775	0.4393
SDOH Risk of 4	0.10909	0.14638	0.745	0.4568
SDOH Risk of 5	0.21068	0.14221	1.481	0.1397
SDOH Risk of 6	0.21678	0.15653	1.385	0.1672
SDOH Risk of 7	0.30909	0.1534	2.015	0.0449
SDOH Risk of 8	0.40909	0.16656	2.456	0.0147
SDOH Risk of 9	0.40909	0.20222	2.023	0.0441
SDOH Risk of 10	0.40909	0.22087	1.852	0.0651

Table 2. SDOH Predictors of Return to ED Within 30 Days

	Estimate	Std. Error	t value	P-value
(Intercept)	-0.04368	0.09289	-0.47	0.63856
Hispanic	0.01254	0.20821	0.06	0.95202
Other than White	0.08173	0.05469	1.495	0.13623
Farm Worker	-0.22394	0.30827	-0.726	0.46823
Veteran Tally	0.1101	0.11912	0.924	0.35617
Language Other than English	-0.18535	0.17275	-1.073	0.28427
Unstable Housing	0.03683	0.08126	0.453	0.65075
Worried About Losing Housing	0.04473	0.08281	0.54	0.58958
More than High School Education	0.03429	0.05746	0.597	0.55116
Other than Full-time work	0.13422	0.06441	2.084	0.03816
Other than Commercial Insurance	0.03611	0.05684	0.635	0.52577
Have Household Needs	-0.02376	0.06941	-0.342	0.73241
Have Transportation Barriers	0.05699	0.0761	0.749	0.45465
Did not socialize with close relationships more than 5 times a week	0.15805	0.05767	2.74	0.00656
Have Some degree of Stress	0.0573	0.07045	0.813	0.41678

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

141 Low-Dose Buprenorphine for Acute Pain Management in the Emergency Department: A Prospective Observational Study

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Study Objectives: Buprenorphine, a partial opioid agonist with a unique pharmacological profile, has emerged as a potential alternative to full opioid agonists for acute pain management. Evidence suggests that low-dose buprenorphine (LDB), administered at doses significantly lower than those used for opioid use disorder, is both safe and effective for acute pain control. LDB offers several advantages, including potent analgesia with reduced euphoria, a lower risk of respiratory depression, decreased incidence of constipation and pruritus, anti-hyperalgesic properties, reduced immune suppression, and a prolonged duration of action (6–12 hours per dose). It also demonstrates an improved safety profile, particularly in elderly patients and those with advanced renal disease or cancer. However, research on LDB as a primary analgesic in emergency department (ED) settings remains limited. Existing studies have primarily examined sublingual administration in specific patient populations, such as those with renal colic or long bone fractures. This study evaluates the initial clinical use of LDB (1 mg sublingual and 150 mcg intravenous) as a first-line analgesic for undifferentiated acute pain in a tertiary care ED and trauma center.

Methods: This was an IRB-approved prospective observational study of consecutive patients given LDB for acute pain. Patients were excluded if they received opioids within 24 hours of the ED visit. Data included demographics, indication, dose, route, disposition, occurrence of adverse events, and patient-reported pain relief and satisfaction. Adverse events were categorized as minor (nausea, vomiting, drowsiness, dizziness) and severe (respiratory depression, hypotension).

Results: Between October and March 2024, 46 patients received LDB in the ED for various conditions, including back, abdominal, dental, dermatological, and musculoskeletal pain. The median patient age was 50 years, with 47% being women. More than half (53%) were discharged after treatment. LDB was administered intravenously in 80% of cases, often alongside ketorolac and acetaminophen. Common comorbidities included heart disease, diabetes, renal disease, and malignancy. While no serious adverse events occurred, 15% of patients (7 individuals) experienced dizziness and nausea. One patient was admitted for nausea attributed to intravenous LDB, and another returned to the ED three hours post-discharge after sublingual LDB with allergic symptoms—though they had received penicillin during their initial visit, making it unclear whether LDB was the cause. Pain relief was achieved in only two cases, with most patients experiencing moderate to significant improvement. Notably, 90% of those queried indicated they would choose LDB again for similar pain.

Conclusion: In this preliminary observational study, using LDB as an analgesic was feasible in a diverse ED patient population with undifferentiated acute pain. LDB may represent an essential new tool in our ED armamentarium, and research into its role in emergency pain management is warranted to determine optimal dosing and patient selection.

No, authors do not have interests to disclose

142 Alternatives to Opioids Program Decreased Overall Emergency Department Opioid Use

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Study Objectives: A three-year grant from the Substance Abuse and Mental Health Services Administration (SAMHSA), supported a program to deploy training and facilitated bedside utilization of various medications and procedures to address pain management without the use of opioids. This Alternatives of Opioids (ALTO) program, instituted within a busy level 1 trauma center emergency department (ED), provided electronic medical record (EMR) based order sets and enhanced training and bedside support for various procedures including, acupuncture, trigger point injections, regional nerve blocks (RNBs), and Transcutaneous Electrical Nerve Stimulation (TENS) to provide alternatives to opioids to treat pain.

Methods: This is a single site prospective cohort study assessed all adult (18yrs or older) patients with reported pain, as stratified by organ system comparing the 6 months prior to program initiation against the full-time course of the program (8/1/2021- 11/30/2024). This program was initiated within the only regional level 1 (~95K adult ED patients/year) trauma center ED located in Greenville, SC. We assessed overall utilization of the various alternative treatments and tracked overall percentage of patients that received any opioid stratified by organ system while in the ED.

Results: Non-opioid pharmacotherapeutics were most utilized ALTO therapy (85% of enrolled patients), followed by TENS therapy (72%), RNBs (14%), acupuncture (<1%), and TPIs (<1%), respectively. Commonly used pharmacotherapeutics included non-steroidal anti-inflammatories (NSAIDS) and steroidal agents, acetaminophen, skeletal muscle relaxants, benzodiazepines, antiemetics, anticonvulsants such as gabapentin, and topical agents such as lidocaine patches. As shown in the **Table**, we tracked trends in opioid utilization within the ED as stratified by body organ system. Decreases were seen across several organ systems including Headache (0.9% decrease or about 162 patients spared opioids), Chest (1.4% decrease or about 545 patients spared opioids), Abdominal (0.7% decrease or about 730 patients spared opioids), and Extremities (1.5% decrease or 1020 patients spared opioids).

Conclusion: We report decreases across several organ systems within this level 1 trauma center ED. These decreases spared any opioid use in a total of ~2500 patients. This data is limited in that it includes all patients with pain in the ED within these time periods and includes use of any opioid. This data does not assess the individual MMEs per patient, it reports on overall opioid usage in the ED. Future goals include ongoing assessment of opioid utilization after cessation of this program.

	Pre-Implementation (January 2021-July 2021)	Post-Implementation (August 2021-November 2024)
Total ED visits	54,937	268,925
Patients receiving opioids‡		
Pain regions, %§		
Head	15.2	16.3
Headache	6.7	5.8
Back/neck	27.7	29.2
Chest	14.5	13.1
Abdominal	38.8	38.1
Extremities	25.3	23.8
No pain reported %	12.3	12.1
Total patients receiving opioids, %¶	16.0	15.8

Table 1. Proportion of Patients at GMH ED Treated with Opioids Pre and Post Implementation by Pain Region.

‡ Opiates included in the analysis include morphine, fentanyl, dilaudid, hydrocodone, oxycodone, and tramadol and route of administration includes oral, intravenous, and intramuscular.
§ Patients presenting to the ED with a chief complaint including pain were grouped by body region of pain. Opioid prescribing rates will vary by body region of pain. Patients presenting to the ED without pain in their chief complaint are captured in the "No pain reported" group. These patients still may receive opioids as a standard of care.
¶ Total patients receiving opioids is among patients with and without pain-related chief complaints and reflects the average utilization rate across all ED encounters in the given time window.

No, authors do not have interests to disclose

143 Naloxone Requirements in Emergency Department Patients With Confirmed Protonitazene Overdose

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Study Objectives: Nitazenes are a novel class of synthetic opioids that have become increasingly prevalent in opioid overdoses. To date, naloxone requirements and outcomes in opioid overdose due to protonitazene are unknown with current studies limited to small case reports and *in vitro* analyses. This study aims to compare pre-hospital and in-hospital naloxone administration, clinical outcomes and healthcare resource utilization in emergency department (ED) patients with confirmed protonitazene overdose to patients with confirmed overdose due to fentanyl alone.

Methods: This is a secondary analysis of a consecutive cohort study of ED adult patients with opioid overdose from 2020-2024 enrolled at 10 hospital sites in the United States as part of the Toxicology Investigators Consortium (ToxIC) Fentalog Study. ED patients with presumed opioid overdose and residual waste blood samples available for analysis were included. Patients whose confirmatory serum testing demonstrated presence of protonitazene were analyzed in the protonitazene

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group while those with fentanyl only on serum testing were analyzed in the fentanyl-only control group. The primary study outcome was prehospital naloxone administration (defined as (1) total number of prehospital boluses doses and (2) total prehospital bolus dose in milligrams). Secondary outcomes included overall naloxone bolus dose (defined as total prehospital + in-hospital naloxone bolus dose in milligrams), clinical outcomes (cardiac arrest, respiratory failure requiring positive-pressure ventilation or endotracheal intubation) and healthcare resource utilization (rate of floor admission, ICU admission and hospital length of stay).

Results: Of 1,898 included patients, 9 had protonitazene present on serum analysis while 45 were in the fentanyl-only group. There were no statistically significant differences in age, gender, race or ethnicity between the two groups. Patients in the protonitazene group received a significantly higher number of prehospital naloxone boluses (2.3 versus 1.3, $p = 0.02$). Total prehospital and overall naloxone bolus dose was also higher in the protonitazene group (prehospital: 6.6 mg versus 4.1 mg; overall: 7.0 mg versus 4.4 mg) although this did not reach statistical significance. There were no significant differences in clinical outcomes or resource utilization between the two groups.

Conclusion: Patients presenting to the ED with overdose due to protonitazene received a significantly higher number of prehospital naloxone bolus doses when compared to patients with overdose due to fentanyl alone. This suggests that protonitazene overdose may have a more severe initial presentation. Further studies are needed to fully elucidate clinical and hospital resource utilization implications of protonitazene overdose.

No, authors do not have interests to disclose

144 The Prognostic Nutritional Index: Assessing Correlations in Alcohol Withdrawal Syndrome

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Study Objectives: The Prognostic Nutritional Index (PNI) can be used to establish the overall nutritional status of a patient. The primary aim was to determine if there is a correlation between low PNI and alcohol withdrawal. Additional aims include whether patients are offered medication-assisted treatment, assessing other related variables with AUD (including substance use) and the disposition status of patients admitted for AUD.

Methods: This study was a retrospective chart review using data from EPIC, the electronic medical record database, at Covenant Medical Center in Saginaw, Michigan from January 1, 2022 to December 31, 2023. Chart data was collected from 503 inpatient charts with diagnostic criteria including F10 ICD10 codes reflecting alcohol use disorder and withdrawal related complications. The PNI for each patient was calculated by utilizing laboratory values with the formula seen below.

PNI=[(serum albumin × 10)+(absolute lymphocyte count ×5)]

Results: The PNI values were collected and stratified into categories including mild, moderate, and severe. Overall, 9.1% of the cohort met criteria for a normal (High) PNI, while 68 (13.5%), 72 (14.3%), and 318 (63.1%) of the patients met criteria for mild, moderate, and severe PNI values (referred to as Low PNI), respectively. Further stratification of the cohort grouped 458 patients with a Low PNI as compared to 46 patients with High PNI. The average Body Mass Index (BMI) of the cohort was 27.4 of the sample examined. Additional descriptive statistics included assessing the prevalence of other substance use whereas 271 patients were current smokers (53.8%), 43 used smokeless tobacco, and 44 used e-cigarettes/vape (8.7%). Sixty percent of patients reported the active use of substances (n=262) with 178 using marijuana (35%), 90 using cocaine (17.9%), 106 using stimulants (21.1%) and 53 (10%) using other illicit substances. Of the 503 patient charts, 322 patients had positive urine drug screens for polysubstance use where 35.4% were positive for cannabis and 10.6% tested positive for cocaine. As for co-morbidities, the majority were diagnosed with depression (57.9%), followed by anxiety (51.2%), bipolar disorder (14.9%), and schizophrenia (6.4%). The patient population consists of 87.9% of patients with a history of DTs and 46.4% that presented with active DTs. In addition, 44.5% of the patients have a history of alcohol related seizures with 9.3% presenting with active seizures. The multivariable logistic regression demonstrates active DTs and seizures against associated risk factors. Active DTs show odds ratios of 1.502 (0.70, 3.2) for mild PNI, 0.963 (0.45, 2.0) for moderate PNI, and 1.12 (0.60, 2.1) for high PNI. Active seizures demonstrate adjusted odds ratios of 2.14 (0.54, 8.6) for mild PNI, 1.30 (0.37, 4.6) for moderate PNI, and 1.06 (0.38, 2.9) for high PNI. Other notable odds ratios include active DTs and BMI with 1.03 (1.0, 1.1) and active seizures and tobacco use with 2.15 (1.6, 4.0).

Conclusions: A notable finding from the final data analysis includes very few patients given medications to help with alcohol cravings. Furthermore, 60% of the patients were discharged without any recovery service referrals or recommendations and nearly 12% of the patients were discharged against medical advice (AMA). There is sufficient evidence to conclude that the odds of having active DTs increases 3.3% for every one unit increase in BMI. The final data analysis reveals there is no definitive correlation between low PNI and the likelihood of developing severe AUD complications, therefore BMI may be a more relevant indication of malnutrition and its correlation with more severe alcohol withdrawal related complications. There is evidence to conclude that THC and tobacco users are 2.2 times more likely to experience withdrawal related complications. Black patients are 4.8 times more likely to experience severe outcomes, along with women being 2.5 times more likely for severe AWS. Lastly, the final data analysis revealed a correlation between patients with mental health conditions and being 1.8 times more likely to experience severe alcohol withdrawal complications.

No, authors do not have interests to disclose

145 Characteristics of Adolescents and Young Adults Who Died of Overdose: Opportunities for Intervention

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Study Objectives: Pediatric and young adult overdose is a growing public health concern, particularly with rising fatalities tied to synthetic opioids such as fentanyl. This study examines fatalities in individuals aged <25 years recorded by the King County Medical Examiner's Office (KCMEO) between 2018 and 2024, focusing on healthcare system interactions within the University of Washington (UW) Medicine Epic system. By identifying patterns of healthcare utilization and examining demographics, incident characteristics, and substances involved, this study aims to uncover opportunities for therapeutic or preventative interventions.

Methods: Data were analyzed from 390 fatal overdose cases recorded by KCMEO, of which 202 were matched to patients in the UW Epic system. Among these, 133 patients had healthcare encounters within the last five years, with a subset of 61 (46%) seen within the last 30 days. Encounter types (eg, emergency department (ED) visits, ambulatory care, hospital admissions) and healthcare touchpoints (eg, medication orders, provider notes) were reviewed alongside demographics, incident characteristics, and substances listed as a cause of death. Statistical trends were assessed for patient interaction patterns and intervenable windows prior to overdose events.

Results: The majority of fatal overdose cases (58.4%) occurred in late adolescence (ages 21-24). Fentanyl emerged as the leading cause of death (70.3%), far exceeding other substances such as methamphetamine (22.3%) and cocaine (17.3%). Incident locations were primarily private residences (59.9%), suggesting that most overdoses occurred in non-public settings. Previous work has noted that this age group is the least likely to get naloxone in the event of an overdose, despite potential responders being present. Among the 133 patients with healthcare encounters in the last five years, 99 had ambulatory care visits (clinic or telemedicine), 107 had emergency department visits, and 55 had inpatient encounters. Notably, 39 of the 61 (64%) patients who had a healthcare encounter within the 30 days prior to their death were seen in the emergency department, underscoring the ED as a critical point for intervention. Medication orders for this cohort showed relatively low prescription rates compared to inpatient administration, suggesting limited direct engagement in medication-based therapy. Provider notes documented social work involvement in 67 patients, indicating potential opportunities for targeted psychosocial interventions.

Conclusions: Healthcare system interactions within UW Medicine highlight the importance of the emergency department as a pivotal touchpoint for the prevention of overdose deaths, particularly within the last month preceding fatal events for adolescents and young adults. The high prevalence of fentanyl emphasizes the need to integrate screening, education, and the liberal dispensing of naloxone to patients and families. The provision of medications for opiate use disorder, known to decrease mortality in people with opioid use disorder by 50%, is critical in this population.

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Systems to streamline and incorporate these processes for adolescents and young adults, and link them to ongoing care, should be built and implemented.

Yes, authors have interests to disclose

Disclosure: Gilead Life Sciences

Chris Buresh

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Gilead Life Sciences

146 Implementation of Weight-Based Front-Loaded Phenobarbital Protocol for Alcohol Withdrawal

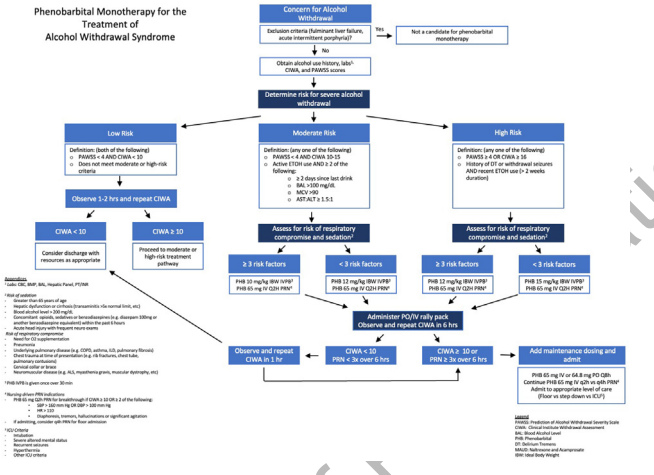
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Study Objective: Emergency department (ED) visits related to alcohol withdrawal syndrome (AWS) have risen over the past decade, with over 50% of patients with this condition admitted to the hospital. If left untreated or undertreated, AWS can lead to high morbidity and mortality. Symptom-triggered benzodiazepine (BZD) protocols remain the most common first line treatment, but some patients with AWS may be refractory to this regimen. Patients with moderate to severe AWS or those refractory to first line therapy often require hospital admission, which can strain the healthcare system. Emerging evidence suggests that phenobarbital (PHB) may be a useful alternative to benzodiazepine monotherapy given its mechanism and long half-life which allows for a self-tapering effect. Most literature suggests using low intermittent dosing or front-loaded PHB $\leq$ 10mg/kg. There remains a paucity of research on ED implementation of PHB protocols and ideal dosing. Our ED implemented a weight-based, front-loaded PHB monotherapy protocol for the treatment of AWS. This study evaluated the efficacy and safety of PHB regarding patient disposition.

Methods: This is a retrospective, observational study of adult ED patients treated for AWS using weight-based front-loaded PHB monotherapy protocol (**Figure**) in a level one trauma center and urban academic hospital. Prior to implementation, ED staff received an educational session regarding the new protocol. Patients $\geq$ 18 years old were treated with intravenous PHB 10 – 15 mg/kg ideal body weight (IBW), or actual body weight if < IBW, based upon severity of alcohol withdrawal and further dose adjustment for risk of respiratory depression and sedation. The severity of withdrawal was determined by the clinical institute withdrawal assessment for alcohol scale, the prediction of alcohol withdrawal severity scale, laboratory analysis and risk factors. The primary outcome was ED disposition. Secondary outcomes were ED length of stay (LOS, [defined as time from ED arrival to departure including boarding time for admitted patients]), total hospital LOS, and return to ED within 72 hours (hrs) of discharge. Patients discharged from the ED received additional resources/referrals from social work.

Results: Between January 2024 – January 2025, 108 patients with AWS were treated with the PHB protocol in a total of 133 encounters. The average (standard deviation) PHB loading dose was 928.4 mg (205.2), 922.1 mg (192.6), and 945.0 mg (237.4) for all encounters, admitted and discharged patients, respectively. In total, 36 patients (27.1%) were discharged, and 97 (72.9%) were admitted. The median ED LOS (interquartile range [IQR]) was 26.9 hrs (12.5-46.0) for all encounters, 36.1 hrs (22.5-53.7) for admitted, and 12.6 hrs (10.0-15.9) for discharged patients. The time to disposition was much shorter at 9.3 hrs (6.5-14.0), 8.3 hrs (5.9-13.4), and 11.2 hrs (8.6-14.5), respectively. The median hospital LOS (IQR) for admitted patients was 93.1 hrs (68.3-135.7). Seventy-two-hour readmission rates averaged 4.5% for all encounters, 4.1% for admitted, and 5.6% for discharged patients. There was no statistically significant difference in the likelihood of readmission at 72 hrs between the patients who were admitted versus discharged ($p > 0.05$). There were no reported clinically significant adverse events related to administration of PHB.

Conclusion: This study demonstrates the feasibility and efficacy of using a weight-based front-loaded PHB monotherapy protocol for the treatment of AWS among adult ED patients. Using this protocol, ED patients were safely treated for AWS at higher PHB doses than has been previously used in the literature and were successfully discharged without increased rates of readmission. This highlights the benefit of PHB, especially in times of ED boarding. Future efforts include ongoing investigation in a larger study population and comparing these outcomes to those in patients who received benzodiazepine-based therapy to help illuminate best-practice.



No, authors do not have interests to disclose

147 Reducing Virtual Urgent Care High Utilization Through Provider-Focused Interventions

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Study Objective: Frequent utilization of virtual urgent care (VUC) for recurring concerns can lead to fragmented care and increased healthcare costs. At our institution, a significant subset of patients repeatedly access VUC services without achieving resolution of their subacute issues. This study aimed to assess the impact of an intervention to identify high utilizers of VUC, prompting providers to perform a dedicated chart review to address ongoing care needs, and encourage more coordinated follow-up planning. Specifically, we sought to evaluate provider adherence to the intervention and measure changes in VUC utilization patterns among these high-utilizer patients.

Methods: We implemented a provider-facing alert within our VUC electronic health record (EHR) to identify and prompt improved management of patients with frequent VUC visits. High-utilizer alert criteria included: more than three VUC visits within 30 days, more than 12 visits in six months, or more than 20 visits in the past year. When one of these thresholds were met, an EHR alert appeared to providers upon opening the patient's chart, prompting the provider to review the patient's prior encounters, discuss follow-up care options with the patient, and add standardized documentation of a follow-up plan in the visit note. Data were collected from November 12, 2024, to February 14, 2025, capturing the number of alerts triggered and provider response rates measured by assessing whether the standardized documentation was added to the visit note. To assess the intervention's impact, we analyzed each patient's VUC visit frequency during the 30 days before and after the intervention, utilizing bootstrapped sampling to estimate changes in utilization rates.

Results: Between November 12, 2024, and February 14, 2025, there were 27,164 completed VUC visits staffed by 96 providers (92 attending physicians and 4 advanced practice providers). During this period, the high-utilizer alert was triggered during 1,069 VUC encounters involving 459 unique patients. Providers responded to the alert and documented a follow-up plan in 298 encounters (27.9% response rate), involving 182 patients. Among these patients, the average number of VUC visits decreased from 2.7 visits per patient in the 30 days prior to intervention to 1.3 visits in the 30 days following the intervention. In total, 76.9% of patients demonstrated reduced VUC utilization, 12.6% had no change, and 10.4% had increased utilization. Bootstrapped analysis estimated an average decrease of 1.46 visits per patient (95% CI –1.79 to –1.08).

Conclusion: A straightforward provider-facing intervention to identify and address high-utilizing VUC patients was associated with a significant reduction in subsequent VUC visits. By encouraging providers to review prior encounters and discuss follow-up care plans, the intervention helped reduce fragmented care and unnecessary repeat visits, benefiting both patients and providers. Despite a modest

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response rate to the alert, the intervention demonstrates the potential for scalable strategies to improve care coordination in high-volume virtual settings. Future work will focus on increasing provider engagement and evaluating the long-term impact of follow-up planning on patient outcomes.

No, authors do not have interests to disclose

148 Factors Correlating With Emergency Department Provider Retention: A National Analysis

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Study Objectives: To examine factors influencing emergency department (ED) provider retention, including both physicians and advanced practice providers (APPs), given its significant impact on patient outcomes, satisfaction scores, and institutional costs. This study aims to address the current gap in research on retention across these provider groups.

Methods: Retention rates of physicians and APPs from 112 United States ED sites were calculated then split into quartiles, with the top and bottom quartiles categorized as "high-retention" and "low-retention" sites, respectively. The data were then further analyzed to ascertain any statistically significant differences among various hospital-related categorical factors, such as volume.

Results: We found that the following variables were significantly associated with higher retention for both physicians and APPs: a higher number of staffed inpatient and ICU beds and a higher percentage of admitted Medicare patients. ED throughput metrics and trauma designation of the hospital were not significantly associated with higher retention in either group. Hospitals in an urban or rural setting and stroke center status were not factors for APPs; however, physicians were more likely to stay at urban sites and stroke centers. Inversely, larger sites were associated with increased retention of APPs, but had no impact on physicians.

Conclusion: To our knowledge, this study is the first to examine retention rates among emergency physicians and APPs in relation to an extensive number of ED- and hospital-related variables. We hope that it can offer valuable insights into the factors associated with ED provider retention, improving the well-being of providers and patients alike.

No, authors do not have interests to disclose

149 Bridging Gaps in Rural Emergency Care: Analysis of a Novel Tele-EMS Network and Paramedic Engagement

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Introduction: Rural healthcare disparities present significant challenges in timely access to emergency medical care, exacerbated by hospital closures and prolonged emergency medical services (EMS) response times. Telemedicine has emerged as a promising solution to bridge these gaps by enabling real-time consultation between EMS providers and emergency physicians. However, the effectiveness of tele-EMS programs depends not only on their implementation but also on paramedic acceptance and adaptation to new technology.

Study Objectives: The primary objective of this study was to evaluate the initial impact of a novel telemedicine program on EMS access and efficiency in rural Georgia. The secondary objective was to assess paramedic adaptation, acceptance, and training needs associated with tele-EMS utilization.

Methods: This retrospective observational study was conducted across 14 rural Georgia counties where a tele-EMS network was implemented. The intervention included equipping ambulances with telemedicine technology, facilitating real-time audiovisual consultation with emergency physicians. The study analyzed EMS system impact, including telemedicine activation rates, ambulance miles averted, air ambulance activations prevented, and time-to-physician metrics. A subgroup analysis was conducted using a knowledge, attitudes, and practices (KAP) survey distributed to EMS providers in four counties to evaluate paramedic adaptation, engagement, and barriers to tele-EMS use. Data were collected from EMS records, telemedicine usage logs, and survey responses and analyzed using descriptive statistics and chi-square tests.

Results: During the study period, 71 telemedicine consults were conducted, reducing ambulance transport distances by 716 miles and preventing two air ambulance activations. The average miles averted was 9.3 (95% CI: 3.9 - 16.2). The mean time from scene to hospital was 42 minutes, while time-to-physician evaluation was reduced by 35 minutes. Despite the system's potential benefits, utilization remained limited due to technical barriers and workflow integration challenges. The KAP survey (response rate: 45%) revealed that while 88% of EMS providers were familiar with tele-EMS, only 63% understood activation criteria. The majority (60%) expressed the need for further training, while 95% identified connectivity limitations as a major obstacle. Additionally, 63% reported the absence of regular cues or reminders to use telemedicine during patient encounters.

Conclusion: This study demonstrates the feasibility and potential benefits of tele-EMS in optimizing EMS resources and improving physician access for rural patients. However, paramedic adaptation remains a critical factor in successful implementation. Addressing training gaps, connectivity challenges, and workflow integration is essential for scaling tele-EMS solutions in rural settings. Future research should explore patient-centered outcomes and sustainable strategies for improving telemedicine adoption in prehospital care.

No, authors do not have interests to disclose

150 Strategies for Successful Implementation of Mobile Integrated Health and Virtual Care Globally

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Introduction: Over the past decade, mobile integrated health (MIH) and community paramedicine have become common in developed countries such as Australia, Canada, Finland, Ireland, United Kingdom and the United States. MIH addresses both acute and chronic illness in the out-patient setting for vulnerable populations, particularly those negatively impacted by social determinants of health. Increasingly, MIH programs leverage telehealth to enhance the impact, expand the reach and improve the efficiency of the care they provide. However, despite reducing EMS call volumes, improving patient experience, and reducing healthcare costs, numerous barriers exist that hinder MIH adoption in the US and abroad.

Study Objective: Identify common factors enabling the adoption, effectiveness and sustainability of MIH in both developed and resource limited settings, particularly with respect to increasing accessibility to virtual care.

Methods: This is a post-hoc analysis of qualitative data derived from semi-structured interviews with patients and stakeholders experienced with MIH in the United States. Transcripts were coded independently by four reviewers guided by the Consolidated Framework for Implementation Research (CFIR). CFIR themes were mapped to a novel paradigm describing strategies for identifying and addressing barriers to successful MIH implementation. We then identified consensus themes that could facilitate development of MIH programs independent of local resources.

Results: Overall, forty-five interviews were completed in the original study including 20 patients and 25 stakeholders (six clinicians, eight MIH staff members, two caregivers, and nine MIH leaders) across four states. 918 excerpts were coded into 44 sub-domain CFIR themes, which were used to develop a Paradigm for Change specific to MIH. Themes applicable to both developed and resource limited settings included facilitating partnerships and communication among interdisciplinary teams (specialty providers, care managers, social workers) and organizations (health system, community-based, governmental); measuring and reporting outcomes aligned with patient-reported quality of life measures that overlap with organizational strategic goals; engaging patients with limited health literacy or language proficiency; and prioritizing equitable patient experience.

Conclusions: MIH increases access to virtual care for vulnerable populations that do not routinely use digital health. Using CFIR, we identified strategies from patients and stakeholders that can drive MIH implementation both locally and internationally.

No, authors do not have interests to disclose

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151 Emergency Department Telehealth Follow-Up Visits' Impact on 30-day Hospitalizations

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Study Objectives: Telehealth follow-up visits after an emergency department (ED) encounter have been shown to reduce ED revisits and increase access to primary care. The effect of these telehealth visits (THV) on subsequent hospitalizations is less understood. The aim of this study was to evaluate the impact of emergency physician-led telehealth follow-up visits conducted after an index ED visit on patients' subsequent hospitalization rates.

Methods: This matched comparison, retrospective cohort study was performed at an academic health system's two EDs between July 25, 2022-March 31, 2025. Included were patients who participated in follow-up THVs after an index ED visit and subsequently experienced an ED return visit resulting in hospitalization within 30-days of their index ED visit. Patients were stratified according to the calculated Charlson Co-Morbidity Index (CCI), a validated, weighted index used to predict mortality in patients with multiple co-morbidities. Scores range from 0, 1-2, 3-4, and >/= 5, with a higher score indicative of a greater mortality risk and poorer prognosis. Eligible patients were matched 1:2 (THV vs non-THV) based on CCI and were compared to assess the differences in 7-,14-, and 30-day ED revisits resulting in hospitalization. Group differences were assessed using a chi-square test, with a statistical significance threshold of $p </= 0.05$.

Results: A total of 167 patients met inclusion criteria. Of these, 4 (2.4%) had a CCI= 0, 43 (25.7%) had a CCI = 1-2, 41 (24.6%) had a CCI = 3-4, and 79 (47.3%) had a CCI >/=5, indicating a substantial proportion of patients with heightened comorbidity burdens. Among patients with a CCI of 0-4, THV follow-up was not associated with any significant reductions in 7-, 14-, nor 30-day hospitalization rates. However, among the patients with a CCI >/= 5, a significant reduction in 14-day hospitalizations was present among the THV cohort (5.8%) compared to the non-THV cohort (8.6%) reflecting a 3.3% absolute reduction in hospitalizations among patients with a CCI >/= 5 ($p <0.05$).

Conclusions: Emergency physician-led telehealth visit follow-up is associated with a significant reduction in 14-day hospitalizations among patients with a CCI >/= 5. Larger and further study is warranted for the generalizability of these findings.

No, authors do not have interests to disclose

152 Virtual Provider in Triage: Transforming the Emergency Department Arrival Workflow for Enhanced Efficiency and Quality

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Study Objectives: The emergency department (ED) is a dynamic work environment affected by numerous internal and external system factors. These factors lead to fluctuations in available space and staff and have a profound impact on ED quality metrics. Our objective is to buffer these two key components by improving efficiency of care through the utilization of a virtual care platform. We've launched a virtual care service that has transformed our Emergency Department patient arrival process through a digital front door and virtual waiting room. This technology allows for care in non-traditional settings and optimizes the utilization and efficiency of existing resources.

Methods: Shortly after checking in, the patient is placed in a dedicated consult room. A virtual ED provider performs the initial medical screening exam (MSE), orders, and documentation as part of the normal triage process. They also assign a patient to the appropriate treatment space. If the patient remains in the ED lobby the virtual provider uses the platform to monitor the progress of the patient's workup, updates the patient about their care plan and treatment progress, and dispositions accordingly.

Results: 1. 80% reduction of patients LWBS, a 50% reduction in door-to-provider time, and a 525 % increase in MSEs per/hr during hours of VPIT operation; 2. 38% reduction in the total LWBS rate and 35% reduction in the total door-to-provider time; 3. >90% of the patients LWBS occurred outside the hours of VPIT operation.

Conclusion: The data presented covers all hours of ED operation. Currently, our service runs for just 40 hours a week. Despite this limited schedule, it has had a profound impact on our ED metrics. Comparing LWBS rates from the same time periods before (2023) and after implementation (2024), we observed a 38% reduction in the LWBS rate, despite an increase in patient volume and boarding minutes. Additionally, the door-to-provider time decreased 35%. The improvement in our workflow has also led to a remarkable increase in the number of patients receiving medical screening examinations. We have seen an improvement of our VPIT (virtual provider in triage) MSEs/hr increase 366 to 525% when comparing it to a traditional in-person PIT. The improved efficiency and expanded reach of our VPIT provider has allowed us to cover an additional site that previously lacked the resources for a traditional PIT.

No, authors do not have interests to disclose

153 Intestinal Cooling Prevents Sepsis Without Coagulopathy During REBOA Management of Hemorrhage

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Study Objectives: Resuscitative endovascular balloon occlusion of the aorta (REBOA) is used for temporary management of lethal torso hemorrhage, but prolonged deployment leads to irreparable tissue ischemia-reperfusion injury (IRI), systemic inflammatory response syndrome (SIRS), multiorgan failure, and coagulation dysfunction. This current study used a rat model of REBOA for the management of lethal hemorrhage to: (i) measure blood biomarkers of sepsis and systemic inflammation, multiorgan failure, and coagulation during the post-REBOA phase; (ii) evaluate the impact of a novel intra-colon cooling catheter on these biomarkers, sepsis, and overall organ damage; and (iii) explore the implications for clinical REBOA management, evaluating targeted intra-colon cooling and personalized biomarkers-guided strategies.

Methods: Lethal hemorrhage was simulated by removing 47% of estimated blood volume over 30 minutes. REBOA was then deployed via a balloon-catheter inserted through the femoral artery into the descending aorta. After deployment, a TransRectal Intra-Colon (TRIC) temperature management catheter was used to maintain intra-colonic temperatures at either 37°C (control) or 12°C (experimental) for 270 minutes, while upper body esophageal temperature was maintained near 37°C in both groups. A tail artery catheter was used to monitor and record distal blood pressure, infuse Hextend solution, and collect blood samples. Blood samples was used to measure platelet activation factors, coagulation parameters, sepsis and organ failure biomarkers, and inflammatory cytokines. Rats were monitored for respiratory and sensorimotor deficit post-intervention. Surviving rats underwent perfusion fixation on day 3 for histopathological evaluation of organ injury.

Results: The TRIC12°C group (n=8) demonstrated significantly lesser respiratory impairment and sensorimotor deficits, and 0% mortality, compared to TRIC37°C group (n=8), which exhibited severe deficits and 100% mortality ($p <0.05$). Plasma levels of $CD61^+$ and $CD61^+CD62P^+$ platelets, D-Dimer, and Factor VIII were not significantly different between groups. However, plasma Von Willebrand Factor (VWF) levels increased significantly post-REBOA in both groups, with a significantly smaller increase in the TRIC12°C group ($p <0.05$). Furthermore, TRIC12°C group also had significantly lower levels of sepsis and organ injury biomarkers (endotoxin, creatinine, AST, FABP1/L-FABP, cardiac troponin I, FABP2/I-FABP) and pro-inflammatory cytokines (TNF-α, IL-1b, and IL-17F). Histopathological examinations confirmed the degree of organ injury reflected by the biomarker levels. Furthermore, anti-inflammatory cytokines IL-4 and IL-10 were significantly upregulated in TIRC12°C group post-REBOA ($p <0.05$).

Conclusion: Targeted intestinal cooling provided significant therapeutic benefits in rat model of lethal hemorrhage managed with REBOA. Targeted cooling reduced the biomarker levels of sepsis and systemic inflammation, organ injury, as well as VWF consumption without significantly impacting coagulation or cardiopulmonary function. This targeted intestinal cooling promoted an anti-inflammatory profile, improving survival. These preclinical findings suggest that targeted intestinal cooling is a promising intervention for improving outcomes in REBOA-managed hemorrhage.

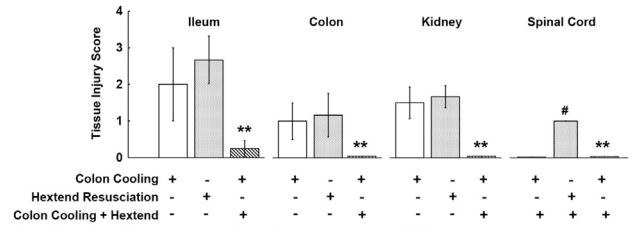


Fig. 1. Tissue Injury Score: Rats were subjected to lethal hemorrhage, REBOA management, and then were treated with either: (i) colon cooling alone; (ii) Hextend resuscitation alone; or (iii) a combination of colon cooling and Hextend resuscitation. At the endpoint, the heart, liver, lung, intestines, kidney, and spinal cord tissue sections were prepared and stained with H&E. The histopathological organ injury score were evaluated: 0 = normal tissue; 1 = selective cell necrosis without forming a necrotic area, 2 = forming a small necrotic area, 3 = more than one small necrotic area or a large necrotic area without tissue destruction, and 4 = tissue destruction.

Data are mean +/- SEM (n=8). **p<0.01, Cooling or Hextend vs. Cooling+Hextend; # Cooling vs. Hextend, Mann Whitney U test was used to determine significant difference.

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154 Derivation and Validation of a Clinical Prediction Model for ICU Utilization at Trauma Intake

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Study Objectives: Patients suffering from acute traumatic injuries often require significant health care resources that must be rapidly mobilized, including intensive care unit (ICU) placement. Lack of timely ICU care for trauma patients is an independent risk factor for increased complications and patient mortality. Accurate ICU resource prediction at initial trauma assessment can help appropriately target resources and transfers for these patients. The objective of this study was to derive and validate a clinical risk model capable of identifying patients requiring ICU care utilizing only data available during the initial assessment of trauma patients.

Methods: Data from trauma encounters spanning 2015-2021 were extracted from the US National Trauma Data Bank (NTDB), a registry of all trauma encounters at ACS-verified Level 1 & 2 trauma centers. A logistic regression (LR) model was trained to predict ICU requirement during the initial visit on all encounters from 2015-2020 resulting in admission for inpatient care. Logistic regression was chosen as an explainable model given similar performances across multiple machine learning techniques. Participants were excluded if under 17 years old, if data for emergency department length of stay was missing, or if transferred to or from other hospital. Clinical, demographic, procedure, and diagnostic variables were selected for the model based on clinical expertise if they preceded the patient's disposition from the ED and were likely knowable during the initial trauma assessment. Variables were dropped if they had variance inflation factors greater than 5, and a model with the 35 most predictive features (determined by a composite importance score of four models) was calibrated. The model was benchmarked on a testing set of all records from 2021. All model tests included subgroup analyses to ensure that the model performed similarly across race, sex, and insurance status.

Results: Among 2,114,865 included encounters, 89% were used for model training. Encounter demographics were 62.2% male, 70.3% white, 15.3% black, 58.8% Level 1, 29.5% under 35 years old, and 24% over 70 years old. The LR model had a testing AUC of 0.85 and PR-AUC 0.69 with a decision point chosen for a sensitivity of 0.949 and specificity of 0.378. On subset analysis, model performance did have slightly reduced accuracy when predicting non-Medicaid patients (AUC 0.86, 95% CI 0.855 – 0.867 vs 0.845, 95% CI 0.848 – 0.854) and Black patients (AUC 0.856, 95% CI 0.852 – 0.859 vs 0.842, 95% CI 0.835 – 0.849), but no significant difference based on patient sex (AUC 0.850, 95% CI 0.845 – 0.854 vs 0.849, 95% CI 0.846 – 0.852).

Conclusions: Early in the trauma evaluation process at Level 1 and 2 trauma centers, the need for ICU care can be predicted with high sensitivity and moderate specificity. Implementation of these rules may enhance the ICU bed reservation and assignment process for trauma patients. Further validation is required to ensure that these rules can be translated to hospitals that require transfer of trauma patients requiring ICU care.

No, authors do not have interests to disclose

155 Impact of Aspirin Use on the Management of Mild Low-Risk Traumatic Brain Injury

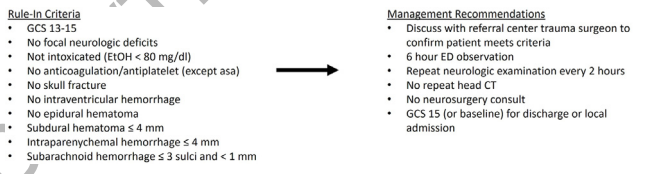
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Study Objectives: The modified Brain Injury Guidelines (mBIG) proposed a classification system for traumatic brain injury (TBI) according to the size and type of ICH and patient risk factors. Previous studies have suggested that patients classified as mBIG1 do not need to be evaluated by a neurosurgeon, do not require repeat head imaging, and can be safely discharged after a six-hour observation. It has also been proposed that patients classified as mBIG1 initially treated at non-trauma centers can be managed locally without the need for transfer, however mBIG1 currently excludes the large cohort of patients on anticoagulation or antiplatelet therapy. The purpose of this study was to determine if the definition of mBIG1 may be safely expanded to include patients taking aspirin.

Methods: This was a retrospective observational analysis of all isolated TBI patients who were transferred to a level 1 trauma center from 2018 – 2023. Data abstracted from the electronic medical record included patient demographics, head computed tomography (CT) results, and hospital course. Patients were excluded if they had a Glasgow Coma Scale (GCS) of 12 or less, required mechanical ventilation, or had significant injuries to any other body region. A manual chart review was performed to score each patient according to the mBIG criteria. A new fourth category, mBIG1-asa, which was defined as patients on aspirin who would otherwise be classified as mBIG1, was evaluated.

Results: During the study period, 575 patients with mild isolated TBI were transferred to the regional trauma center from outside emergency departments. Fall was the most common mechanism of injury (74.1%), followed by assault (8.9%) and motor vehicle collision (5.3%). 120 patients (20.9%) were classified as mBIG2, of which one patient died, and 330 patients (57.4%) were classified as mBIG3, of which 33 required neurosurgical intervention and 10 died. 73 patients (12.7%) of patients were classified as mBIG1 and 46 (8.0%) were classified as mBIG1-asa. No mBIG1 patients had worsening ICH on repeat head CT. One mBIG1-asa patient with a subarachnoid hemorrhage developed a new small focus of hemorrhage on repeat head imaging, however remained minimally symptomatic and was discharged home 4 days later after a brief ICU stay. No patients in either mBIG1 or mBIG1-asa required neurosurgical intervention or died.

Conclusion: Preinjury aspirin use does not appear to increase the likelihood of decompensation in low-risk mild TBI. mBIG provides a validated classification and management algorithm for traumatic ICH, and it has previously been suggested that mBIG1 patients with isolated head trauma initially treated at non-trauma centers may be managed locally without the need for transfer for evaluation by a trauma surgeon or neurosurgeon. Consistent with other published studies, approximately 15% of our cohort was classified as mBIG1. Expanding this definition to include patients on aspirin captures significantly more patients without sacrificing quality of care. This approach would represent a significant source of savings to the health system and a better allocation of resources to those patients who truly need to be transferred for a higher level of care. We are in the process of developing an algorithm whereby patients who are initially treated at referral sites and identified as mBIG1 can be discussed with the trauma physician, and if deemed appropriate, can be managed locally (**Figure**).



No, authors do not have interests to disclose

156 Brain Injury Guidelines Implementation: Analysis of Emergency Department Barriers and Facilitators

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Study Objectives: The Brain Injury Guidelines (BIG) stratify patients with traumatic intracranial hemorrhage (tICH) into one of three risk categories (1, 2, or 3), providing a standard measure of severity and an associated management recommendation. The lowest risk patients (BIG 1) do not require repeat imaging, neurosurgery consultation or hospital admission, and can be discharged home after a 6-hour observation period in the emergency department (ED) if at neurologic baseline. A 2022 pilot of the BIG at our single level I trauma center was feasible, safe and optimized resource utilization. We then undertook a systemwide BIG implementation project across our diverse 24-hospital system with a focus on BIG 1 management in the ED. The aim of this study was to identify barriers and facilitators to BIG 1 implementation from an ED perspective across various sites.

Methods: Phone interviews were conducted with emergency physicians and advanced practice providers (APPs) throughout our region. The content was analyzed by the study team and the Consolidated Framework for Implementation Research (CFIR) was used to assess contextual factors related to BIG implementation barriers across our hospital system.

Results: Interviews of 24 physicians and APPs were completed and analyzed. Barriers and facilitators were grouped into 42 themes across 5 CFIR domains and 13 constructs. The following 4 themes were coded as major determinants of implementation success (including associated CFIR domain-constructs): 1. Clinical Decision Support Tool: Respondents highlighted the need for the BIG algorithm to be integrated into the electronic medical record to facilitate timely and accurate decisionmaking. *(innovation-design; individuals, deliverers-capability)*; 2. Staff for Observation: Concerns were raised by respondents at community hospitals about the need for additional ED staff to observe patients that, absent the BIG protocol, would

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have been transferred. *(inner setting-structural characteristics; individuals, deliverers-capability)*; 3. Workload: A corresponding theme involved concerns related to increased staff workload to care for patients that would previously have been transferred. There was some variation on this theme, as other respondents saw no potential impact on workload given the relative ease of the observation protocol. *(inner setting-structural characteristics; individuals, deliverers-capability)*; 4. Familiarity and Comfort with BIG Protocol: Several respondents voiced concerns related to their familiarity with the BIG protocol and the underlying evidence. This was a barrier for those unfamiliar with the protocol. Conversely, this was a facilitator for those familiar with the protocol and evidence. *(innovation-relative advantage; individuals, deliverers-capability and motivation)*.

Conclusion: This study revealed implementation determinants across CFIR domains and constructs related to the implementation of the BIG 1 protocol in EDs across a diverse hospital system. There is a need for a multi-faceted implementation approach with corresponding strategies. Education, training, and site facilitation are implicated to increase clinician motivation and capability, particularly in terms of clinician familiarity and thus comfort with BIG utilization. In addition, structural features of the inner setting, such as BIG-specific clinical decision support and sufficient ED staff to manage additional patients under observation, may be required depending on expected volumes at each site. Overall, the study provided a useful map of barriers and facilitators to be used to accomplish the ED workflow and culture shifts necessary for successful BIG implementation.

No, authors do not have interests to disclose

157 Go Big AND Go Home: Implementation of the Brain Injury Guidelines in the Emergency Department

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Study Objectives: The Brain Injury Guidelines (BIG) are a validated algorithm for risk stratification and management of patients with traumatic intracranial hemorrhage (tICH). Management of the lowest-risk patients (BIG 1) does not require repeat imaging, neurosurgery consultation or hospital admission. The recommendation for BIG 1 patients is a 6-hour emergency department (ED) observation period followed by discharge if at baseline neurologic status. The BIG was implemented across our 24-hospital system in January 2024 with a focus on BIG 1 management in the ED to reduce unnecessary hospital transfer and admission. Our objectives were to assess utilization of the BIG specifically for BIG 1 management in the ED, and to report on clinical and safety outcomes.

Methods: Injured patients presenting to any ED in our hospital system from January 2024 to December 2024 with an ICD-10 code for tICH were identified using the trauma registry. Adult patients with a BIG 1 tICH, with or without concomitant injuries, were included. Demographics, ED length of stay (LOS), ED disposition, and 30-day readmission were captured. Neurosurgery consultation and intervention were also recorded. A multidisciplinary team was created to drive the 2024 implementation and included leadership from the trauma service, ED, neurosurgery, neurology, radiology, and physical medicine and rehabilitation. Implementation strategies were based on barriers identified through a mixed-methods analysis of field interviews with ED providers. Facilitators included the development of a formalized BIG care process model, electronic medical record tools, a radiology template incorporating all necessary radiographic elements for BIG score calculation, an ED physical therapy best-practice evaluation of mild TBI to facilitate safe discharges and clarify outpatient follow-up, and focused patient education handouts. Descriptive data are presented as mean or median where appropriate.

Results: 1,712 patients with tICH were identified, and 197 (12%) were categorized as BIG 1. Mean age was 61, 53% male and primarily injured from falls (60%). Presentation as a Trauma II activation level was most common (42%), followed by no activation (26%). Median head abbreviated injury scale (AIS) score was 2 and median GCS was 15. 107 (54%) of BIG 1 patients underwent hospital admission, many for concomitant injuries, and 90 (46%) were discharged from the ED. Of the 90 patients discharged, median ED LOS was 5 hours 40 minutes. Majority of the patients observed in the ED did not receive neurosurgery consultation (92%) or repeat brain imaging (98%), in keeping with the guideline. None had a documented return to the ED or hospital readmission within 30 days. Eighty-three (42%) patients presented to an ED classified as level III trauma centers or lower. Of those, 15 (18%) underwent local admission for neurologic observation, 35 (42%) were discharged home from the ED and 33 (40%) were transferred to a tertiary center. No BIG 1 patient underwent a neurosurgical intervention.

Conclusion: Nearly half of patients meeting criteria for low-risk tICH (BIG 1) were successfully discharged from the ED after a six-hour observation period without change in neurological exam. Importantly, none of these BIG 1 patients returned to the ED or were hospitalized within 30 days. Furthermore, many patients were treated and discharged from EDs which were not level I or II trauma centers. This approach to the management of low risk tICH represents a safe and cost-effective departure from previous standards of transfer, admission, and neurosurgical consultation. Further investigation of implementation strategies is warranted.

No, authors do not have interests to disclose

158 Prehospital Whole Blood Administration and Its Impact on Calcium Levels and Outcomes in Trauma

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Study Objective: In trauma patients, severe blood loss and massive transfusions worsen hypocalcemia through citrate chelation, contributing to the "diamond of death" (hypothermia, coagulopathy, acidosis, hypocalcemia) and increased mortality. This retrospective analysis assesses the impact of prehospital whole blood transfusion on calcium (Ca2+) levels and related outcomes, including morbidity, mortality, and total in-hospital blood product requirements.

Methods: This analysis reviewed trauma patients from 2021–2024 at two trauma centers, categorized into two cohorts: patients receiving prehospital whole blood and those who did not. Inclusion criteria included trauma patients aged 18 or older receiving at least one unit of blood. Exclusions were patients younger than 18, cardiac arrest or death prior to arrival or before initial blood draw, Ca2+ administration prior to first blood draw, isolated head injuries, or transfers from external hospitals. After exclusions, the final cohort included 52 patients in the study group (prehospital blood) and 95 in the control group (no prehospital blood). Data collected from electronic medical records and EMS reports included demographics, serum and ionized Ca2+ levels, blood product use, shock index, length of stay, ICU admission, intubation, and mortality.

Results: The study group had significantly lower mean ionized Ca2+ levels (4.13 mmol/L vs 4.61 mmol/L; $p < 0.001$), with 45.2% exhibiting low or critically low Ca2+ compared to 18.1% in controls ($p < 0.001$). Patients receiving prehospital blood had significantly greater Massive Transfusion Protocol (MTP) activation (66.0% vs 6.4%; $p < 0.001$), ICU admissions (58.5% vs 30.9%; $p=0.006$), intubations (49.1% vs 24.5%; $p=0.003$), and a trend toward higher mortality (11.3% vs 3.2%; $p=0.264$).

Conclusions: Prehospital whole blood transfusion is associated with significantly lower ionized Ca2+ levels, emphasizing the importance of calcium replacement protocols. The higher rates of MTP activation, ICU admissions, intubations, and mortality observed in the prehospital transfusion group may reflect higher injury severity indices or a survivor bias. Further analysis with injury severity adjustment is necessary to clarify the relationship between prehospital whole blood administration and clinical outcomes. Nonetheless, this study underscores the need for proactive management of hypocalcemia in trauma care.

No, authors do not have interests to disclose

159 Interrater Agreement of Lung Ultrasound Scoring in a Large Multicenter Cohort

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Study Objectives: Lung ultrasound (LUS) is an important tool for managing lower respiratory infections and acute lung injury. A standardized rating scale can facilitate correlation of LUS findings with clinical outcomes. This study assessed interrater agreement among LUS-trained physicians using a standardized rating scale for multiple LUS findings in a large, prospective, multicenter dataset.

Methods: This prospective observational study included adult and pediatric patients from 13 medical centers. Patients presented with respiratory symptoms due to suspected infection and/or inhalational lung injury. LUS acquisition followed a standardized 14-zone protocol, including two anterior, two lateral, and three posterior zones per hemithorax. Ultrasound videos (3–6 seconds) were acquired in sagittal and transverse orientations using a handheld or cart-based ultrasound system with curvilinear, sector, and linear transducers. Nineteen physicians (15 board-certified emergency medicine, 4 non-EM specialties) provided ratings for five LUS findings: B-lines, lung consolidation, pleural effusion, pleural line irregularity,

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and overall lung aeration. Reviewers used a previously published multilevel rating scale to assign ordinal scores from 0 (negative) to 4 (severe) for each finding. Ordinal scores were then converted to a binary scale (normal vs abnormal). Reviewers also assigned an image quality score from 0 to 2, which was converted to a binary rating (adequate vs inadequate). Interrater agreement was evaluated using the intraclass correlation coefficient (ICC (1,1)) for both the multilevel and binary scales. Positive and negative percent agreements were also calculated for the binary scale.

Results: A total of 15,206 videos from 637 subjects (549 adults, 88 pediatric patients, aged 10 months to 99 years) with ratings from at least two independent reviewers were included. For the multilevel scale, the average ICC across all findings was 0.69 (95% CI: 0.68–0.70). The ICCs for individual findings were: B-lines 0.81, consolidation 0.64, pleural effusion 0.68, pleural line irregularity 0.61, overall lung aeration 0.75, and image view quality 0.62. For the binary scale, the average ICC was 0.60 (95% CI: 0.58–0.61), with ICCs for individual findings as follows: B-lines 0.73, consolidation 0.56, pleural effusion 0.51, pleural line irregularity 0.50, overall lung aeration 0.67, and image view quality 0.61. The average positive and negative percent agreements were 0.70 (95% CI: 0.68–0.72) and 0.88 (95% CI: 0.87–0.89), respectively.

Conclusion: This study demonstrates that a previously developed, standardized LUS rating scale generalizes well to a large multicenter dataset, with moderate to good interrater agreement observed across multiple LUS findings. Future work is needed to correlate the rating scale with clinical outcomes, which may help to establish a framework for using structured ratings in clinical practice.

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Table 1: Interrater agreement for six lung ultrasound findings, assessed using multilevel and binary rating scales (n=15,206 videos, 637 subjects). Prevalences for the binary scale, determined from median reviewer ratings, are also reported.

Findings	Multilevel scale	Binary scale			
	ICC(1,1)	ICC(1,1)	Positive percent agreement	Negative percent agreement	Prevalence
	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	
B-lines	0.81 (0.80-0.82)	0.73 (0.72-0.73)	0.83 (0.82-0.84)	0.90 (0.89-0.91)	27.1%
Lung consolidation	0.64 (0.63-0.65)	0.56 (0.55-0.57)	0.68 (0.66-0.70)	0.89 (0.88-0.90)	17.8%
Pleural effusion	0.68 (0.67-0.69)	0.51 (0.49-0.52)	0.62 (0.60-0.63)	0.88 (0.87-0.89)	14.7%
Pleural line irregularity	0.61 (0.60-0.62)	0.50 (0.48-0.51)	0.63 (0.61-0.64)	0.83 (0.81-0.84)	23.6%
Overall lung aeration	0.75 (0.74-0.76)	0.67 (0.66-0.68)	0.81 (0.80-0.82)	0.85 (0.84-0.86)	34.5%
Image view quality	0.62 (0.61-0.63)	0.61 (0.60-0.62)	0.61 (0.59-0.62)	0.93 (0.92-0.94)	13.0%
Average	0.69 (0.68-0.70)	0.60 (0.58-0.61)	0.70 (0.68-0.71)	0.88 (0.87-0.89)	21.8%

No, authors do not have interests to disclose

160 TEE Evaluation of Shock: An Analysis of the Resuscitative TEE Collaborative Registry

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Study Objectives: While focused TEE is increasingly used in critically ill patients when transthoracic echocardiography windows are inadequate, current evidence is limited to retrospective single-center studies in the intensive care setting. The diagnostic impact and real-world clinical utility of TEE in the evaluation of shock remain poorly defined. This study aimed to characterize the diagnostic yield, procedural characteristics, and impact on the management of TEE evaluation of undifferentiated shock in the emergency department (ED) and intensive care unit (ICU) patients.

Methods: Planned analysis of a prospective, observational, multicenter cohort study involving patients with undifferentiated shock in whom TEE was performed during their evaluation in the ED or ICU, conducted through the Resuscitative Transesophageal Echocardiography Collaborative Registry (rTEECoRe), an international research network involving 43 centers (NCT04972526). Patients were enrolled between January 2021 and February 2025. Data was collected on clinical and TEE characteristics and findings. We analyzed procedural characteristics, including clinical setting, operator specialty and training level, procedure duration, and views obtained. Outcomes included the rate at which TEE helped clinicians establish the suspected etiology of shock, influenced therapeutic decisions, and included hemodynamic assessments such as respiratory variation of the superior vena cava (SVC).

Results: A total of 326 TEE studies were included. Most were performed in the ICU (83%), followed by the ED (16%). Most exams were performed by intensive care physicians (82%) or emergency medicine (16%), with 75% conducted by attending physicians, 20% by fellows, and 4% by residents. The median procedure duration was 20 minutes (IQR 12–28). The most frequently acquired TEE views were the mid-esophageal 4-chamber (96%), mid-esophageal long axis (93%), transgastric short axis (87%), and mid-esophageal bicaval (82%). TEE findings were reported to assist in the identification of a suspected shock etiology in 89% of cases. In 81% of patients, TEE findings resulted in a change in clinical management. The most common management changes included administration of intravenous fluids (22%), initiation or adjustment of vasopressors (18%), and discontinuation of intravenous fluids (8%). Hemodynamic evaluation of the SVC was performed in 58% of cases. Among those, respirophasic variation was assessed in 187 patients—34% were measured quantitatively, 64% were visually estimated.

Conclusion: Resuscitative TEE is a valuable diagnostic modality for emergency and critical care clinicians managing patients with undifferentiated shock. In this multi-center study, TEE assisted in identifying shock etiology in nearly 90% of cases and influenced management decisions in over 80% of patients. These findings underscore the clinical utility of TEE in acute resuscitation and support its expanded integration into ED and ICU workflows.

Yes, authors have interests to disclose
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161 The Accuracy of S Prime and TAPSE for Diagnosing Right Ventricular Dysfunction

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Study Objectives: The right ventricle (RV) is often considered the "forgotten chamber"; however, RV dysfunction has been shown to be an established predictor of morbidity and mortality in both cardiovascular and respiratory disease. Determining whether RV dysfunction is present in the emergency department (ED) is often challenging and is based on the size of the RV and other markers: including tricuspid annular planar systolic excursion (TAPSE) and peak lateral tricuspid annular systolic velocity (S Prime). However, no prior studies have compared the accuracy of TAPSE and S Prime in evaluating patients with concern for RV dysfunction. The objective of this study was to determine the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of TAPSE measurement and S Prime velocity in diagnosing RV Dysfunction in ED patients.

Methods: We conducted a prospective, observational study in adult patients with hemodynamic instability and concern for cardiac dysfunction in an academic ED. A bedside POCUS exam was performed to measure both TAPSE and S Prime on the apical 4-chamber view. Patients were classified as having an abnormal TAPSE measurement and/or abnormal S Prime velocity if the POCUS exam measured less than or equal to 1.6cm and/or less than 10cm/s, respectively. A comprehensive Transthoracic Echocardiogram (TTE) performed by the cardiology department finding RV dysfunction served as the gold standard diagnostic test. A patient was considered to have RV dysfunction if comprehensive TTE commented on RV dilation or strain. Test characteristics for using a POCUS-derived TAPSE measurement and S Prime velocity to identify RV Dysfunction in our study sample, as compared with comprehensive TTE findings, were calculated along with 95% confidence intervals (CIs).

Results: A total of 80 patients who underwent a comprehensive TTE had a POCUS TAPSE measurement recorded; 38 of these patients were found to have RV Dysfunction on a comprehensive TTE and 34 had an abnormal TAPSE on the POCUS exam. Furthermore, 61 patients had both a comprehensive TTE performed and a POCUS S Prime velocity documented; 26 of these patients were diagnosed as having RV Dysfunction with a comprehensive TTE and 25 had an abnormal S Prime velocity. A total of 16 patients had an abnormal TAPSE measurement with an abnormal S Prime velocity. The sensitivity of using an abnormal POCUS-derived TAPSE measurement for diagnosing RV Dysfunction was 0.71 (95% CI: 0.57-0.85) with a specificity of 0.83 (95% CI: 0.72-0.95), a PPV of 0.79 (95% CI: 0.66-0.93),

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and an NPV of 0.76 (95% CI: 0.64-0.88). The sensitivity, specificity, PPV, and NPV of using an abnormal POCUS-derived S Prime velocity for diagnosing RV Dysfunction was 0.73 (95% CI: 0.56-0.90), 0.83 (95% CI: 0.70-0.95), 0.76 (95% CI: 0.59-0.93), and 0.81 (95% CI: 0.68-0.93), respectively. The accuracy of using POCUS TAPSE and S Prime velocity to aid in diagnosing RV Dysfunction was found to be 0.78 (95% CI: 0.68-0.87) and 0.79 (95% CI: 0.68-0.89), respectively.

Conclusion: TAPSE and S Prime are common measurements obtained to evaluate RV dysfunction. Many ED providers equate an abnormal TAPSE or S Prime with RV dysfunction. In this study we found that TAPSE and S Prime had limited accuracy in diagnosing RV dysfunction and ED providers should therefore be cautious in using TAPSE and S Prime in isolation for RV dysfunction.

No, authors do not have interests to disclose

162 An Intact Curtain Sign Has a High Negative Predictive Value for Pleural Effusion



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Study Objectives: Ultrasound is increasingly used in the evaluation of the lung as it can facilitate a timely diagnosis in patients presenting with dyspnea. It has been proposed, but not yet validated, that the curtain sign (CS) can evaluate for effusion and consolidation at the lung base. There is no consensus definition or consensus nomenclature, but, most commonly, the CS is described as the lung moving during inspiration to cover the diaphragm. The primary aim of this study is to evaluate the diagnostic performance of the CS for pleural effusion. Secondary outcomes will evaluate the diagnostic performance of the CS for atelectasis and consolidation. We will clarify the definition of an intact CS and differentiate this from a partial and an absent CS. Our priori hypothesis is that an intact CS indicates the absence of effusion, atelectasis, and consolidation at the lung base.

Methods: This prospective, multicenter cohort study involves two emergency departments. Lung ultrasound is performed on a convenience sample of non-pregnant adults (>18 years old). Those in custody, with history of pneumonectomy, or having already had tube thoracostomy or needle decompression are excluded. The criterion standard is the radiology-interpreted chest computed tomography. Definitions derived include an intact CS as the inferior aspect of the lung expanding caudally to completely obscure the diaphragm; a partial CS obscures only the lateral diaphragm on inspiration; and in an absent CS, none of the diaphragm is obscured during inspiration. We defined a negative test as an intact CS, and a positive test is both a partial and absent CS. Descriptives of clinical and demographic variables used means, standard deviation, frequencies and percentages. The analysis will employ SPSS Version 29.0 and SAS 9.4 for diagnostic performance values and corresponding 95% CI. Ultrasound-trained EM attendings review all images for interrater agreement. Our data presented here is current through 206 enrollments at the primary site.

Results: The CS for pleural effusion showed a sensitivity of 90.9% (95% CI; 81–100), specificity 56.3% (95% CI; 51–62), PPV 17.0% (95% CI; 11–22), and NPV 98.5% (95% CI; 97–100). The NPV for pleural effusion improved from 95.6% (supine) to 100% (semi-upright and upright) with position change. The NPV for pleural effusion only worsened from 100% to 97.78% at a BMI of > 30%. The percentage of enrollments by operator type at the primary site were medical student 21.4%, EM resident 13.5%, ultrasound fellows 21.8%, and EM ultrasound faculty 39.8%. Analysis using Fleiss' Kappa revealed a very good level agreement (κ=0.82, [95% CI: 0.70-0.93]) amongst raters for the right hemithorax and good level agreement (κ=0.65, [95% CI: 0.54-0.75]) amongst raters for the left hemithorax.

Conclusion: An intact CS has a high NPV for pleural effusion even amongst novice operators. This NPV stays high despite patient position or increasing BMI. Next steps are completing enrollment at the second site (currently at 52) and the remaining data analysis for atelectasis and consolidation.

No, authors do not have interests to disclose

163 TAPSE Is Not Predictive of Deterioration in Emergency Department Patients With Pulmonary Embolism



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Study Objective: The presence of right ventricular dysfunction (RVD) is common among patients with pulmonary embolism (PE), and RVD is associated with increased morbidity, mortality, and longer length of stay. Tricuspid annular plane systolic excursion (TAPSE) is a simple measure to assess for RVD. Our study aims to evaluate if TAPSE is predictive of clinical deterioration in our emergency department (ED) population.

Methods: Our institution utilizes a PE alert system for patients with known or suspected high- and intermediate-risk PE. We performed a retrospective analysis on all emergency department PE alert patients between September 2022 and November 2024 who were confirmed to have a PE and had a TAPSE value obtained in the ED. Unstable patients were excluded from the analysis. Clinical deterioration was defined as one or more of the following: death, circulatory arrest, unstable dysrhythmia, sustained hypotension, respiratory deterioration, or escalated PE interventions (thrombectomy or thrombolysis) during hospital stay.

Results: Of the 68 patients included in our study, 32% were female with an average age of 63 ± 18 and 68% were male with an average age of 61 ± 11. The primary endpoint, clinical deterioration, occurred in 30 patients (44%). Subjects who experienced clinical deterioration did not have a significantly lower TAPSE than those who did not have clinical deterioration (1.8 cm ± 2.4 versus 1.9 cm ± 1.5, p = 0.19). Using a pre-determined cutoff of 2.0 cm to predict clinical deterioration, the sensitivity was 0.60 and the specificity was 0.50. The positive predictive value was 0.49 and the negative predictive value was 0.61.

Conclusion: TAPSE does not appear to be a reliable predictor of clinical deterioration in patients with PE in the ED.

No, authors do not have interests to disclose

164 Determining Cardiac Function With and Without an Artificial Intelligence Tool by Trainees



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Study Objectives: In emergency medicine (EM), cardiac function has traditionally been assessed qualitatively using point-of-care ultrasound (POCUS). However, artificial intelligence (AI) has emerged as a potential tool to mitigate interobserver variability and enhance efficiency. AI-enabled tools, such as the Real-Time ejection fraction (EF) tool, incorporated into cardiac software packages like the GE Venue™, provide real-time left ventricular ejection fraction (LVEF) assessment in the apical four-chamber view. By tracking the endocardial border during systole and diastole, these tools enable accurate and timely LVEF measurements. The potential of AI in cardiac function assessment is promising, but most studies are inpatient-based, industry-sponsored, and primarily focus on experienced sonologists. POCUS is utilized by all experience levels in the emergency departments (EDs), including residents and medical students. Consequently, there is limited evidence demonstrating how AI tools assist operators of varying experience levels in making assessments. This study sought to compare confidence levels in assessing LVEF before and after utilizing the Real-Time EF tool in a high-volume, urban ED among trainees (medical students and resident physicians). Additionally, we investigated the tool's practicality by assessing the percentage of time trainees found it beneficial. The primary objective was to compare confidence levels among trainees before and after employing the Real-Time EF tool. The secondary objective was to ascertain the tool's usefulness and practicality among ED trainees.

Methods: Trainees (subject operators) had the option to participate in the study during their EM ultrasound rotation. Patients with cardiopulmonary concerns were selected for a bedside echocardiogram, which is a standard procedure in the ED. Prior echocardiograms were not reviewed before bedside echocardiograms. GE Venue™ point-of-care ultrasound machines were utilized. Upon identification, the subject operator obtained fundamental cardiac views: parasternal long axis, parasternal short axis, apical four-chamber, and subcostal. LV function was assessed in accordance with the ACEP Emergency Ultrasound Standard Reporting Guidelines and recorded in a secure format. Additionally, the operator's confidence level was recorded. Subsequently, the operator returned to the apical four-chamber view and utilized the Real-Time EF feature. Confidence level was reassessed. The change in confidence was analyzed, and the percentage of time the Real-Time EF tool was deemed beneficial was calculated.

Results: Over a six-month period, ten subject operators performed 36 bedside echocardiograms. The Real-Time EF tool substantially enhanced their assessment of patients' cardiac function. The tool proved beneficial in 75% of the cases (n = 27). Prior to its implementation, the mean confidence level was 3.57, with a standard deviation of 0.81. After its implementation, this confidence level increased to 3.94, accompanied by a standard deviation of 1.06 (**Table**). Statistical significance was established ($P = 0.02$).

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Conclusion: The Real-Time EF tool was highly beneficial for assessing patients' cardiac function among trainees in the ED, including medical students and residents. It enhanced trainees' confidence in their initial assessments ($P = 0.02$). Utilizing AI tools during bedside echocardiograms in the ED can boost trainees' confidence in cardiac function assessments. Future data collection will compare confidence levels among different experience levels.

Real-Time EF Tool Utilization	Mean (SD) Confidence Level
Pre-	3.57 (0.81)
Post-	3.94 (1.06)

No, authors do not have interests to disclose

165 Emergency Department Staff Awareness and Preference for Chaplain Services for Themselves or Patients

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Study Objectives: Emergency departments (EDs) are high-stress environments where both patients and healthcare professionals frequently encounter emotionally and ethically challenging situations. At our institution, chaplain services, referred to as the Spiritual Care Department, are designed to offer spiritual and emotional support to both patients and staff during and after these critical moments, however, their role in the ED may not be fully recognized or utilized by staff. The primary study objective was to determine ED staff preferences for chaplain services for themselves and for ED patients and their support providers. Secondary aims included assessing staff awareness of available chaplain services, prior experiences with chaplains, and overall perceptions of the role of chaplains in the ED.

Methods: A Qualtrics survey instrument was developed with multidisciplinary input. After pilot testing, the survey was emailed three times between February 27, 2025 and March 13, 2025 to 498 staff members working at a large quaternary academic ED with a level 1 trauma center. Surveys were sent to emergency physicians, residents, nurses, advanced practice providers, social workers, unit secretaries, respiratory therapists, and support staff. Data was analyzed using descriptive statistics with 95% confidence intervals (CIs) calculated for primary outcomes.

Results: A total of 186 staff responded (37.3% response rate). The largest respondent groups were nursing (n=72, 38.7%), emergency physicians (n=38, 20.4%), unit secretaries (n=22, 11.8%), and EM residents (n=16, 8.6%). Most (94.6%) knew chaplains supported patients, but fewer (62.9%) knew they supported staff. Many were unfamiliar with the full scope of services, with only 31.2% aware that spiritual care for nonreligious individuals is available through the Spiritual Care Department, and only 43% aware of their ability to support diverse faith traditions including Islam, Buddhism, Hinduism, Judaism, and Jehovah's Witnesses. Most respondents (82.3%) had sought chaplain assistance for patients or their companions. In contrast, only 14.0% had accessed chaplain services for themselves or colleagues. For those who utilized chaplain services for themselves, 30.8% were satisfied and 57.7% were very satisfied with the support received. Chaplain services were seen as moderately or extremely valuable for patient care (93.0%) and for staff well-being (77.4%). Preferences for chaplain visits varied; many desired them for patients (on request: 37.1% [95% CI 30.2%-44.0%], regularly: 55.1% [95% CI 49.9%-64.1%]), with staff preferring as-needed support for themselves (57.5% [95% CI 50.4%-64.6%]) although some favored regularly scheduled visits (26.9% [95% CI 20.6%-33.4%]). Reasons for desiring patient chaplain services included support during a time of (87.4%) and addressing spiritual concerns (85.7%). For staff, support was most valued after critical cases (64.3%), patient deaths (61.8%), and distressing events (54.1%).

Conclusions: While most ED staff were aware of chaplain availability for patients, gaps in awareness regarding chaplain support for staff and their ability to serve nonreligious and diverse faith traditions suggest a need for better staff education. Our results indicate chaplain services are well-utilized for patient care but less so for staff support. While some staff value regular engagement, many prefer as-needed support. Greater visibility, proactive engagement, and clearer communication about chaplain availability and services may enhance utilization and accessibility. Larger multicenter studies are needed to assess the generalizability of our findings and optimize chaplain services to better support ED patients and staff, enhancing resilience and well-being.

No, authors do not have interests to disclose

166 Medical Device Innovation as a Tool for Physician Wellness

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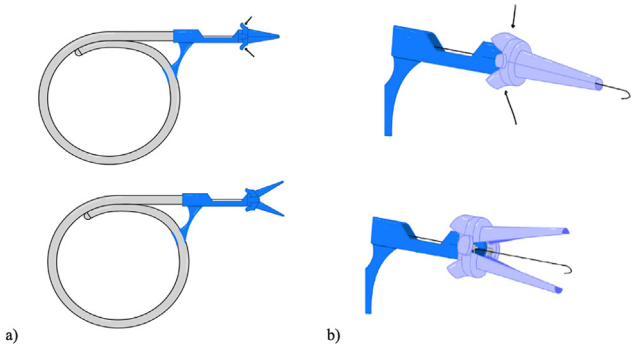
Study Objectives: Physician wellness is a growing concern in the healthcare industry, with burnout and stress affecting many professionals. Diversification of physician activities beyond clinical duties has been proposed as a strategy to promote wellness among health professionals. This paper highlights a collaborative project between physicians and bioengineering students to develop a novel guidewire management system. The project aims to improve procedural efficiency and reduce physician fatigue during complex medical procedures. By combining clinical insights from experienced physicians with the technical skills of senior design students, the team has created a prototype that enhances guidewire control and maneuverability. This collaboration not only provides a creative outlet for physicians but also offers a new path for professional development.

Methods: Two PGY-2 emergency medicine residents at an academic medical center identified the need for a novel device to improve loading and reloading of guidewires. The proposed device would allow easy reloading and advancement of the guidewire. The residents presented the clinical challenge and their solution to the students enrolled in the two semester bioengineering senior design course at their institution. The residents provided resources and taught the principles of the Seldinger technique to the engineering team. The residents also conducted a patent search to identify freedom to operate, defined device requirements/specifications, and provided feedback on device design.

Results: The interdisciplinary team of residents and engineers created a novel medical device design ready for testing and completed an invention disclosure (the first step in the patent application process). The device simplifies guidewire re-loading allowing for easy and rapid reloading of the wire into the guiding device. The thumb operated jaw design allows for advancement and reloading of the guidewire without changing hand position of the guidance device or wire. Physician involvement in medical device development provides an introduction to problem identification, intellectual property, entrepreneurship, and prototyping.

Figure. Initial design of guidewire holder in a closed and open state (a). The extended base allows for finger placement, allowing a pinch and open mechanism. The side profile of the guidewire guidance piece maintains a funnel shape that aligns with the sheath (b). Finger placements are designed for a controlled opening. Users can pinch the base to widen the funnel, allowing for easier reloading of the guidewire in the sheath.

Conclusion: We have developed a novel medical device to address existing gaps in the current central vascular access techniques and troubleshooting. Next steps in the current project include further prototype revisions, obtaining feedback on design, and exploring paths to commercialization. Our project demonstrates that physician collaboration with an engineering senior design course is a promising strategy for the development of novel medical devices and demonstrates a productive creative outlet for physicians promoting wellness while also innovating to improve patient care. Involvement in medical device development provides physicians with an opportunity to expand their interests beyond clinical duties. Through this project the team was able to diversify their daily activities as well and build collaborative relationships across different fields towards a meaningful goal. Such work has the potential to reduce emotional exhaustion while increasing a sense of achievement to combat physician burn out.



No, authors do not have interests to disclose

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167 Emergency Medicine Resident-Led Clinical Event Debriefing: Outcomes and Perspectives on Wellness

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Study Objective: Emergency physicians and residents frequently encounter critical and traumatic events but often lack structured opportunities to reflect on their emotional impact. Clinical event debriefings can improve psychological safety, resilience, and wellness among residents while enhancing team performance and patient outcomes. This study explored the effects of a clinical debriefing curriculum on emergency medicine residents' knowledge, skills, and attitudes toward debriefing, as well as their wellness.

Methods: A one-hour lecture covering debriefing frameworks, followed by a high-fidelity simulation, was conducted for 40 residents in a New York City emergency medicine program. Residents practiced debriefing skills and participated in post-simulation reflection sessions. Likert surveys assessing knowledge, skills, attitudes, and wellness were completed before the intervention and three months after, with 21 residents responding at each time point. Data were analyzed using the Mann-Whitney U test.

Results: Significant improvements were observed in knowledge and skills related to debriefing, including knowing what to discuss ($p = 0.001$), when to debrief ($p = 0.001$), and how to lead debriefs ($p = 0.001$). Perceived tools and skills to lead debriefs also improved ($p < 0.001$). Residents reported reduced stress ($p = 0.006$), sleep disturbances ($p = 0.002$), and rumination ($p = 0.005$) following critical resuscitations. However, changes in motivation ($p = 0.069$) and confidence ($p = 0.407$) to initiate debriefs were not statistically significant.

Conclusion: This curriculum highlights the potential for debriefing training to address wellness and develop leadership among emergency medicine residents. Findings suggest that integrating structured debriefing education into residency programs can enhance psychological safety, improve wellness, and foster professional growth. Further research is needed to optimize engagement and address barriers to initiating debriefs in clinical practice.



No, authors do not have interests to disclose

168 Compassion Satisfaction, Burnout, and Secondary Traumatic Stress in Emergency Physicians

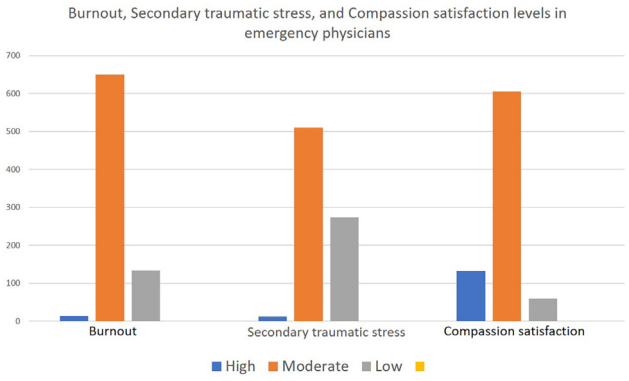
Jeanmonod D, Vo T, Jeanmonod R/St. Luke's University Health Network, Bethlehem, Pennsylvania

Study Objectives: Emergency physicians (EPs) operate at the forefront of a demanding healthcare system, managing critically ill patients in high-pressure environments. While these duties can contribute to high levels of compassion satisfaction (CS)—the fulfillment derived from helping others—EPs are also at increased risk for burnout and secondary traumatic stress (STS). These two elements combined contribute to compassion fatigue (CF), the diminished ability to empathize with or feel compassion for others. Burnout is marked by emotional exhaustion and reduced professional efficacy, whereas STS is the process where one indirectly becomes traumatized by the traumatizing experiences of the people for whom they are caring. This study has several aims: to evaluate the relative contributions of burnout and STS in compassion fatigue in EPS; to evaluate CS in EPs; to determine if there are differences in these factors for EPs in training as compared to those in attending positions.

Methods: This is a cross-sectional study utilizing the Professional Quality of Life (ProQOL) survey, which is a well-studied and validated tool for assessing CS, burnout, and STS among EPs. Permission was obtained from ProQOL.org. Surveys were anonymous and were distributed via email (emergency medicine program coordinators and program directors), text messaging, and posted on private verified emergency physician Facebook groups and forums. Data were automatically entered into a SurveyMonkey spreadsheet and downloaded into Excel for analysis. The data were analyzed with descriptive statistics and chi square. The study was reviewed by the IRB and found to be exempt.

Results: A total of 795 electronic surveys were completed. Respondents included 340 males (42.82%), 446 females (56.17%), and 8 identifying as other/nonbinary/gender fluid. Participants were categorized by experience: 71 in training (8.94%), 134 within five years post-graduation (16.88%), 164 with 6-10 years of experience (20.65%), 182 with 11-15 years (22.92%), 104 with 16-20 years (13.1%), and 139 with more than 20 years of experience (17.51%). Overall, CS was moderate (mean = 33.98, SD = 7.57), burnout was moderate (mean = 28.8, SD = 6.51), and STS was moderate (mean = 25.5, SD = 6.77). Relative distributions of low, moderate, and high levels of burnout, CS, and STS are shown in the **Figure**. Comparing trainees ($n = 71$) and attending physicians, trainees had significantly higher CS scores (mean = 37.29, SD = 7.5) than attendings (mean = 33.69, SD = 7.43; $p < 0.0001$). Additionally, trainees reported significantly lower burnout scores (mean = 26.28, SD = 6.56) compared to attendings (mean = 29.09, SD = 6.38; $p = 0.0006$). No significant difference was observed in STS between the two groups ($p = 0.177$). These findings suggest that CS may decline post-residency, while burnout increases as EPs progress in their careers.

Conclusion: EPs demonstrate moderate levels of CS, burnout, and STS. Notably, trainees report significantly higher CS and lower burnout compared to attending physicians, indicating that professional experience may be associated with a shift in emotional resilience. Future research should explore factors influencing these changes and identify targeted interventions to support EPs in maintaining their well-being throughout their careers.



No, authors do not have interests to disclose

169 IGNITE: Increasing Community Amongst Mid-Career Emergency Physicians

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Study Objectives: In 2022, Vivek Murthy and the Office of the U.S. Surgeon General identified workplace well-being as a critical priority for public health. The

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sense of community developed by nurturing professional relationships is essential to cultivating joy in medical practice and combating burnout. We conducted a pre-and post-survey study of 10 mid-career emergency physicians who participated in our department's inaugural IGNITE series.

Methods: To foster community within our hospital, Northwestern Medicine created the novel I.G.N.I.T.E. program, which stands for "Inspiring Growth, Networking, Togetherness, and Engagement," which are peer-led meetings to encourage collegiality and enhance connection, mutual support, and meaning in work to improve and support professional well-being. The program is a series of six one-hour lunch sessions led by a trained colleague facilitator. Each session is based on an open discussion around a provided prompt, with themes including "Mattering at Work," "Opportunity for Growth," and "Work-Life Harmony." The authors facilitated an I.G.N.I.T.E. group for mid-career emergency physicians. We conducted a 6-question pre-survey and a 9-question post-participation survey for the 10 physicians.

Results: 9 physicians responded to the pre-survey, and 8 responded to the post-survey. In our cohort, IGNITE participation improved job satisfaction (56% to 63%) and improved perception of community (32% increase in the number of people they could call on for help). In addition, 100% of participants felt that the IGNITE meetings were worthwhile and would recommend the program to a friend; 75% reported increased connection to peers. Despite participation in the series, burnout levels slightly worsened for the participants over the six month program (33% to 38%).

Conclusion: IGNITE participation improved job satisfaction and the sense of community in a cohort of mid-career emergency physicians. Burnout is multi-factorial and also requires system-level interventions and our department experienced significant difficulties with hospital boarding during the six months of our IGNITE series, which may have contributed to the worsening burnout reported by participants during this time. Overall, this program is a novel method to enhance workplace well-being that can be easily implemented at other institutions.

No, authors do not have interests to disclose

170 Interdepartmental Olympics for the Win! Friendly Competition as a Team-Building Opportunity

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Study Objectives: Our job within the emergency department (ED) is hard, with the inherent uncertainty of patient acuity/pathology and 24/7 staffing. On a busy and challenging shift, the interactions we have with the many people we encounter (our colleagues and nurses or consulting services) can make or break the shift. Investing in all these interpersonal relationships is worthwhile for emergency physicians who interact with just about every specialty within the hospital. The "Interdepartmental Olympics" event had dual purposes: one aimed to promote intra-departmental camaraderie, and the second aimed to foster inter-departmental relationships. It was important that this event offered an opportunity for hospital staff to interact outside of the clinical work environment and experience each other in a unique way. This event was designed to be a fun, inclusive (open to clinical and non-clinical employees) platform for hospital staff to reduce workplace stress and improve well-being.

Methods: Our event featured eight structured sports competitions between departmental teams, hosted at a large indoor sports complex on a single night. A team captain network of motivated representatives from their respective departments helped inspire excitement and facilitate communication with the rest of their teammates. A post-event survey assessed satisfaction, team bonding, pros/cons, and areas for improvement, incentivized by granting access to professional photos taken on the night of the event.

Results: Roughly 400 people attended our Olympics event. The post-event survey had a high response rate (69%). Quantitative results showed 74% were extremely satisfied, and 93% would attend again. Most participants (91%) reported the event could improve team collaboration, while 84% felt it could enhance interdepartmental collaboration. Regarding improving well-being, 78% found the event effective. Qualitative feedback highlighted camaraderie and friendly competition, with suggestions for improvement including better food options, climate control, and more diverse games.

Conclusion: Interdepartmental Olympics proved to be a successful initiative, shown by strong turnout and positive participant feedback. As healthcare systems are struggling with high turnover rates and staff disengagement, events like these, focused on fostering social connections and collaboration through team-based activities, offer a promising approach to enhancing professional well-being. The event fostered improved morale, stronger interdepartmental relationships, and improved well-being, demonstrating the potential for similar initiatives to impact workplace culture positively. Participants reported a high level of satisfaction, with many recognizing improvements in team and interdepartmental collaboration. We had the opportunity to pilot the event in the previous year with ~200 participants, underscoring the success of our event this year with double the attendance. Positive outcomes from the event included enhanced morale and a greater sense of community, with notable improvements in team collaboration. However, logistical concerns such as food options, ensuring fairness and inclusivity in game formats, as well as increasing the accessibility of the event to engage a wider audience, were key suggestions for improvement from participants. These insights will guide the planning of future events aimed at sustaining employee engagement and fostering a cohesive work environment. Looking ahead, examining further data on outcomes such as staff retention, recruitment costs, and clinical care coordination could show a stronger return on investment. Additionally, expanding access to these events through less costly alternatives could make it more feasible to reproduce nationwide. Much success from this event, that the data can't capture, is shown through people still talking about the event throughout the hospital, and our use of it as a talking point in our EM residency recruitment interviews. When you can get all the disciplines of medicine to play nicely together at an Olympics event, everyone wins, but especially emergency medicine.



No, authors do not have interests to disclose

171 Streamlining Inpatient Discharge Processes to Reduce Emergency Department Boarding

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Study Objective: Emergency department (ED) boarding has been a persistent challenge at EDs nationwide, exacerbated by rising patient volumes, capacity constraints, and delays in inpatient discharges. Increased ED boarding times may lead to higher rates of patients leaving without treatment, prolonged ED length of stay, and reduced hospital efficiency. Given the direct relationship between inpatient discharge timing and ED capacity, we hypothesized that targeted interventions aimed at expediting inpatient discharges would lead to a reduction in ED boarding times and improvements in overall hospital throughput.

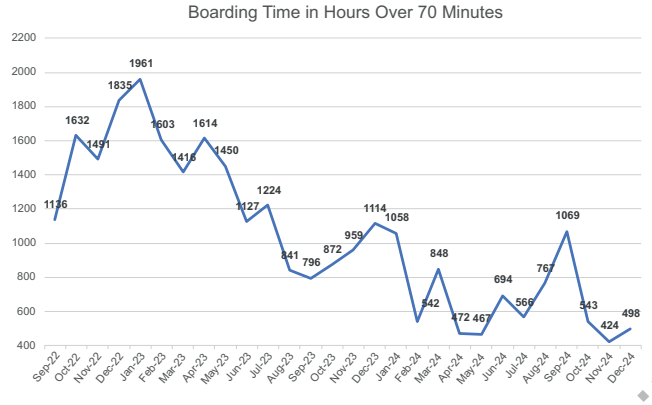
Methods: We created a structured quality improvement initiative to focus on enhancing the timeliness and efficiency of inpatient discharges. The intervention centered on improving visibility into pending discharges, increasing frontline engagement, and implementing accountability measures to ensure timely transitions. We introduced a dedicated discharge tracking system, allowing real-time monitoring of discharge orders and barriers. We created a discharge nurse to expedite discharges during peak ED boarding hours, ensuring that beds became available more efficiently. Additionally, we implemented a monthly review process to provide unit leaders with a structured platform to address discharge-related challenges and sustain progress. We evaluated the impact of this intervention on ED boarding times and timely inpatient discharges over a two-year quality improvement period.

Results: Implementation of a focused inpatient discharge initiative led to a significant discharge in ED boarding rates. In comparing ED metrics before and

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after the intervention, we noted a 73% decrease in ED boarding hours and a 60% reduction in the number of ED patients leaving without treatment. These improvements correlated with a notable increase in the percentage of inpatient discharges occurring before 11:00 AM, rising from approximately 30% in early 2023 to over 70% in 2024. By accelerating inpatient discharges, the hospital was able to accommodate more ED admissions, resulting in a 10.2% year-over-year increase in the facility's capacity to accept transfer requests. Additionally, the intervention led to net savings of approximately $1.5 million in excess inpatient days for 2024, further demonstrating its financial and operational impact.

Conclusion: By implementing a structured, frontline-driven approach that prioritized early discharges, visibility, and accountability, we noted significant reductions in ED boarding rates and numbers of ED patients who left without treatment. The findings underscore the importance of interdisciplinary collaboration and real-time process monitoring in mitigating ED overcrowding. Efforts to prioritize timely discharge may aid in reducing boarding rates and improving ED capacity.



No, authors do not have interests to disclose

172 Enhancing Emergency Department Efficiency Through Machine Learning-Based Wait Time Prediction

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Study Objective: Prolonged emergency department (ED) wait times lead to diminished healthcare quality. Utilizing artificial intelligence and machine learning (AI/ML) to forecast patient wait times could aid in ED operational management. We aim to develop AI/ML models for ED wait time prediction and further evaluate its performance among different patient populations in the ED.

Methods: We developed AI/ML models that included all ED patients assigned an Emergency Severity Index (ESI) level of 3 at triage. Prolonged wait time was the outcome prediction which was categorized as not prolonged (ie, <30 minutes) and prolonged (ie, ≥30 minutes). We employed three AI/ML algorithms with cross validations - extreme gradient boosting (XGBoost), random forest (RF), and cross validation logistic regression (CVLR) - for model development. Overall performance accuracy was assessed with clinical-related interpretations. Patients were further stratified into subgroups based on gender, race and ethnicity, and socioeconomic status. Fairness evaluations were conducted both at a subgroup and an individual levels.

Results: A total of 173,856 patients were included in the study, with nearly half of them (48.43%, 84,195) experiencing ED wait times ≥ 30 minutes. All three AI/ML models exhibited similar performance. When further using XGBoost for clinical-related interpretations, the predicted false negative rates (FNR) were lower among females, Hispanics, and patients without insurance compared to their counterparts. When conducting performance assessment, unfairness existed across different subgroups.

Conclusions: AI/ML models demonstrate acceptable performance in categorizing the prolonged wait times of ED patients. However, disparities arise in predicting patients with different genders, races and ethnicities, and socioeconomic statuses. To enhance the utility of AI/ML model predictions in clinical practice, conducting clinical-related interpretations, performance assessments, and fairness evaluations is crucial.

No, authors do not have interests to disclose

173 Stuck in the Emergency Department: Quantifying the Impact of Boarding on Patient Experience and Throughput

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Study Objectives: Patient boarding in the emergency department (ED) has reached crisis levels across the US over the past five years. While an ongoing crisis in emergency medicine, it has markedly worsened since the COVID-19 pandemic. Summits have been led by ACEP and AHRQ to address and alleviate the ongoing challenges. Despite multiple efforts to improve staffing and additional resources to mitigate this phenomenon, boarding has continually challenged EDs across the country. This study aimed to analyze the impact of boarding on patient satisfaction scores and ED throughput metrics.

Methods: We analyzed data from two very high-volume, urban, academic EDs in New York City from within the same health system. We compared average monthly boarding hours against patient satisfaction scores and operations metrics from January 2020 through February 2025. Patient satisfaction scores included four metrics from Press Ganey scores including (1) how well staff worked together, (2) likelihood to recommend, (3) staff cared about you as a person, and (4) cleanliness. Operational metrics included (1) CT head turnaround time (TAT), (2) chest x-ray TAT, and (3) door-to-discharge for treat-and-release patients. Pearson correlations were calculated for each of these outcome metrics against average monthly boarding hours, and linear regression was used to quantify the respective impacts attributable to boarding.

Results: Pearson correlations for each of the four Press Ganey scores versus boarding hours all yielded statistically significant moderate or strong negative correlations indicating poorer satisfaction scores with increased boarding (-0.44, -0.44, -0.44, -0.59, respectively; $p < 0.001$ for all). Correlations for the throughput metrics were all statistically significant moderate or strong positive correlations indicating longer TAT with increased boarding (0.43, 0.53, 0.59, respectively; $p < 0.001$ for all). Linear regression revealed Press Ganey percentage point decreases of 2.9 to 5.1, depending on the metric, per 10,000 monthly boarding hours ($p < 0.002$ for all). Average CT head TAT, chest x-ray TAT, and door-to-discharge for treat-and-release patients yielded 8.6-, 9.4-, and 11.7-minute increases per 10,000 monthly boarding hours, respectively ($p < 0.001$ for all).

Conclusions: Increased boarding hours are persistently correlated with poorer ED patient satisfaction scores and slower ED throughput across a span of over five years. Despite multiple projects to improve patient satisfaction, prolonged boarding has a major impact on scores and should be a factor when evaluating a department's progress and success in patient satisfaction initiatives. Further efforts to mitigate and overcome the current boarding crisis in the US are warranted.

No, authors do not have interests to disclose

174 Large Academic Enterprise Load Balancing: Emergency Department Patient Transfers to Regional Hospitals

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Introduction: Emergency department (ED) crowding is a well-known issue in the healthcare system. Much ED crowding stems from a lack of beds on acute inpatient units, and a lack of long-term care beds. ED boarding causes well documented negative impacts to patient care outcomes and ED throughput metrics including length of stay, patient morbidity, patient satisfaction, etc. Redistributing ED admissions across regional hospitals could help; barriers to implementation of this strategy and their impact on patient outcomes remain understudied.

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Study Objectives: This study aimed to: 1) Assess barriers necessary to implement a patient transfer program to regional hospitals from a tertiary academic medical center ED; 2) Evaluate the program's impact on patient care outcomes, focusing on ED boarding and length of stay (LOS); 3) Identify "lessons learned" and offer solutions to barriers of establishing a transfer program; 4) Evaluate the benefit of the program balanced against resources needed to launch and sustain.

Methods: A retrospective cohort study was conducted of ED patients at Strong Memorial Hospital (SMH) approached for voluntary transfer to regional affiliates. Eligible patients included patients stable enough for transfer via advanced/basic life support emergency medical services (ALS/BLS EMS) and required admission to a hospital medicine service (inpatient or observation level of care). A dedicated ED Transfer Coordinator facilitated the program during selected hours starting in July 2024. Metrics analyzed included LOS, ED boarding time, and reasons for transfer refusal. Statistical significance was assessed for LOS and ED boarding time. This study also documented and quantified reasons for patients denying transfer. Qualitative data on barriers from staff across disciplines was also collected.

Results: Of 65 patients approached, 19 (29%) agreed to and were accepted for transfer. Mean ED boarding time was significantly shorter for transferred patients compared to those admitted to SMH (0.19 vs 1.30 days, $p < 0.05$). No significant difference in LOS was observed between the two groups (6.46 vs 7.25 days, $p = 0.72$). None of the transferred patients required readmission or transfer back to SMH within 72 hours of discharge. Primary reasons for declining transfer included concerns regarding distance (52%), family and support access (46%), and medical care (33%). Patients declining transfer consistently identified the distance their support person would have to travel as a barrier to participation and expressed concern for the ability of their support person to make it to a regional hospital in the event they were to decompensate. Additionally, patient concern for quality of care in the context of historical messaging encouraging patients to seek care at tertiary medical centers continued to be a topic of concern for patients offered transfer. Time of arrival to plan of care development also weighed into patient decisionmaking.

Conclusion: This program demonstrated that voluntary transfers to regional affiliates reduced ED boarding times without adversely affecting LOS or requiring subsequent readmission at tertiary medical centers. However, transfer success depends on several factors including transport availability, affiliate availability, and patient / provider education. Availability of administrative and service partners to support timely EMS transfers, regional affiliate bed / staffing capacity with processes that support transfer acceptance, and education for both providers and patients regarding the quality and accessibility of care at regional hospitals is necessary to support a successful program. Addressing these barriers through streamlined administrative processes, strong working relationships with regional affiliates, improved transport logistics, and targeted education initiatives can enhance the effectiveness and ability to scale transfer programs from tertiary medical centers to regional affiliates.

No, authors do not have interests to disclose

175 Evaluating the Impact of Operational Interventions on Emergency Department Crowding and Capacity

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Study Objectives: Emergency department (ED) boarding contributes to multiple adverse clinical and operational outcomes, including impaired patient flow. This study sought to examine the effects of two interventions on patient flow: one focused on low-acuity patients likely to be discharged and another managing admitted patients awaiting inpatient beds in the ED. The study aimed to evaluate how these two interventions affected ED boarding and crowding metrics, including boarding time for admitted patients, discharge order-to-departure time, overall ED length of stay, and the proportion of patients left without being seen.

Methods: We conducted a retrospective observational cohort study of adult ED patients at a single academic quaternary care center from 1/1/2018 to 6/30/2024. The primary exposure was time period. The pre-intervention time period was 1/1/2018-5/31/2020. The intervention timeframe was 6/1/2020-1/31/2021, and the post-intervention period was 2/1/2021-6/30/2024. During the intervention time period two interventions were deployed. The first was the Continuous Flow Unit, a six-chair vertical flow track for ambulatory patients with anticipated discharge. The second intervention was creating a 33-bed transitional care unit to cohort admitted patients. For admitted patients, the primary outcome was boarding time; for those discharged, it was the duration between discharge order and departure. Secondary outcomes were ED length of stay and proportion left without being seen (LWBS). We used multivariable linear regression modeling that adjusted for ED volume, patient age, and Charleson Comorbidity Index (CCI).

Results: The average monthly volume during the pre-intervention and post-intervention periods was 4,828 and 5,501. The admitted and discharged patient volume increased 9.4% and 31.3% overall (1.4% and 4.8% annually). Among admitted patients, unadjusted median boarding time was 165 (IQR 75, 419) minutes pre-intervention vs 188 (IQR 72, 488) minutes post-intervention. When adjusted for covariates of ED volume, age at ED admission, and CCI, there was an 8.6 (95% CI 4.7–12.6) minute reduction in average boarding time post-intervention. Among discharged patients, there was an unadjusted 10-minute reduction in discharge order to departure time from 33 (IQR 19, 63) to 23 (IQR 12, 48) minutes post-intervention. Adjusting for the same covariates, there was a 15 (IQR 13.3-16.6) minute reduction in discharge to departure times. From pre-intervention to post-intervention, unadjusted ED length of stay for all patients increased from 255 (IQR 155,384) to 260 (IQR 155, 408) minutes and LWBS rates decreased 0.9% (IQR 0.8%, 1.1%).

Conclusion: The two interventions reduced boarding and discharge-to-departure times. The Continuous Flow Unit improved efficiency for low to intermediate-acuity discharge populations, subsequently improving ED flow. The transitional care unit contributed to modest improvements in boarding times when adjusting for increasing patient volumes of older and more medically complex patients. These combined interventions allowed this ED to improve throughput times while reducing LWBS rates in the setting of rising patient volumes.

No, authors do not have interests to disclose

176 Forecasting Emergency Department Waiting Room Volumes Using Machine Learning: A Pilot Study

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Study Objectives: The matching of adequate resources to meet patient needs is crucial to providing effective and efficient care in the emergency department (ED). Stochastic variation in patient arrivals, severity of illness, and admissions boarding in the ED can create a mismatch between available resources and patient needs. Predictive modeling presents a promising approach to anticipate and mitigate these challenges, providing data to enhance operational decisionmaking and improving patient care. The objective of this study was to test if machine learning models could accurately predict waiting room (WR) volumes in an ED to facilitate better resource management and improve patient throughput.

Methods: 10 different machine learning algorithms were trained using data collected retrospectively from February 2023 to February 2024. Key predictor variables included median lab and radiology turnaround times, number of tests ordered, patient flow times (arrival to doctor, bed assignment, disposition, and departure), consultation-to-admission time, average boarders, functional capacity, patient arrivals, blocked hours, observation patients, and overall length of stay. The dataset was split 80/20 for training and testing. Model performance was ranked using root mean square error (RMSE). Cross-validation and hyperparameter tuning were performed to ensure reproducibility and extract the best possible instance. Separate models were trained using lagged versions of the data ranging from 0 to 72 hours to evaluate the forecasting capacity of these models.

Results: The mean hourly ED WR volume observed was 21.9 (standard deviation, 15.2). Importantly, morning and evening hours differed the most from that overall average with mean 9.96 (8.81) and 32.2 (15.3) patients, respectively. Of the 10 models tested, Extreme Gradient Boosting (XGB) showed the highest predictive performance with a mean RMSE of 9.68 (standard deviation=0.38) in the test set (**Table**). XGB is closely followed by Linear Regression and Random Forest models with slightly higher RMSE. Interestingly, model error shows a correlation with hours of day, with night and early morning hours showing an average 1- point increase in RMSE compared to afternoon and evening.

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Table: Predictive performance (RMSE) for the 3 best ranked models across all lags in the test set

Conclusions: This pilot study demonstrates the performance of ML models in predicting hourly ED waiting room volumes. Among the tested models, the XGB model demonstrated the best performance with a lag time of 1 hour, while maintaining a stable RMSE across lagged periods. The ability to forecast ED waiting room volumes hours to days in advance using retrospective data facilitates resource allocation, staffing, and patient flow management, which are crucial for enhancing patient care and operational efficiency.

model	Lag 0	Lag 1	Lag 4	Lag 8	Lag 12	Lag 16	Lag 24	Lag 48	Lag 72
Extreme Gradient Boosting	9.81	9.35	9.44	10.32	9.39	9.37	10.32	9.40	9.78
Linear Regression	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91
Random Forest	10.51	10.55	10.56	10.55	10.58	10.55	10.58	10.61	10.53

No, authors do not have interests to disclose

177 Outcomes of Patients With Atrial Fibrillation Undergoing Cardioversion in the Emergency Department

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Study Objectives: Atrial fibrillation (AF) is one of the leading causes of emergency department (ED) visits and is commonly associated with major adverse cardiac events (MACE). This study investigated the three-year incidence of mortality and 3-point MACEs between cohorts of patients who underwent cardioversion versus no cardioversion, respectively.

Methods: A retrospective analysis was conducted using de-identified electronic health records from the TriNetX Global Collaborative Network of 64 healthcare organizations, from 2016 to 2025. Adult patients (age 18 to 90 years) presenting to ED with documented atrial fibrillation according to International Classification of Diseases version 10 (ICD-10) codes I48.0, I48.1 were included. MACEs were defined as myocardial infarctions, heart failure, and cerebral infarctions. Patients were excluded if they had other cardiac arrhythmias such as atrial flutter or supraventricular tachycardia. Statistical analyses, including risk analysis and outcome frequency after propensity matching were conducted. Kaplan-Meier estimates were used to evaluate survival probabilities.

Results: After propensity score matching, 180,154 patients were included in each cohort. The mean age was 72.4 $\pm$ 12.9 years in both groups, 45% were female, 74% White, 9.3% Black, 4% Hispanic or Latino, and 4% Asian, in both groups, respectively. The prevalence of hypertension was 63%, hyperlipidemia 41%, diabetes mellitus 27%, and chronic kidney disease 23%. The incidence of cerebral infarction was 10.6% in the no-cardioversion group and 4.5% in the cardioversion group (risk difference: 6.14%, 95% CI: 5.97–6.31, $p < 0.0001$). Survival probability at the end of follow-up was 85.2% in the no-cardioversion group and 92.8% in the cardioversion group (HR: 2.466, 95% CI: 2.40–2.53, $p < 0.0001$). The incidence of death was 18.4% in the no-cardioversion group and 17.8% in the cardioversion group (risk difference: 0.543%, 95% CI: 0.291-0.795, $p < 0.0001$). The incidence of heart failure was 39.6% in the no-cardioversion group and 39.06% in the cardioversion group (risk difference: 0.30%, 95% CI: -0.017 – 0.621, $p = 0.0634$). The incidence of acute myocardial infarction was 9.5% in the no-cardioversion group and 9.3% in the cardioversion group (risk difference: 0.217%, 95% CI: 0.026–0.408, $p = 0.026$).

Conclusion: This study highlights the significant impact of cardioversion on outcomes in patients presenting to the ED with atrial fibrillation during the 3-year follow-up. Patients who underwent cardioversion had a lower incidence of cerebral infarction and a higher survival probability compared to those who did not receive cardioversion. While differences in mortality, heart failure, and myocardial infarction rates were modest and not significant, the findings suggest potential benefits of cardioversion in stroke prevention and overall survival. Further research is warranted to explore the long-term clinical implications and optimize management strategies for AF in the ED setting.

No, authors do not have interests to disclose

178 External Validation of the Canadian Syncope Risk Score in Patients With Presyncope or Syncope

Suh E, Winskill C, Weiss R, Probst M, Sacco D/Columbia University Medical Center, New York, New York

Study Objective: Accurate risk stratification for patients presenting to the emergency department (ED) with syncope or presyncope would be a useful tool to guide clinical management. The Canadian Syncope Risk Score (CSRS) has performed well in validation studies from Canada and Europe. Our objective was to externally validate the CSRS in a cohort of patients presenting to the ED with syncope or presyncope in the United States (US).

Methods: We conducted a federally-funded, prospective, observational, multicenter study of adult patients $\geq$40 years with presyncope or syncope across six urban EDs in the US. Patients with a syncope mimic or serious diagnosis in the ED (eg, pulmonary embolism, stroke, sepsis) were excluded. Baseline clinical, ECG, laboratory, demographic, and disposition data were collected. Clinical outcomes were assessed at 30 days by telephone and chart review. Serious adverse events (SAE) included significant arrythmia, myocardial infarction, structural heart disease, pulmonary embolism, aortic dissection, cardiac interventions, and death. Patients with missing predictor data were excluded. We used descriptive statistics to calculate sensitivity, specificity, predictive values, and model discrimination for the CSRS.

Results: Of 1,236 patients analyzed, 694 (56%) had syncope and 542 (44%) presyncope. The mean age of our cohort was 65 years; 53% were female. Baseline characteristics were similar between patients with syncope vs presyncope. The overall rate of SAE at 30 days was 6.2%. At a score cut-off of less than -1, the sensitivity of the score was 93.5% (95% CI: 88% to 99%) and specificity was 22.1% (95% CI: 20% to 24%). The negative and positive predictive values were 98.1% and 7.4%, respectively. The area under the curve was 0.70 (95% CI: 0.63 to 0.78).

Conclusions: In a population of patients presenting to the ED in the US with syncope or presyncope, the CSRS performed well with adequate sensitivity and high negative predictive value. This represents an expansion of the original target population which included patients with syncope alone. Further work examining the impact of implementation on resource utilization is warranted.

No, authors do not have interests to disclose

179 Are Emergency Physicians Biased in Estimating Syncope Risk?

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Study Objectives: Syncope is a common complaint in the emergency department (ED) and presents a management challenge to clinicians. Prior studies have suggested demographic differences in outcomes after syncope but have not assessed disparities in physician risk estimation and clinical outcomes. We assessed racial and ethnic differences in 30-day clinical outcomes compared with physician-estimated risk prediction among ED patients with syncope or presyncope.

Methods: We conducted a secondary analysis of the prospective, observational, multicenter, Practical Approaches to Care in Emergency Syncope (PACES) study. We enrolled patients aged 40 years or older presenting with syncope or presyncope with no serious cause identified in the ED. We obtained an attending physician risk estimate of serious adverse events (SAEs) at the end of patients' ED visit. All patients were followed for 30 days to assess for SAEs. Performance of physician-estimated risk was compared against observed SAE rates.

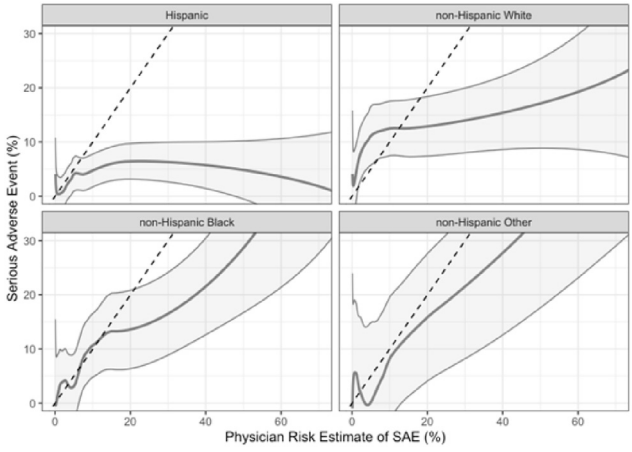
Results: We enrolled 1,265 patients across six EDs, of whom 36% (n=455) were Hispanic, 39% (n=497) were non-Hispanic White (NHW), 19% (n=239) were non-Hispanic Black (NHB), and 5.8% (n=74) were non-Hispanic Other race (NHO). Physician risk estimates had an overall mean of 9.2% with a standard deviation of 14. Physician risk estimates did not vary between racial/ethnic groups (p=0.60 by 1-way ANOVA). 30-day SAE rates were 3.5% (n=16) in the Hispanic group, 5.9% (n=14) in the NHB group, 8.1% (n=6) in the NHO group, and 8.9% (n=44) in the NHW group. Physician estimates tended to overestimate the Hispanic group's risk above a 5% risk level and the NHB, and NHW groups' risk of SAEs at above 15% estimated

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risk. Physicians tended to underestimate the NHW group's risk of SAEs beneath a 15% estimated risk level (Figure 1).

Conclusion: Physician estimates of SAE risk were similar between groups and performed well at the low-risk end of the spectrum for Hispanic, NHB, and NHO groups, but underestimated NHW risk. Physicians overestimated Hispanic, NHB, and NHW risk at the upper end of the risk spectrum. Our results suggest that race and ethnicity may play a role in physicians' estimate of the risk of 30-day SAE among adults with syncope.

Figure: Performance of physician-estimated percentage risk of SAEs (x-axis) compared to actual SAE occurrence rate (y-axis). The dashed line represents the theoretical 1:1 matching in which physician risk assessment perfectly predicts risk of SAE. The solid lines represent the locally estimated scatterplot smoothing observed SAE occurrence versus physician-estimated risk. Shaded area represents 95% confidence intervals.



No, authors do not have interests to disclose

180 Predicting Syncope Outcomes: Correlating Real-Time Outpatient Arrhythmias With FAINT and CSRS

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Study Objectives: Syncope is a common complaint in the emergency department (ED) and often presents a diagnostic dilemma for physicians, as the causes of syncope range from minor to life threatening. Evaluation is costly, variable, and most patients presenting with syncope are discharged without an identified diagnosis. Two clinical decision instruments have been developed to predict the risk of adverse outcomes: the Canadian Syncope Risk Score (CSRS) and the FAINT score. In parallel, advances in wearable device technology have given rise to user friendly, wearable cardiac monitors. To date, no studies have yet investigated mobile cardiac outpatient telemetry (MCOT) use in syncope outcomes from the ED or correlated CSRS or FAINT scores to real-time arrhythmic events captured on MCOT. This study aims to correlate arrhythmic events captured by MCOT with patients' baseline CSRS and FAINT scores to improve arrhythmia diagnosis for patients presenting to the ED with unexplained syncope.

Methods: This is a sub-study of a larger study (MUST-DO Trial) comparing time to arrhythmia diagnosis and time to medical intervention following an ED evaluation for unexplained syncope. The parent trial will randomize 160 patients ^{3}50 years old presenting to Roanoke Memorial Hospital ED with unexplained syncope to receive an MCOT device upon discharge (30-day monitoring period) or usual care. We will prospectively calculate the CSRS and FAINT score for all MCOT arm patients (n = 80). Time to arrhythmia will be determined using a Cox proportional hazard ratio.

Results: To date, the primary study has randomized 67 patients, of which 41 were randomized to the MCOT arm. Total CSRS and FAINT scores did not correlate with time to arrhythmia ($p < 0.05$). However, when CSRS scores were analyzed as categories (low [-1 to 0, n = 9], medium [1 to 3, n = 17], high [4 to 5, n = 3], and very high [≥6, n = 1), a significant difference was found in time to first arrhythmic event across categories, with "high risk" patients experiencing arrhythmias earliest ($p = 0.001$).

Conclusion: Patients classified as "high risk" by CSRS may experience arrhythmias earlier in the monitoring period. Further analyses on number of arrhythmic events and significant arrhythmic events are planned. Data will continue to be collected and analyzed until the enrolment target has been reached.

No, authors do not have interests to disclose

181 Utility of Routine Echocardiogram for Syncope Evaluation in an Emergency Department Observation Unit

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Study Objectives: Syncope is a common presenting complaint in the emergency department (ED). The causes of syncope range from benign vasovagal reactions to life threatening diagnoses such as cardiac arrhythmias or structural cardiac disease. The workup for high-risk syncope often includes telemetry monitoring and cardiac imaging. Echocardiograms (echos) are often performed in this workup, however may have low yield in patients without suspicion for structural heart disease. We hypothesize that routine echos in ED patients with syncope is a low yield test, and avoiding this routine testing in the ED or inpatient setting can have substantial savings of cost, resources, and time.

Methods: This is a retrospective cohort study of patients admitted to the Emergency Observation Center (EOC) with a diagnosis of syncope or near syncope at a community hospital ED from 9/1/21 to 2/1/24. There were no exclusion criteria. Patient demographics including cardiac history and risk factors, available EKG and Echo results from previous visits and the index visit, and final diagnoses were obtained from the electronic health record by manual chart review. Abnormal EKG findings included sinus bradycardia, AV blocks, bundle branch blocks, prolonged QTc, paced rhythms, PVCs, and TWIs. Abnormal Echo findings included moderate/severe aortic stenosis (AS), hypertrophic obstructive cardiomyopathy (HOCM), left atrial myxoma or thrombus, and LV ejection fraction below 45%.

Results: We identified 429 patients admitted to the EOC for syncope or near syncope from 9/1/21 to 2/1/24. Patients were stratified first by normal vs abnormal EKG. Of the 305 patients with a normal EKG, 3 echos (0.9%) had abnormal findings (moderate AS, severe AS, HOCM). Of the 124 patients with an abnormal EKG, 8 echos (6.5%) had abnormal findings (moderate AS, severe AS, HOCM, 5 with EF < 45%). Of the 101 patients age 16-49, there were 78 echos performed, with 0 abnormal findings regardless of normal or abnormal EKG.

Conclusion: Our ED admitted 429 patients with a diagnosis of syncope or near syncope to the EOC during the study period, the majority of whom had an echo performed as part of their EOC workup. Abnormal echo findings were seen in 0.9% of patients with a normal EKG, versus 6.5% of patients with an abnormal EKG. There were 0 abnormal echo findings in patients less than 50 years old. This suggests a low utility of routine echocardiograms for certain ED patients presenting with syncope or near syncope, particularly in patients less than 50 years old and/or with normal EKGs. Our findings could inform further research and practice changes with the potential to save hospital and patient costs, resources, and time.

No, authors do not have interests to disclose

183 Primary Care Curriculum for Emergency Medicine Residents Enhances Knowledge, Changes Practice

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Study Objectives: Many patients access the emergency department with low acuity complaints or primary care needs that are not addressed in the outpatient setting, whether due to issues with primary care provider access, lack of insurance, or other factors. When chronic diseases like hypertension and diabetes mellitus are unmanaged in the outpatient setting, they can become complicated and result in significant morbidity and mortality. The management of these chronic diseases are not likely a

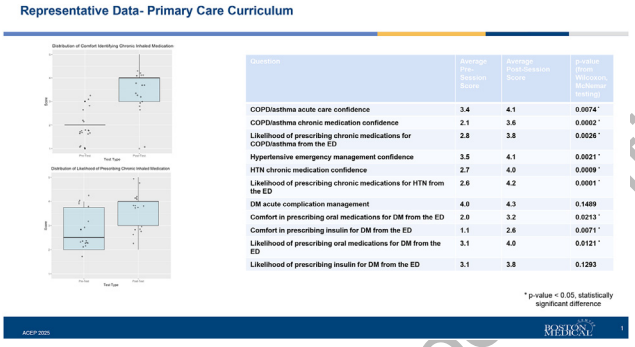
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priority in emergency medicine training, and therefore emergency physicians are ill-prepared to address these needs for patients. To this end, a curriculum was developed focused on primary care-related topics which was incorporated into the curriculum of an emergency medicine residency and its impact was assessed.

Methods: This study was performed at Boston Medical Center. A series of educational sessions, with topics derived from a needs assessment described elsewhere, were provided during resident academic conference covering chronic obstructive pulmonary disease (COPD)/asthma, hypertension, and diabetes mellitus. Pre- and post-tests were distributed to the residents, assessing comfort prescribing chronic medications and willingness to prescribe said medications on Likert scale as well as content knowledge. Data were statistically analyzed using Wilcoxon and McNemar tests. A survey ~ 6 months after the conclusion of the educational sessions assessed changes in self-reported prescribing practices.

Results: Participation in the educational sessions was robust, with 22, 18, and 11 residents participating in the hypertension, COPD/asthma, and diabetes lectures respectively. Residents showed statistically significant increases in self-reported comfort in managing chronic conditions, content knowledge, and self-reported increased likelihood of prescribing chronic medications from the emergency department. A survey conducted ~6 months after the sessions concluded showed that many residents had, in fact, prescribed medications in response to the educational interventions.

Conclusion: Emergency medicine residents, when exposed to primary care-related topics, feel more comfortable with the initiation of chronic management, demonstrate improved content knowledge, and can change practice patterns to incorporate the initiation of chronic medications. The incorporation of this curriculum has potential to allow emergency physicians to address gaps in the healthcare system, initiate chronic disease management where indicated, address challenges related to emergency department (ED) boarding, and reduce morbidity, mortality, and unnecessary ED visits.



No, authors do not have interests to disclose

184 When to Call It: A Look at Resident Remediation and Termination

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Study Objectives: In 2015, survey data was published by Silverberg, et al addressing emergency medicine resident remediation. Guidelines regarding due process for remediation were also published around the same time. Since then, much has changed in emergency medicine: we have endured a global pandemic, we have seen more stringent standards for residency programs, and our community has grown to include the addition of 127 new residency programs. We sought to investigate the current incidence of emergency medicine resident remediation, termination and adherence to the remediation and termination guidelines amidst these new challenges.

Methods: A Google Forms survey consisting of multiple choice and free response questions was sent to the Council Of Residency Directors in Emergency Medicine (CORD) Survey Community with attention to response validity. Questions included the number of residents matriculating in the past 5 years, number of residents on remediation/probation, number of residents that were terminated/resigned, and key players in making these decisions. Responses were analyzed using univariate analysis. All discrepancies were resolved by consensus.

Results: 42 responses were analyzed regarding 2,485 emergency medicine residents. In the last 5 years, 97 (3.9%) residents were placed on remediation, 13 (0.5%) residents resigned, and 12 (0.5%) residents were terminated. 34 (81%) programs had placed at least one resident on remediation. 72 (73.7%) residents were successfully remediated. 11(26.2%) programs had at least one resident resign, and 11 (26.2%) programs terminated at least one resident. The mean length of remediation before resignation was 8.1 months, whereas the mean length before termination was 10.2 months. Most programs involved the Program Director (97.6%), Clinical Competency Committee (90.5%), Associate/Assistant Program Director (83.3%) and Graduate Medical Education/Designated Institutional Official (57.1%) in the decision to place a resident on remediation. Conversely, most programs did not include Human Resources (21.4%) for remediation. Lastly, most programs involved the PD (88.1%) and GME/DIO (52.4%) in the decision to terminate a resident, while most did not involve the CCC (45.2%), APD (26.2%) or HR (21.4%).

Conclusion: While remediation and termination are not often discussed openly, our findings indicate that both are still prevalent in current emergency medicine residencies. While the current prevalence of remediation (3.9%) was similar to that found in 2015 (4.4%), our survey suggests higher incidence of termination/resignation than found previously. While the previous rate of unsuccessful remediation in 2015 was found to be 8.7%, we found the current rate to be 26.3%. Additionally, GME/DIO and HR were involved less than advised by the remediation guidelines, which could contribute to higher rates of unsuccessful remediation. Our study did not stratify remediation by level of training or by type of remediation, so these could be future areas of interest. Since our study was also limited by sample size, further studies will be needed to monitor rates of remediation and termination on a broader scale.

No, authors do not have interests to disclose

185 Palliative Care for Emergency Medicine Residents: Assessing End-of-Life Simulation-Based Cases

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Study Objectives: To assess the impact of a simulation-based training session on emergency medicine (EM) residents' understanding and application of palliative care principles and in end-of-life (EOL) decisionmaking through adult and pediatric scenarios. This educational intervention sought to improve residents' confidence and competence in navigating the clinical, ethical, and emotional complexities of providing end-of-life care for critically ill patients in the emergency department.

Methods: EM residents of all training years (PGY 1-4) at the University of California, San Francisco participated in a 4.5 hour educational session featuring four EOL simulation scenarios: 1) a hospice patient with septic shock, 2) an elderly patient in respiratory distress, 3) a pediatric arrest from drowning, and 4) an infant with sudden infant death syndrome. Simulations occurred in groups of 2-4 residents of the same training year and were facilitated by EM attendings with the use of high-fidelity mannequins at UCSF's Kanbar Simulation Center. Each case was followed by a facilitated debriefing session to reflect on the case, reinforce learning points, and practice EOL communication skills. Pre- and post- session surveys were administered to assess residents' prior experience with EOL and goals-of-care conversations, self-reported proficiency in relevant skills, and the effectiveness of the training session in improving their confidence and understanding of palliative care principles. Surveys included Likert-scale questions covering topics such as confidence in discussing EOL decisions with patients and surrogate decision-makers, communicating bad news, EOL pain management, interpreting advanced directives, and understanding of legal considerations. Additional true/false questions explored residents' knowledge of hospice services, POLST (Physician Orders for Life-Sustaining Treatment), and special considerations during pediatric cardiac arrests. Free-text responses captured qualitative feedback on the session's usefulness and areas for improvement. Data collection took place over two training sessions during time reserved for resident education. Data analysis involved statistical analysis and thematic analysis of qualitative feedback.

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Results: A total of 41 residents participated in the training and completed the pre-session questionnaire, and 31 residents subsequently completed the post-session questionnaire. Residents participating in the session had a range of experience, with 32% of residents reporting having had five or fewer goals-of-care conversations with patients, compared to 17% who reported greater than 16. Before the session, only 44% reported confidence in engaging in EOL conversations, which improved to 65% after the simulation training. In the post-session questionnaire, 90% of residents reported feeling more prepared to lead EOL discussions with patients and families as a result of the simulation session. From pre- to post-survey, true/false statement scores evaluating understanding of palliative care principles (ie, hospice, POLST limitations, navigating conflicts between DPOA and documented patient wishes) increased from an average of 75.6% correct to 79.4% correct. Qualitative feedback highlighted the following themes: (1) general positive attitude towards the session, (2) the value of practicing difficult conversations in a simulated environment, (3) a preference for interspersing more EOL simulations throughout training, (4) a desire for more education on EOL pain management and comfort measures, (5) interest in learning more about legal EOL considerations.

Conclusion: Simulation-based training is an effective educational tool which can be used to enhance EM residents' proficiency in applying palliative care principles and conducting EOL conversations. The combination of high-fidelity simulations and reflective debriefing sessions contributed to measurable improvements in residents' confidence and skills. These findings support the integration of simulation-based EOL training into EM residency curricula to better prepare residents for the complexities of EOL care in emergency settings.

No, authors do not have interests to disclose

186 Improving Emergency Department Sepsis Education Through Resident Case Review

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Introduction: Sepsis is an important part of medical education for resident physicians across all specialties. Resident physicians are frequently involved in treating patients with sepsis. In our academic emergency department (ED), we have observed many instances of missed sepsis diagnoses and sepsis management items. Peer-to-peer case review is one mechanism that supports experiential resident education by learning from patient sentinel events, errors, and near misses. This can also improve clinical practice and lead to better care quality, patient safety, and health outcomes.

Study Objectives: This study aims to evaluate our novel resident sepsis case review program as a mechanism to improve residents' understanding of sepsis diagnostic and treatment guidelines.

Methods: The project was conducted in a single-site academic ED. Emergency medicine resident physicians between April 2024 and July 2024 were assigned cases that failed a core Centers for Medicare & Medicaid Services sepsis measure. We developed a review checklist that included sepsis diagnostic criteria and management elements. Residents were asked to review cases to identify areas of missed opportunity. This feedback was then provided to care teams. We administered a knowledge exam before and after the case review. Our primary outcome was a change in exam scores, and a secondary outcome was a change in self-reported confidence levels when diagnosing sepsis, severe sepsis, and septic shock. Descriptive statistics and univariate analysis of results were performed on all study variables.

Results: Our study enrolled 15 resident physicians in our sepsis review program. The average pre-intervention accuracy score was 65%, and the average post-intervention score was 84%, representing a 19% improvement (p-value $<$ 0.005). The proportion of correct responses above 11 questions increased by 46% in the post-intervention state. There was a 13.33% improvement in confidence in diagnosing sepsis and a 6.67% confidence in diagnosing severe sepsis in the post-intervention phase.

Conclusion: This is the first study to evaluate the impact of resident case reviews on understanding sepsis identification and management. Adopting a standardized review process for sepsis care helped improve the residents' knowledge of current sepsis diagnostic and management criteria, and our findings could benefit other academic institutions.

Yes, authors have interests to disclose

187 Effects of Hot Debriefing on Emergency Department Staff Confidence Levels in Cardiac Arrest Management

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Study Objectives: Debriefing after cardiac arrests is a quick and effective means of assessing and providing feedback on a team's performance during a resuscitation attempt. "Hot debriefing," occurs minutes to hours after an event, which enables accurate recall and perception of the team's performance. Prior studies demonstrated that hot debriefing in an emergency department (ED) positively impacted participants psychologically and successfully identified deficiencies in cardiac arrest resuscitation attempts. To date, no study has evaluated team self-assessment of performance during cardiac arrests before and after the implementation of a debriefing system. Our study aims to investigate the impact of hot debriefing on ED staff in cardiac arrest resuscitations.

Methods: This study is a pre- and post-survey design. The intervention was implementation of a hot debriefing system after medical cardiac arrests brought to the ED by emergency medical services (EMS) or occurring in the ED. Participants include ED technicians, nurses, residents, physicians; and members of three EMS agencies. The study was initiated by informing EMS and ED staff of the research study via (1) a presentation to EM residents (2) a presentation to EMS stations at their monthly training meetings; (3) a video recording of the presentation video via email; and (4) flyers in the ED with a QR code to the video. A voluntary pre-survey was completed by consenting participants and included a self-assessment in meeting 10 verified standards for cardiac arrest management, and 4 questions about general attitudes towards debriefing. After the pre-surveys were completed, a 14-months period of intervention was conducted in which the debriefing system is implemented. After each medical cardiac arrest, the ED and EMS staff collaborate within their separate individual teams (as ED staff or EMS staff) to fill out the debriefing form regarding each case. This form included self-assessment across the same 10 verified categories, provide 1 corrective action. After the 14-month debriefing period or 50 debriefs are collected, the debrief process will end, and a post-survey identical to the pre-survey will be conducted.

Results: Our preliminary data suggests that the staff have found the debrief system to be a very helpful and positive process. Usefulness of the debriefs has been rated 4.37/5 in the 38 debriefs completed by ED staff so far. Seventy-two corrective actions have been identified through the process including equipment issues and difficulties with communication that have guided departmental training and quality improvement initiatives.

Conclusion: The debriefing forms have allowed the departmental dissemination of areas for improvement gained by individual resuscitation teams. Our formal analysis to be completed in late Spring of 2025 and post survey will be disseminated with results, analysis and further conclusions to follow. We anticipate that the debriefs will have positive impact on team dynamics and communication.

No, authors do not have interests to disclose

188 Adapting American End-of-Life Care Training for Emergency Physicians in Japan: A Qualitative Study

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Study Objectives: In Japan, the aging population has resulted in a growing number of seriously ill patients requiring care from emergency physicians (EPs), creating significant challenges. These challenges arise from the limited availability of end-of-life care training for EPs, as well as cultural norms that discourage open discussions about death and dying. This misalignment between medical care and patient and family preferences highlights the urgent need for structured education. Education in Palliative and End-of-Life Care for Emergency Medicine (EPEC-EM) is a structured program developed in the United States (U.S.) to provide EPs and other clinicians with essential palliative and end-of-life care skills. The authors sought to adapt the EPEC-EM program for implementation in Japan; however, the specific challenges that EPs in Japan face in providing end-of-life care within the Japanese context remain unclear. This study aims to identify the barriers to end-of-

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life care training for EPs in Japan and explore the cultural and contextual adaptation of the EPEC-EM program.

Methods: This qualitative study used the Modified Grounded Theory Approach (M-GTA) to explore the decisionmaking process of board-certified EPs in Japan when managing seriously ill patients. Semi-structured interviews were conducted online via a video-conferencing platform between January and August 2024, following a structured interview guide, and were professionally transcribed. In this study, the analysis theme was set as "Decisionmaking Process of EPs in Japan for Seriously Ill Patients in Emergencies," and the analysis focus was set as "EPs in Japan." Interviews were conducted and analyzed, and feedback on the findings from three board-certified EPs in Japan was used to ensure confirmability, with adjustments made to align findings with clinical practice.

Results: Interviews were conducted with 13 board-certified EPs in Japan, at which point saturation was reached. The average interview time per person was 42 minutes, and the average transcript length was 10,171 Japanese words. Analysis of the interview data revealed 16 concepts. The three most prominent themes identified were "Struggling with Stalled Interactions Amid Patient/Family Distress," "Mental Pressure of Decisionmaking and Consensus-Building Under Time Constraints," and "Hesitation in Determining Treatment Plans Amid Uncertainty." The analysis suggests that several existing components of the EPEC-EM program, such as "Breaking Bad News," could help address these challenges, while others may require further adaptation to fit the Japanese context.

Conclusions: Our data revealed that in our sample, EPs in Japan appear to face significant challenges when caring for seriously ill patients, particularly in building trust with families within limited time frames and making treatment decisions under time and resource constraints. We believe that identified challenges can be addressed by EPEC-EM modules, highlighting the need to tailor content for EPs in Japan. These findings emphasize adapting end-of-life care training to different healthcare settings. Challenges faced by EPs in Japan may also apply to physicians in the U.S. in multicultural or resource-limited settings. Future research should explore the feasibility of implementing a culturally adapted EPEC-EM program in Japan, measure its impact on clinical decisionmaking, and examine its effectiveness in improving end-of-life care delivery.

No, authors do not have interests to disclose

189 The Impact of Community-Based Crowdsourcing for Responder CPR: Urban Versus Rural Differences in Taiwan

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Study Objectives: Out-of-hospital cardiac arrest (OHCA) survival is a global public health challenge. Timely emergency intervention is critical for improving OHCA outcomes; however, traditional emergency medical services often face delays in responders reaching the scene. Recent technological advancements have enhanced emergency response, with most OHCA crowdsourcing systems relying on GPS-based responder recruitment. We used a community-based crowdsourcing app that assigns responders based on their home or workplace locations in Taiwan. This study aimed to evaluate whether there is a difference in the activated responder rate between urban and rural areas using this predefined responder coverage area system.

Methods: This crowdsourcing system, utilizing a predefined responder coverage area, was activated by Emergency Dispatch Centers to alert responders near suspected OHCA cases. We retrospectively collected data from system logs from August 2024 to February 2025, including the total number of activated OHCAs, the number of responders alerted, the number of engaged responders, and actual on-scene responders. Hsinchu City, a densely populated urban area (4,390 people/km^2), and Pingtung County, a rural area (284 people/km^2), were chosen for comparative analysis to illustrate the impact of population density on responder activation and response rates.

Results: During the study period, OHCA activations showed a steady increase, rising from 352 cases to a peak of 1,009 cases before stabilizing at 911 cases in February, with the nationwide average responder presence increasing from 7.6% in September 2024 to 20.1% in February 2025. In Hsinchu City, OHCA activations totaled 117 cases, with the number of responders increasing from 5 to 110. The response rate rose from 0% in August 2024 to 16.7% in February 2025, peaking at 40% in January 2025 (Figure 1). In contrast, Pingtung County recorded 298 OHCA activations. The number of responders increased from 5 to 109, with the response rate rising from 0% in August 2024 to 12.7% in February 2025 (Figure 2). Despite lower population density, the crowdsourcing model played a crucial role in mobilizing responders. Notably, in 2025, one patient in Pingtung was successfully discharged with CPC1-2, demonstrating the model's potential in improving survival outcomes in rural regions.

Conclusion: The adoption of the community-based crowdsourcing system effectively increased engagement in OHCA response, with growing user participation in both urban and rural areas. Further studies are needed to identify factors influencing activated responder rates and to assess the long-term impact on OHCA survival rates.

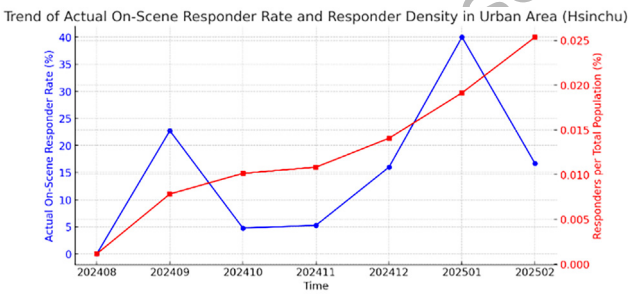


Figure 1: Trend of Actual On-Scene Responder Rate and Responder Density in Hsinchu

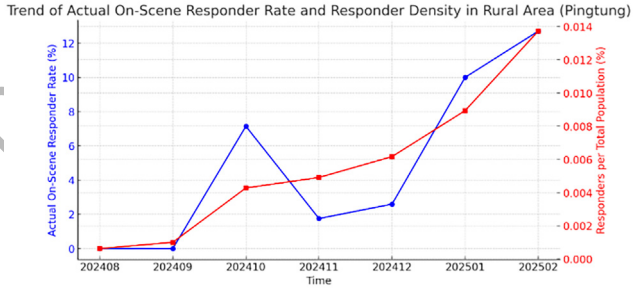


Figure 2: Trend of Actual On-Scene Responder Rate and Responder Density in Pingtung

No, authors do not have interests to disclose

190 Emergency Medical Services Prehospital Antibiotic Protocol for Sepsis Performance Characteristics

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Study Objectives: Sepsis is a critical, life-threatening condition that requires effective screening and rapid treatment to prevent organ dysfunction and mortality, with early antibiotic administration playing a pivotal role in improving patient outcomes. Current prehospital protocols for sepsis management, particularly regarding antibiotic initiation by Emergency Medical Services (EMS) personnel, remain unclear, presenting a significant challenge to improving outcomes for patients with sepsis. The primary objective was to assess the performance characteristics of an EMS protocol for prehospital sepsis identification and appropriate antibiotic administration.

Methods: A retrospective observational study of a consecutive sample of patient electronic health records was performed. All emergency department patient encounters at a single large, public, non-profit healthcare system in the southeast United States over an 11-month period (April 2024 – February 2025) were screened. Encounters coded with a sepsis-related ICD-10 code and in which the patient originally arrived by ambulance were included. Patients with a reported penicillin allergy were excluded. Per EMS protocols, patients satisfying

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two of three qSOFA criteria (hypotension defined by a systolic blood pressure < 100 millimeters of mercury (mmHg), mean arterial pressure < 65 mmHg, or shock index > 1, altered mental status defined by a Glascow Coma Scale < 15, and tachypnea defined by respiratory rate > 22 breaths per minute or end-tidal carbon dioxide < 25 mmHg) were to be given 2 grams ceftriaxone intravenously. Patient encounters which satisfied sepsis criteria but for which intravenous access could not be established by EMS were considered non-compliant. The primary outcome was compliance with the EMS sepsis protocol. Performance characteristics were summarized, and univariate analysis of EMS provider compliance was performed using chi-square and Fisher's exact tests. All statistical analysis was performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at $p < 0.05$, a priori.

Results: A total of 90 patient encounters were screened, and 2 were excluded due to documented penicillin allergies. Thirty-seven (42%) patients satisfied sepsis criteria. Of the patients satisfying sepsis criteria, 16 (43%) received antibiotics. Fifty-one (58%) patients did not satisfy sepsis criteria, and none of these patients received antibiotics. Based on performance, the sensitivity and specificity of EMS personnel in identifying patients with sepsis were 70.8% (95% CI: 60.3-81.3) and 100% (95% CI: 100-100%), respectively, corresponding to a positive predictive value and negative predictive value of 100% (95% CI: 100-100%) and 43.2% (95% CI: 27.3-59.2%), respectively. The association between sepsis identification and antibiotic administration was statistically significant ($p < .0001$).

Conclusion: EMS personnel are exceptionally strong at identifying patients who do not satisfy sepsis criteria per a predefined protocol and subsequently withholding antibiotics appropriately. However, for patients with sepsis, further research is warranted to assess barriers to prehospital antibiotic administration.

No, authors do not have interests to disclose

191 Post-9/11 Medical Burden by Terror Type: Tactical Insights From the Global Terrorism Database

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Study Objectives: In an era of evolving terrorism, the need for medical preparedness extends beyond traditional mass casualty models. Since the September 11 attacks, global terror tactics have diversified—ranging from bombings and armed assaults to hostage scenarios and unconventional threats—each presenting unique clinical and logistical challenges. The objective of this study is to provide a comprehensive, data-driven evaluation of terrorist incidents occurring after 9/11, analyzing patterns in casualty severity by attack type, region, and country. By identifying the frequency and medical burden associated with different threat profiles, this study seeks to inform tactical response frameworks, surge capacity planning, and geographically tailored counter-terrorism medical strategies.

Methods: The authors conducted a retrospective cross-sectional analysis using the Global Terrorism Database (2001–2021), filtering for incidents occurring after September 11, 2001. Events with recorded casualties were categorized by attack type. Descriptive statistics were computed for average fatalities, injuries, and total casualties per incident. Dual-axis bar-line plots, radar charts, and resource grid mapping were employed to visualize severity and frequency profiles across attack types. Casualty metrics were used to infer expected demand for emergency medical services, triage intensity, and trauma care mobilization.

Results: Among 101,039 post-9/11 incidents, bombings/explosions were most common (n=59,160; 58.5%) with moderate average casualties (6.95 per incident) (Figure 1). Armed assaults followed (n=25,717), with higher lethality (3.12 deaths) but fewer injuries (1.76), averaging 4.88 casualties. Though infrequent (n=482), hostage-taking (barricade) incidents had the highest casualty burden (16.67 per event), while unarmed assaults produced minimal fatalities but high injury rates (7.96) (**Figures 1** and **2**). By region, East Asia recorded the highest severity (10.45 casualties/incident), followed by the Middle East and North Africa (7.14) and Sub-Saharan Africa (7.00). Despite having the most incidents, South Asia had comparatively lower average severity (5.02), illustrating that frequency does not equate to complexity (**Table 1**). At the national level, Chad (34.52), Kuwait (31.00), and Angola (27.19) had the highest per-incident casualties, highlighting a high-acuity, low-frequency (HALF) profile (**Table 2**). These countries face rare but devastating events requiring substantial surge capacity. Radar analysis showed that bombing and hostage events consistently ranked high in all severity metrics, indicating significant operational burden (**Figure 2**). Grid mapping identified bombings and armed assaults as high-frequency, moderate-to-high severity threats, while hostage and hijacking incidents clustered as low-frequency, high-severity scenarios (**Figure 3**). The findings reveal three strategic clusters: 1. High-frequency, moderate-burden events (eg, bombings, armed assaults) that strain trauma systems; 2. Low-frequency, high-burden events (eg, hostage-takings, hijackings) requiring surge capacity; 3. Geographic hotspots where severe casualties are concentrated, necessitating localized response planning. These patterns underscore the need for tactical preparedness that integrates both event severity and geographic context.

Conclusion: Post-9/11 terrorism demonstrates clear operational stratification across attack types and geographic contexts. High-frequency threats such as bombings demand scalable trauma systems, while rare but catastrophic events like hostage crises require high-acuity response protocols. Country- and region-specific differences in average casualties underscore the need for medical planning that is both tactically responsive and geographically precise. A hybrid model—incorporating both volume and severity indicators—should guide counter-terrorism medical preparedness. Ultimately, success in disaster response hinges on the ability to design and deploy geographically tailored counter-terrorism medical strategies that align medical resources with the spatial realities of threat distribution.

Table1. Post-9/11 Top 5 Regional Casualty Burden

Region	Incidents	Average Fatalities	Average Injuries	Average Total Casualties
East Asia	203	4.23	6.22	10.45
Middle East & North Africa	39,172	2.53	4.61	7.14
Sub-Saharan Africa	14,726	4.37	2.63	7
South Asia	40,882	2.08	2.94	5.02
Eastern Europe	2,721	1.41	2.56	3.97

Table 2. Post-9/11 Top 5 Countries by Average Casualties

Country	Incidents	Average Fatalities	Average Injuries	Average Total Casualties
Chad	71	11.11	23.41	34.52
Kuwait	9	3.67	27.33	31
Angola	21	5.9	21.29	27.19
Belarus	9	1.44	23.56	25
Hong Kong	2	0	23.5	23.5

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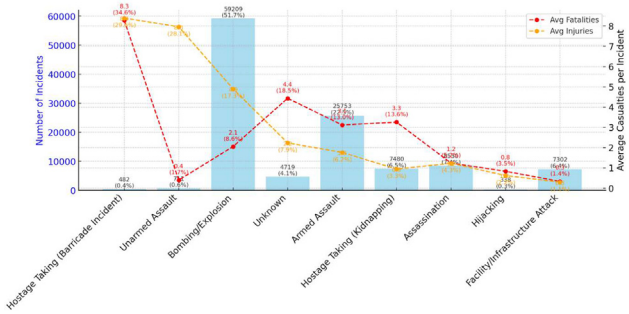


Figure 1. Terror Attack Types: Incidents vs. Average Casualties (2001–2021)

Avg, average

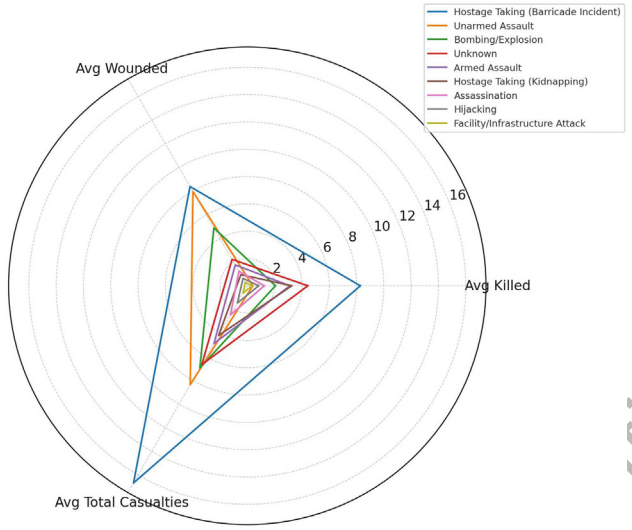


Figure 2. Radar Chart of Casualty Severity Spectrum by Attack Type

Avg, average

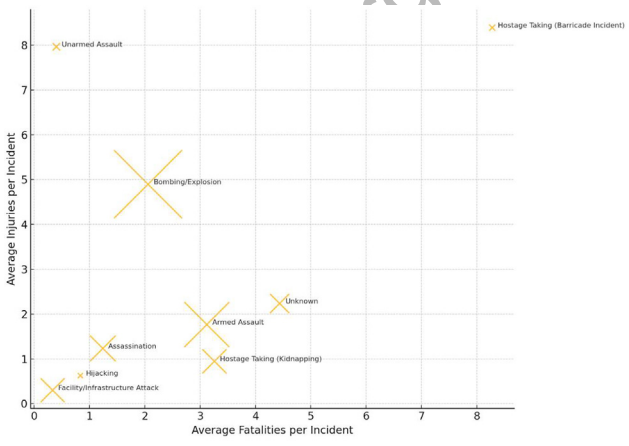


Figure 3. Tactical Resource Grid Mapping by Attack Type

No, authors do not have interests to disclose

192EMF Evaluating the Impact of Vital Sign Criteria Change in Prehospital Trauma Triage

Larson E, Xie Y, Shane Z, Troncoso R, Garfinkel E, Haut E, Margolis A/Johns Hopkins University School of Medicine, Baltimore, Maryland

Study Objectives: Prehospital trauma triage guidelines aim to match trauma patients with an appropriate level of care for their injury. Maryland Statewide EMS Protocols recently changed the criteria for the highest and vital sign-based trauma activation category (Category Alpha). We aimed to evaluate the impact of this protocol change using a national database.

Methods: We utilized the National Trauma Data Bank to identify adult (≥18 years) trauma patients transported by EMS from 2019 to 2020 (the last year of EMS data inclusion) with EMS vital signs reported. We compared patients meeting the Category Alpha criteria before and after the state protocol change, which added criteria including a systolic blood pressure <110 for age 65+, heart rate >SBP, SpO2 <90%, and motor GCS <6 instead of total GCS≤13. We compared groups using descriptive statistics, including Chi-square testing for categorical variables and Wilcoxon rank-sum testing for continuous variables. We then calculated the frequency of patients requiring hemorrhage control surgery and used this to calculate the sensitivity, specificity, receiver operator curve (ROC), and area under the curve (AUC) for the new vs previous category alpha criteria.

Results: Of 129,510 adult trauma patients transported by EMS from 2019 to 2020 with EMS vital sign data, 17,350 (13.4%) patients met the previous category alpha criteria and 31,258 (24.1%) met the new category alpha criteria (**Table**). Patients meeting the new criteria were older (51 vs 48 years, p <0.001) and more often female (40.6% vs 36.1%, p <0.001) and white (74.2% vs 70.6%, p <0.001). The mechanism of injury was more frequently a fall with the new criteria (52.1% vs 46.7%, p <0.001). Fewer patients were transported by air (23.8% vs 32.4%, p <0.001) and to level I trauma centers (43.8% vs 47.4%, p <0.001) under the new criteria. Category alpha patients under the new criteria had shorter hospital stays (8.25 vs 9.54 days, p <0.001) and were less likely to undergo hemorrhage control surgery (7.8% vs 10.7%, p <0.001) or die in the emergency department (0.9% vs 1.5%, p <0.001). When evaluating the association of new vs previous category alpha criteria with requirement of hemorrhage control surgery, the sensitivities were 0.64 vs 0.49, the specificities were 0.77 vs 0.88, and the AUCs were 0.70 vs 0.68.

Conclusion: When evaluating a change in the vital sign-based prehospital trauma triage criteria, including the addition of shock index, motor GCS focus, and a higher blood pressure threshold for elderly patients, we found that the new criteria provided increased sensitivity and AUC. The new criteria differ from current national guidelines and may provide avenues to improve the identification of patients who could benefit from trauma center resources.

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Table 1. Trauma patients meeting category alpha trauma triage criteria before and after Maryland state EMS protocol change.

Variable	Previous Category Alpha (n=17350)	New Category Alpha (n=31258)	P-Value
Age	48.23 (24.89)	50.85 (26.26)	<0.001
Male Sex	11082 (63.9)	18558 (59.4)	<0.001
Race			<0.001
Black	2022 (11.7)	3156 (10.1)	
White	12247 (70.6)	23203 (74.2)	
Hispanic	1526 (8.8)	2566 (8.2)	
Other	1151 (6.6)	1752 (5.6)	
Total GCS	9.84 (4.63)	11.62 (4.53)	<0.001
Motor GCS			<0.001
6: Obeys commands	6281 (36.2)	13674 (43.7)	
5: Localizing pain	2962 (17.1)	3295 (10.5)	
4: Withdrawal from pain	2052 (11.8)	2054 (6.6)	
3: Flexion to pain	476 (2.7)	479 (1.5)	
2: Extension to pain	295 (1.7)	295 (0.9)	
1: No motor response	4188 (24.1)	4195 (13.4)	
Oxygen Saturation (%)	94.05 (11.18)	93.50 (10.68)	<0.001
Pulse (BPM)	94.72 (30.87)	95.71 (28.87)	0.001
Systolic Blood Pressure (mmHg)	123.05 (40.18)	124.48 (35.12)	<0.001
Resipiratory Rate (Breaths per Minute)	20.18 (11.04)	19.57 (8.68)	<0.001
Trauma Triage Criteria			
Proximal Penetrating Injury	445 (2.6)	574 (1.8)	<0.001
Proximal Amputation	17 (0.1)	24 (0.1)	0.54
Chest Wall Instability	67 (0.4)	94 (0.3)	0.14
Crushed/Mangled Extremity	75 (0.4)	102 (0.3)	0.08
Open/Depressed Skull Fracture	158 (0.9)	170 (0.5)	<0.001
2+ Long Bone Fractures	101 (0.6)	147 (0.5)	0.11
Pelvic Fracture	118 (0.7)	197 (0.6)	0.55
Paralysis	48 (0.3)	64 (0.2)	0.14
Fall >20 Feet	70 (0.4)	96 (0.3)	0.1
Crash with Intrusion	364 (2.1)	474 (1.5)	<0.001
Crash Ejection	233 (1.3)	282 (0.9)	<0.001
Crash Death in Compartment	76 (0.4)	108 (0.3)	0.13
Crash High RIsk Telemetry	71 (0.4)	98 (0.3)	0.1
Pedestrian Struck	201 (1.2)	261 (0.8)	0.001
Motorcycle Crash	173 (1.0)	244 (0.8)	0.02
Anticoagulant Use	134 (0.8)	254 (0.8)	0.67
Pregnancy >20 Weeks	3 (0.0)	4 (0.0)	>0.9
EMS Judgement	1300 (7.5)	2181 (7.0)	0.04
Burns	61 (0.4)	92 (0.3)	0.32
Burns with Trauma	16 (0.1)	23 (0.1)	0.56
Mechanism			<0.001
Fall	8105 (46.7)	16297 (52.1)	
Gunshot Wound	867 (5.0)	1163 (3.7)	
Motor Vehicle Accident	4833 (27.9)	7851 (25.1)	
Other	1535 (8.8)	2641 (8.4)	
Pedestrian	288 (1.7)	534 (1.7)	
Stab	442 (2.5)	768 (2.5)	
Struck-by	783 (4.5)	1357 (4.3)	
Transport Mode			<0.001
Ground Ambulance	11720 (67.6)	23822 (76.2)	
Helicopter Ambulance	5630 (32.4)	7436 (23.8)	
Trauma Center Level			<0.001
I	8220 (47.4%)	1412 (43.8%)	
II	4269 (24.6)	7701 (24.6)	
III	341 (2.0)	809 (2.6)	
Length of Stay (Days)	9.54 (12.11)	8.25 (10.50)	<0.001
Hemorrhage Control Surgery	1849 (10.7)	2428 (7.8)	<0.001
Died in Emergency Department	257 (1.5)	268 (0.9)	<0.001

Categorical variables reported as n (%) and continuous variables as mean (standard deviation). GCS = Glasgow Coma Scale, EMS = emergency medical services.

No, authors do not have interests to disclose

193 Impact of an Advance Life Support First Response on Patients With Primary Impression of Chest Pain

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Study Objective: There is limited data available on the impact of EMS system design on the care of patients with chest pain. This study evaluates EMS system performance on the care of patients with a primary impression of chest pain over a transition period between response models. The transition replaced a tiered EMS system in which Basic Life Support (BLS) was provided by fire first response crews and Advanced Life Support (ALS) provided by ambulance-based paramedics (tiered system) with a model in which a paramedic is available on both first response fire apparatus and fire-based ambulances (1:1 system). The aim of this study was to compare EMS performance on common benchmarks used for system quality improvement between times in which patient care was provided in a tiered EMS system to times with the 1:1 system.

Methods: This was a retrospective review of data on patients with an EMS primary impression of chest pain collected for the purpose of quality improvement from a single, large, fire-based EMS agency during a transition from a tiered EMS system to a 1:1 system. Patient care provided during the operation of a tiered EMS system (June 1, 2022 – March 31, 2023) was compared to care provided during operation of the 1:1 system (June 1, 2023 – March 31, 2024). Cases during the system transition period (April 1, 2023 – May 30, 2023) were excluded. The quality benchmark measures assessed include 12-lead ECG acquisition, aspirin (ASA) administration, and time to ECG acquisition. Simple descriptive statistics were used to compare performance measures including Odds Rations (OR) and 95% confidence intervals (CI).

Results: There were 2,102 cases before and 1,891 after the transition. There were no significant differences in demographics of patient in the two groups with 44.9% male before and 46.4% after. In all patients with chest pain after the transition, 12-lead ECG acquisition increased from 97% to 99% (OR 3.56, [CI: 6.19, 2.05]). ASA administration rose from 66.5% to 75.9% (OR 1.59, [CI: 1.83, 1.38]). In patients with an EMS impression of STEMI, time to ECG acquisition improved from 433s to 296s ($p = 0.146$) and ASA administration increased from 45.2% to 75.0% (OR 3.64 [CI: 8.29, 1.60]).

Conclusion: In this single system, transition from a tiered EMS response system to a 1:1 system was associated with increased rates of 12-lead ECG acquisition and ASA administration. This suggests early paramedic care may improve benchmark performance for patients with chest pain. Further study is needed to determine if these findings can be generalized outside of this single system.

No, authors do not have interests to disclose

194 Outcomes of Barriers Assessment in Telecommunicator Cardiopulmonary Resuscitation (T-CPR) in Bangkok

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Introduction: Telecommunicator-assisted cardiopulmonary resuscitation (T-CPR) is a critical intervention aimed at improving survival rates in out-of-hospital cardiac arrest (OHCA) cases. The American Heart Association (AHA) recommends that T-CPR should begin within 150 seconds of the emergency call. However, various barriers hinder its timely execution, potentially reducing survival rates.

Study Objective: This study aims to assess the barriers affecting the implementation of T-CPR in Bangkok Metropolitan and their impact on patient survival outcomes.

Methods: A retrospective cohort study was conducted using emergency dispatch records from March 2018 to March 2020. Data from OHCA cases that involved emergency calls were analyzed to identify common barriers to T-CPR implementation. Key performance indicators included time to recognition of OHCA, time to first chest compression, and return of spontaneous circulation (ROSC) rates.

Results: Major barriers identified included premature call termination, language difficulties, caller unavailability near the patient, caller refusal to perform CPR, and inability to move the patient to a suitable surface. These factors significantly impacted the likelihood of ROSC and overall patient survival rates at 30 days and one year.

Conclusion: Understanding and addressing these barriers is crucial for optimizing T-CPR effectiveness and improving survival outcomes for OHCA patients. Future strategies should focus on enhancing dispatcher training, improving caller compliance, and developing multilingual support systems to minimize delays in T-CPR initiation.

Keywords: Telecommunicator CPR (T-CPR), Out-of-Hospital Cardiac Arrest (OHCA), Emergency Medical Services (EMS), Return of Spontaneous Circulation (ROSC), Bystander CPR, Dispatcher-Assisted CPR, Cardiac Arrest Survival, Prehospital Care, Emergency Response, CPR Barriers.

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195 Evaluate the Relationship Between Venous Excess Ultrasound Score and Central Venous Pressure

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Study Objectives: Venous congestion is a contributing factor associated with significant morbidity and mortality in critically ill patients. The Venous Excess Ultrasound Score (VExUS) was developed as a tool to quantify and stratify the degree of venous congestion using Point-of-Care Ultrasound (POCUS). The VExUS score has previously been used to evaluate the degree of organ congestion and optimize fluid management. The exact relationship between the VExUS score and central venous pressure (CVP) remains unclear, and many physicians have used these measurements interchangeably. The objective of this study was to determine the relationship between VExUS score and CVP, as measured on a Swan-Ganz catheter, in patients in cardiogenic shock in the cardiac intensive care unit.

Methods: This was a single-center, prospective, observational study of a convenience sample of patients at a tertiary care center admitted to a cardiac care unit (CCU) with placement of a Swan-Ganz catheter. Patients were considered for inclusion if they had a Swan-Ganz catheter in place and being managed in the CCU for cardiogenic shock. All enrolled patients had a POCUS exam to calculate a VExUS score (measured between 0 and 3), as well as a Swan-Ganz catheter in place to record their concurrent CVP at the time of the POCUS. Chart reviews were performed for all patients by research associates who were blinded to the ultrasound-related data to obtain demographic information, past medical history and laboratory values. Differences in median CVP by VExUS score were evaluated using the Kruskal-Wallis test.

Results: Of the 78 patients enrolled in this study, 75 patients having both a recorded CVP from a Swan-Ganz catheter and a calculated VExUS score were included in the analysis. Patients with a VExUS score of 0 (n=16), 1 (n=28), 2 (n=18), and 3 (n=13) had a median CVP of 4.0mmHg (interquartile range (IQR): 2.0mmHg-8.0mmHg), 5.5mmHg (IQR: 4.0mmHg-8.0mmHg), 8.0mmHg (IQR: 5.0mmHg-11.0mmHg), and 12.0mmHg (IQR: 10mmHg-16.0mmHg), respectively (p=0.0004). A total of 19 patients were intubated.

Conclusion: In our study of patients enrolled in the CCU, a higher VExUS score was associated with a higher CVP. Approximating CVP can be challenging for emergency providers. With prior studies suggesting a lack of association with inferior vena cava (IVC) diameter, this study highlights a potential alternative for approximating right atrial pressure by using a VExUS score. Additionally, many of the patients diagnosed with cardiogenic shock had normal CVP's, which is contradictory to traditional teaching. Further studies are needed to explore these findings.

No, authors do not have interests to disclose

196 Saline Visualization Time as a Screening Tool to Evaluate for Right Ventricular Dysfunction

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Study Objectives: Diagnosing right ventricular (RV) dysfunction using point-of-care ultrasound (POCUS) is essential in the evaluation of critically ill patients presenting to the emergency department (ED). Numerous different echocardiographic methods exist for evaluating the RV however many of these are challenging and dependent on having an adequate apical 4 chamber views. A prior pilot study of healthy ED patients explored the use of the duration of visualization of a saline flush in the RV as a marker for RV dysfunction and found that a saline visualization time of 40 seconds or longer was highly sensitive for identifying patients with RV dysfunction. This study attempts to expand on those prior results by exploring the accuracy of the saline visualization time in hemodynamically unstable patients as well as patients with either pacemakers or defibrillators. The objective of this study was to determine the utility of the saline visualization time in hemodynamically complex patients with concern for underlying cardiac disease.

Methods: This was a prospective, observational study of a convenience sample of patients at an academic ED. Patients were considered for enrollment if there was concern for cardiac disease, able to sign a consent, and a comprehensive echocardiogram was ordered, which served as the gold standard for evaluating RV dysfunction. Once enrolled, a sonographer performed a bedside echocardiogram to determine which window allowed for the clearest right ventricular view. Afterwards, a 10-mL saline solution flush was rapidly administered, in under 5 seconds, into the intravenous catheter, causing saline bubbles to be seen within the RV. The time of saline visualization within the RV was recorded. Study personnel, blinded to the ultrasound results, performed chart abstraction and reviewed the comprehensive echocardiogram, which was interpreted by the cardiologist, for evidence of RV dysfunction, which was defined as either RV enlargement or RV hypokinesis. The primary outcome measure was to determine a cutoff value for RV saline visualization time that identifies patients with and without RV dysfunction. The distribution of RV saline visualization time between patients with and without RV dysfunction was compared using a Wilcoxon rank sum test. Receiver operator characteristic (ROC) curve analysis was used to determine the optimal cutoff value of RV saline visualization time that differentiates patients with and without RV dysfunction. The associated sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), accuracy, and area under the ROC curve (AUC) were also calculated.

Results: Of the 141 patients who had both a comprehensive and bedside echocardiogram, 57 (40.4%) had RV dysfunction and 84 (59.6%) did not have RV dysfunction. The median RV bubble time among all patients was 46.0 seconds (s) (interquartile range [IQR]: 23s-70s); patients with RV dysfunction had a median bubble time of 64.0s (IQR: 53.0s-81.0s) compared to a median bubble time of 26.5s (IQR: 18.0s-50.5s) among patients without RV dysfunction (p <0.0001). Using a 40s cutoff value for RV bubble time to identify patients with RV dysfunction, the corresponding sensitivity, specificity, PPV, PPN, and accuracy was 0.93 (95% CI: 0.86-0.99), 0.65 (95% CI: 0.55-0.76), 0.65 (95% CI: 0.54-0.75), 0.93 (95% CI: 0.87-0.99), and 0.77 (95% CI: 0.70-0.84), respectively. The associated AUC was 0.81.

Conclusion: In hemodynamically unstable patients, an RV saline visualization time of 40s or longer had high sensitivity in identifying patients with RV dysfunction. This new echocardiographic

No, authors do not have interests to disclose

197 Assessing the Risk of Group A Streptococcus Pharyngitis in Febrile Child With and Without Cough

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Study Objectives: Group A streptococcus (GAS) is the primary bacterial cause of pharyngitis where antibiotic treatment is required in children, so an accurate diagnosis is important. There is some evidence that the clinical symptoms of a viral infection in children can overlap with GAS pharyngitis. It has been reported that the risk of GAS pharyngitis is low in children with one viral symptom (3-17%). Our study aimed to determine the risk of GAS pharyngitis with the viral symptoms of fever and cough for the past 15 years.

Methods: This was a retrospective, propensity-matched study utilizing the TriNetX data base which included over 113 million patients from 67 healthcare organizations in the United States. The time frame was 15 years (2010-2015). Cohort 1 included pediatric patients (≤17 years of age) with pharyngitis, fever, and cough, while Cohort 2 had pharyngitis, fever, and no cough. The outcome was a GAS pharyngitis positive testing within one week of symptoms of fever. Propensity matching was performed for demographics.

Results: A total of 160,063 patients were identified between Cohort 1 (n=54,936) and Cohort 2 (n=105,126) before propensity score matching. After propensity score matching, both cohorts had 54,936 patients. Patients with fever and no cough had a significantly higher risk (36.7%) of testing positive for GAS pharyngitis one week later versus those with fever and a cough (26.1%) (RR=0.71, 95% CI 0.70-0.73 , p <0.001). This showed a febrile child with no cough was 1.4 times as likely to test positive for GAS. Notably, the 26.1% risk in children with cough was higher than previously reported.

Conclusion: While the risk of GAS pharyngitis infection with concurrent cough was less likely, the observed risk was higher than previously reported. These findings highlight the importance of clinical judgment in diagnosing GAS pharyngitis in febrile children with cough.

No, authors do not have interests to disclose

198 Hypokalemia Rates Do Not Improve With Balanced Crystalloid Solution in Diabetic Ketoacidosis

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Study Objectives: Balanced crystalloid solutions, such as lactated Ringer (LR) solution, contain potassium and have been theorized to reduce hypokalemia rates, particularly in the treatment of diabetic ketoacidosis (DKA). However, previous studies have shown mixed results regarding their efficacy in preventing hypokalemia in clinically significant DKA. This study aimed to evaluate the impact of a multifaceted implementation program promoting the use of balanced crystalloid solutions in DKA on hypokalemia rates.

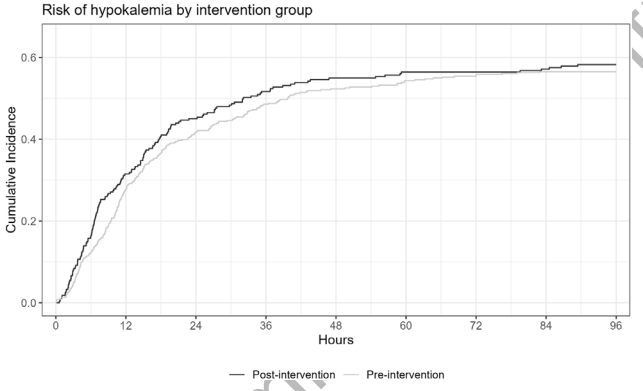
Methods: We performed a secondary data analysis of I USE LR, a type II hybrid implementation study that demonstrated benefit for LR in a large patient population for

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mortality and major adverse kidney outcomes. We identified a subset of patients with DKA within the parent study, which included all patients ≥18 years who received ≥1 liter of intravenous fluids for DKA treatment in emergency departments (EDs) or inpatient units at 22 hospitals in Idaho and Utah. We evaluated patients treated for DKA between November 1, 2018, and February 19, 2020, and used multifaceted intervention, including order set modification, electronic alerts, and clinician-targeted education, to encourage the use of LR rather than normal saline on July 1, 2019. We excluded patients with pre-existing hypokalemia (< 3.5 before intravenous fluid administration began) and performed automated data queries of ICD-10 codes and related laboratory values to extract demographic, clinical, and laboratory data and identify patients with DKA. In patients where DKA was partially verified, we conducted targeted manual chart reviews to confirm presence of DKA. We employed competing risk analysis [accounting for right (ie, death prior to event) and left censoring (ie discharge prior to event)] to test for differences between the normal saline and LR implementation periods in the development of hypokalemia (potassium <3.5 mEq/L). The primary outcome was new onset of hypokalemia by 96 hours. We also calculated the cumulative incidence of hypokalemia at the 12-, 24-hour timepoints.

Results: A total of 726 patients were included in the final analysis, of which 99% were treated in the ED. The normal saline period had 453 patients and 273 were in the LR period. Patients in both groups were similar in demographics, insulin-dependent diabetes status, DKA severity, creatinine levels, total fluid volume administered, and insulin administration during the encounter. The implementation of LR increased its use from a median of 0% of administered fluids pre-intervention to 73% post-intervention. The cumulative incidence of hypokalemia during hospitalization by 96 hours was 56.5% [95% confidence interval (CI): 51.1%, 60.9%] in the normal saline period and 58.2% (95% CI: 52.1%, 63.9%) in the LR period. The cumulative incidences of hypokalemia at the 12- and 24- hour marks were 27.8% (95% CI: 23.8%, 32.0%) and 41.7% (95% CI: 37.1%, 46.2%) for the normal saline period and 31.5% (95% CI: 26.1%, 37.1%) and 45.1% (95% CI: 39.1%, 50.9%) for LR group. The LR period was 1.03 (95% CI: 0.84–1.25, p-value=0.4) times more likely to develop hypokalemia during hospitalization, indicating no significant difference between groups.

Conclusions: The implementation of a protocol favoring LR over normal saline in the treatment of DKA did not result in a significant reduction in hypokalemia rates. These findings suggest that, despite theoretical benefits, LR does not provide a measurable advantage in preventing hypokalemia in patients with DKA.



No, authors do not have interests to disclose

199 Long-Term Cognitive and Neurodevelopmental Outcomes of Pediatric Sepsis: A Scoping Review

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Introduction: Pediatric sepsis is a serious and common presentation to emergency departments worldwide and is a significant contributor to intensive care unit admissions and prolonged hospitalizations. While studies in adults have demonstrated poor long-term cognitive outcomes associated with sepsis, significant gaps remain in characterizing these outcomes in the pediatric population, particularly in the long-term (defined in this study as ≥ 12 months), and their relationship to different management strategies.

Study Objectives: Our scoping review aims to identify existing literature regarding long-term cognitive, neurodevelopmental, academic and employment-related outcomes following an episode of pediatric sepsis, summarize existing knowledge, and to identify any knowledge gaps in this area. Secondary objectives include summarizing knowledge of any relationship between different etiologies of sepsis and long-term neurodevelopmental and cognitive outcomes.

Methods: This review was conducted in accordance with the JBI methodology for scoping reviews framework. A literature search was conducted for studies evaluating long-term outcomes of pediatric sepsis on neurodevelopment, cognitive function, and/or academic or employability/work performance. Medline, EMBase and CINAHL were searched, and citations were imported into Covidence. Abstract screening and full-text screening were conducted by two independent reviewers and any discordance was resolved by consensus. Studies included were required to focus on pediatric populations hospitalized for sepsis and follow participants for at least 12 months following discharge. Studies were required to evaluate at least one of neurodevelopmental, cognitive, academic and/or employability/employment outcomes. Studies focused on neonatal (≲ 28 days old) or adult (> 18 years old) sepsis survivors and studies conducted in the NICU were excluded. Studies that evaluated pediatric sepsis populations in conjunction with adult or neonatal populations were included when pediatric data was individually extractable but were excluded when data was analyzed in aggregate. Gray literature, text and opinion papers were excluded. Studies were not excluded based on participant past medical history, publication date or language. Data extraction was performed using an extraction tool designed by the reviewers using Covidence.

Results: 2,513 citations were retrieved and uploaded into Covidence. 333 duplicates were removed, and 2 additional duplicates were subsequently identified and removed. 2,178 abstracts were screened and 47 studies proceeded to full-text review. 12 studies were included and proceeded to data extraction. Preliminary results demonstrate the presence of long-term neurodevelopmental, cognitive and academic impacts following an episode of pediatric sepsis.

Conclusions: Our review identified a small body of literature which documented neurodevelopmental, cognitive and academic impacts of pediatric sepsis beyond twelve months in survivors. Although there is significant research surrounding pediatric sepsis, there is still a paucity of data surrounding long-term outcomes (=/ > 12 months). Further research is needed to better characterize the frequency, severity and persistence of these outcomes, and to evaluate whether any management strategies or interventions have the potential to improve outcomes.

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200 Costs of Emergency Department Observation Care for Ambulatory and Emergency Care Sensitive Conditions

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Study Objectives: Emergency department (ED) observation care may optimize resource use for older adults with ambulatory care sensitive conditions (ACSCs) and emergency care sensitive conditions (ECSCs). However, the financial implications of this care model remain unclear, limiting strategies to optimize cost-efficient care delivery. This study aims to characterize total and out-of-pocket (OOP) costs associated with ACSC- and ECSC-related ED visits.

Methods: We conducted a pooled cross-sectional analysis of individuals aged 65 years and older using the 2016-2019 Medicare Current Beneficiary Survey. We identified ED and observation visits using Evaluation & Management codes, revenue center codes, and place of service designations within administrative claims data. We used ICD-10 codes to identify ACSCs and ECSCs. We determined total and OOP costs using healthcare utilization claims data. We stratified ACSC- and ECSC-related ED visits into three groups: Group 1 (ED treat-and-release visits without observation care), Group 2 (ED treat-and-release visits with observation care), and Group 3 (ED visit with hospitalization and observation care). The primary outcome was the total and OOP costs incurred within 30-day period initiated by an ACSC- or ECSC-related ED visit.

Results: The study sample included 6,725 (87%), 757 (10%), and 226 (3%) ACSC-related ED visits in Groups 1, 2, and 3, respectively and 4,670 (77%), 955 (16%), and 449 (7%) ECSC-related ED visits in the same groups. Across all study years, the median 30-day total spending for ACSC-related ED visits for Groups 1, 2, and 3 were $7,851, $5,998, and $14,765 (p=0.007), while the OOP costs were $205, $182, and $205 (p=0.584). For ECSC-related ED visits, median 30-day total spending for Groups 1, 2, and 3 were $16,947, $11,000, and $19,437 (p=0.010), while the OOP costs were $290, $249, and $352 (p=0.397).

Conclusions: For both ACSCs and ECSCs, total expenditures for patients during the ED visit and the 30 days after were less for those who received ED observation care than for ED visits without observation care. These findings underscore the ability of observation status to improve cost efficiencies for the health system and patients while maintaining effective care delivery.

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Research Embargoed Until Date/Time of Presentation

201 Access to Emergency Services: Assessing Potential Impact of Multiple Simultaneous Hospital Closures

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Study Objective: To develop and demonstrate an enhanced measure of emergency department (ED) access and a method for simulating the impact of hospital closure on ED access. Traditional measures of access fall into two categories: 1) provider to population ratios for a standardized geographic area, 2) driving times or distances to the nearest provider. The spatial access index (SPAI) combines these two measurement concepts to obtain a more flexible and refined measure of access based on the joint spatial distribution of providers and potential patients. We use the Steward Healthcare System in Massachusetts as a case study.

Methods: We adapt the Spatial Access Index (SPAI) and apply it to measure changes in ED access associated with hospital closure. ED access is modeled as a function of local ED capacity and projected demand for ED services (a function of local population characteristics and the joint spatial distribution of providers and potential patients). The population studied includes all Massachusetts hospitals open in 2024, including 8 operated by Steward Healthcare. We simulate changes in ED access associated with the closure of Steward hospitals for each census tract in Massachusetts. We categorize census tracts as 1) directly at risk (tract centroid within 30-minute drive of a Steward hospital), 2) indirectly-at-risk (within catchment area of a hospital likely to experience spillover effects), or 3) not-at-risk (all others). We compare characteristics of populations in the 3 risk categories using standard bivariate statistics, quantify changes in ED access by census tract, and characterize populations differentially impacted.

Results: Thirteen percent of the state population (12.5% of census tracts) was directly-at-risk for decreased access; 71.1% of the state population (70.5% of census tracts) was indirectly-at-risk through spillover effects. Compared to census tracts not-at-risk, these had lower baseline ED access and younger populations more likely to be non-white and Hispanic. Directly-at-risk tracts had higher social vulnerability index scores. Mean change in predicted access was 23% for directly-at-risk and 13% for indirectly-at-risk tracts. Fifty-five percent of directly-at-risk populations were predicted to experience >20% decrease in ED access; 83% of indirectly-at-risk populations were predicted to experience a decrease of <20%. Among all residents, 19% would experience >20% decrease in ED access, 34% a decrease of 10-20%, 34% <10% decrease, and 13% no change. Populations with >20% decrease were younger and more likely to be non-white compared to those unaffected.

Conclusions: We estimate that the simultaneous closure of all Steward hospitals would directly or indirectly impact access to ED care for the overwhelming majority (83%) of Massachusetts residents. The magnitude of the impact varied substantially, highlighting the potential to channel resources to local populations expected to suffer the greatest impact. The analyses of spillover effects illustrates interdependencies in regional acute care delivery systems. Consolidation and restructuring by healthcare corporations is common and increasingly involve multiple facilities with some targeted for sale and others for closure (particularly those serving serve lower income and vulnerable populations). We propose a strategy to predict the impact and thus inform prioritization of resources and management of access to acute care by policymakers and public health officials.

No, authors do not have interests to disclose

202 Trends in Mobile Health Technology Access Among Latino Patients at an Urban Safety-Net Hospital

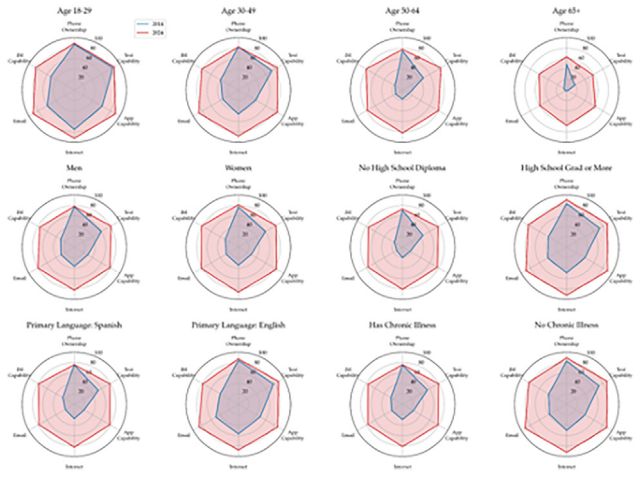
Burner E, Yu J/University of Southern California, Los Angeles, California

Study Objectives: Access to smartphones has grown dramatically over the past decade. Features like email and instant messaging, once restricted to high-end devices, are now ubiquitous. Over the last 15 years, mobile health (mHealth) initiatives have aimed to close health information gaps for underserved populations, especially Latino patients, who often face barriers to care. These obstacles include limited knowledge and availability of mobile technologies. We assessed changes in smartphone use among Latino patients at an urban safety-net hospital over the past decade, comparing them with national trends to guide future mHealth efforts. This study tracks the evolution of mobile technology use among Hispanic/Latino patients at a safety-net facility from 2014 to 2024. We specifically examine smartphone functionality—app, email, and internet use—to evaluate whether previous barriers have eased, enabling broader uptake of mHealth interventions.

Methods: We conducted a cross-sectional survey of adult patients at Los Angeles General Medical Center from June to August 2024. Exclusion criteria included critical illness, altered mental status, language barriers, or unwillingness to consent. Using chi-square analyses, we compared 2014 vs 2024 data on smartphone/app use, internet/email, and texting, stratified by age, gender, education, language, and chronic illness, and visually inspected the results with star plots (**Figure**). Descriptive statistics were also reported.

Results: Among 491 Latino patients, 66% primarily spoke Spanish, 28% had chronic illnesses, 80% owned smartphones. Reported capabilities in 2024 were high: 82% could text, 81% used apps, 84% accessed the internet, and 81% used email. Between 2014 and 2024, significant increases were seen: among Spanish speakers, app use rose from 22% to 79% ($p < 0.001$), internet access from 37% to 84% overall ($p < 0.001$), email use from 29% to 81% ($p < 0.001$), and texting from 53% to 79% ($p < 0.001$). All age groups benefited, with dramatic gains among older adults (50–64, ≥65), where app use rose from 2% to over 60% and internet/email from under 20% to over 70%. Education level was also important: among those without a high school degree, app use increased from 16% to 77% ($p < 0.001$) and internet from 20% to 81% ($p < 0.001$); for those with at least a high school diploma, ownership rose from 83% to 91% ($p = 0.007$). Chronic illness did not impede literacy gains: patients with conditions such as diabetes or hypertension showed comparable improvements (app use 24% to 79%, $p < 0.001$). Smaller but significant gains appeared in those lacking a high school degree (ownership 70% to 73%, $p = 0.423$; all other categories increasing, $p < 0.001$), suggesting cost and awareness barriers may be diminishing. Overall, these gains closed previous gaps, and internet access now aligns with national Pew averages.

Conclusion: Smartphone ownership and functionality among Latino patients have increased significantly over the past decade, particularly in texting, email, internet use, and app-based capabilities. Previously observed disparities in mHealth literacy associated with age, language, education, and chronic illnesses have diminished substantially, aligning closely with national trends. Age, language, education, and chronic illness status no longer appear to limit mHealth access, pointing to a more equitable digital landscape. Also, app and IM-based mHealth initiatives, previously difficult to implement due to limited app or internet access, now represent a promising area for further development. These improvements signify that our patients are increasingly ready to benefit from targeted digital health initiatives. Expanding these programs now holds significant potential to reduce barriers to health information for resource-poor Latino patients.



No, authors do not have interests to disclose

203 Variation in EMTALA Complaint Reporting Accessibility by State

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Study Objective: The Emergency Medical Treatment and Labor Act (EMTALA) requires that patients presenting to emergency departments receive a medical screening examination and stabilization of emergent conditions, regardless of condition or payor

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status. Prior work has demonstrated state-level variation in EMTALA enforcement, particularly in the rate at which EMTALA investigations result in citations. EMTALA enforcement is overseen by the Centers for Medicare and Medicaid Services (CMS). While CMS recently launched an option to file EMTALA complaints directly with the agency, before May 2024, EMTALA complaints were submitted primarily through state survey agencies (SSAs). Historical variation in accessibility to complaint mechanisms at the state level may have contributed to observed variation in EMTALA enforcement across states. This study describes variations in the EMTALA complaint submission processes across states, focusing on the availability of submission methods and anonymity options.

Methods: Publicly available websites of state health departments and CMS-linked state complaint portals were reviewed for all 50 states. The Wayback Machine, an internet archive, was used to access past versions of websites in cases where states had updated their reporting systems following CMS's implementation of a standardized portal. For each state, the availability of complaint reporting options, including telephone, email, physical mail, online submission forms, and downloadable or portable document format (PDF) complaint submission forms, was extracted. Additional characteristics were recorded, including whether complaints could be submitted anonymously or confidentially and whether downloadable forms could be submitted by email, fax, or mail. For anonymous submission, online and PDF-based methods were evaluated separately.

Results: 40 (80.0%) of 50 states listed a telephone number, 28 (56.0%) provided an email address, and 36 (72.0%) included a postal mailing address. Thirty-one (62.0%) of 50 states offered an online complaint form, and 14 (28.0%) had a downloadable PDF complaint form available for reporting. Of the 14 states with a PDF form, 9 (64.3%) allowed submission via email, 13 (92.9%) via fax, and 12 (85.7%) via physical mail. Among the 31 states offering an online form, 15 (48.4%) allowed anonymous submission, and 3 (9.7%) offered a confidential reporting option. Of the 14 states providing a downloadable or PDF form, 7 (50.0%) allowed anonymous submission via that method. 3 (20%) of the 15 states that allowed anonymity still required personally identifying information (eg, name or contact information). In many cases, confidentiality language was ambiguous; websites often stated that names would not be disclosed "if confidentiality is desired," without specifying to whom the information would or would not be disclosed. Reviewers observed numerous instances of unclear complaint instructions and difficulty locating relevant information among the broader content of the SSA websites. For 4 (8%) states, website links included on the CMS website were either not functional or directed users to unrelated content, limiting the ability to identify where or how to submit a complaint. States varied widely in the availability of reporting options, with some offering multiple methods of submitting complaints and supporting anonymous reporting, and others offering limited to no guidance on how to file a complaint via the SSA website.

Conclusions: Substantial variation exists in the accessibility of EMTALA complaint submission pathways across states. While most states provide at least one traditional method of complaint reporting (ie, telephone, email, or physical mail), fewer than two-thirds offer online submission forms, and fewer than one-third offer downloadable or PDF forms. Anonymous and confidential reporting options at the state-level were found to be uncommon and often inconsistently implemented. While an anonymous mechanism to file complaints was recently launched by CMS, whether variation in reporting mechanisms contributed to observed historic state-level variation in EMTALA enforcement warrants further exploration.

No, authors do not have interests to disclose

204 Prevalence and Outcomes of Assault Cases Reported in Hospitals in Polk County, Iowa

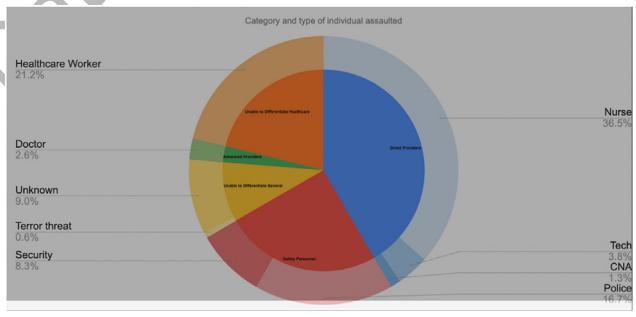
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Study Objective: Assault among healthcare providers has increasingly become a more prevalent issue. Iowa state code 708.3A addresses assaults against individuals serving in occupations including healthcare providers, peace officers, correctional staff, jailers, firefighters, and employees of certain government departments performing civil duties. This study investigates the prevalence and outcomes of assault cases filed in the Iowa Polk county court system under code 708.3a, which occurred at medical facilities or included medical personnel.

Methods: A comprehensive list of all court cases adjudicated under Iowa statute 708.3A between 2019 and 2023 was obtained from the Polk County Courthouse. Utilizing the Iowa Courts Online case search feature on courthouse computers, cases from this list were further examined within the public record. A retrospective analysis was conducted to find patterns and trends in both the filing and resolution of these cases. Specific documents accessed include the case summary as well as the arresting officer's original report. Key variables analyzed include the number of cases filed, types of assault charges, plea bargains, the use of drugs or alcohol, mental health crises, type of provider assaulted, and final verdicts.

Results: Of the 122 reported cases of assault, there were a total of 156 victims. Healthcare providers comprised 66.3% of victims, security or law enforcement personnel accounted for 25%, and the remaining 9% of cases did not specify the victim. Nurses were the most likely to be assaulted, accounting for 36.5% of total assault reports. Doctors only accounted for 2.6% of total assaults reported. Another 21.2% of assaults were committed on healthcare workers, but no further information on their role was recorded in the court record. Only 10.7% of cases involved patients experiencing mental health crises on court-ordered holds, while 4.1% of assailants were under the influence of recreational substances or alcohol. The most common charges filed were aggravated or serious misdemeanors, accounting for 115 of the 122 reported cases. Only 4 cases resulted in felony charges, and only 1 case reported sexual assault. The outcomes of the cases included 100 guilty pleas, 10 dismissals, and 4 cases lacking sufficient data. In 3 reported assaults, details regarding charges and judicial proceedings were unavailable. Of the 122 cases filed, 110 took place in 4 facilities. The highest frequency of cases was reported at Broadlawns Medical Center (45 cases), followed by Iowa Methodist Medical Center (26 cases), Iowa Lutheran Hospital (21 cases), and MercyOne Medical Center (18 cases). Over the period assessed, the average number of cases per year was 31.2, with a peak in 2022 (52 cases) and a low in 2023 (20 cases).

Conclusion: The incidence of violence against healthcare workers is escalating, standing in stark contrast to the declining rates of assaults observed in other workplace contexts. While Iowa's Code 708.3A addresses assaults against healthcare personnel, this study uncovers a concerning trend wherein healthcare workers, particularly nurses, are disproportionately affected. The legal outcomes—largely misdemeanors—highlight gaps in deterrence, while the low rate of sexual assault reports and limitations in data collection warrants further investigation.



No, authors do not have interests to disclose

205 Pricing Trends of Imaging Services Across Trauma Centers in Texas

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Study Objectives: In 2021, the Centers for Medicare and Medicaid Services (CMS) mandated that hospitals publish pricing data online to promote transparency. While prior studies outline pricing variability in imaging services, trauma centers remain understudied despite high utilization and strict regulatory oversight. This study focuses on Texas, a state with trauma centers spanning urban and rural regions. By analyzing the prices of 10 commonly billed imaging services at Texas trauma centers, this study aims to identify trends in cash prices (paid by uninsured patients) and negotiated prices (paid by insurers) across key variables.

Methods: Hospitals classified as trauma centers were determined using data from the Texas Department of State Health Services (DSHS) website. Chargemaster files were downloaded from each hospital's website for analysis. Pricing data was collected using procedural terminology (CPT) codes for X-rays (chest, pelvis, shoulder, ankle), CT scans (head without contrast, chest angiogram, abdomen/pelvis with contrast), MRI scans (brain with and without contrast, lumbar spine without contrast), and abdominal ultrasound. Hospital, geographic, demographic, and emergency department (ED) volume data were obtained from the Texas DSHS website. Mann-Whitney U and

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Kruskal-Wallis tests were used to compare pricing and assess relationships between these factors and imaging costs. A p-value of less than 0.05 was considered statistically significant.

Results: A total of 237 hospital chargemasters were analyzed. For cash pricing, eight imaging services had higher prices at trauma centers in metro areas (p >= <0.001-0.043), six imaging services were higher at children's hospitals (p = 0.003-0.036), and all 10 imaging services were higher at nonprofit-owned facilities (p = <0.001-0.044). Only two imaging services had significant differences between trauma centers levels (p = 0.007-0.046). No relationship was found between median income of the hospital's county and cash prices (p = 0.203-0.973). Two imaging studies showed a weak positive linear relationship between ED volume and cash price (p = 0.011-0.024, R^2 = 0.023-0.029). For negotiated pricing, five imaging services had higher prices at trauma centers in non-metro areas (p = 0.004-0.035), and nine imaging services were higher at children's hospitals (p = 0.003-0.015). No imaging services had significant differences across hospital ownership (p = 0.105-0.891) and trauma level designation (p = 0.491-0.983). One imaging service had a weak negative linear relationship between negotiated prices and median income of the hospital's county (p = 0.047, R^2 = 0.019) but none with ED volume (p = 0.149-0.809).

Conclusion: This Texas chargemaster analysis reveals distinct pricing patterns based on hospital characteristics. Cash prices were higher in metro areas, while negotiated prices tended to be higher in non-metro areas. Children's hospitals were associated with higher prices for both cash and negotiated rates. Hospital ownership significantly impacted cash prices but did not affect negotiated prices. Limited linear relationships were found between prices and factors such as county median income or ED volume, indicating that hospital type and geographic location have a more significant impact on pricing than demographic or operational variables. These findings highlight the complexity and variability in imaging service pricing across Texas trauma facilities.

Table 1: Results of statistical analyses comparing imaging pricing across various factors

		Metro / Non-Metro		Children / Adult		Non- / For-Profit / Public		Trauma Level 1/2/3/4	
Description	CPT code	*p*-value (cp)	*p*-value (np)	*p*-value (cp)	*p*-value (np)	*p*-value (cp)	*p*-value (np)	*p*-value (cp)	*p*-value (np)
Chest X-ray (2 view - PA & lateral)	71046	<.001	0.375	0.209	0.067	<.001	0.612	0.081	0.792
Pelvis X-ray (1-2 views)	72170	<.001	0.260	0.025	0.014	<.001	0.319	0.100	0.983
Shoulder X-ray (2 views)	73030	<.001	0.179	0.060	0.006	<.001	0.611	0.280	0.837
Ankle X-ray (3 views)	73610	<.001	0.285	0.056	0.003	<.001	0.599	0.182	0.855
CT head without contrast	70450	0.001	0.035	0.012	0.007	0.001	0.105	0.046	0.687
CT angiography chest	71275	0.069	0.004	0.074	0.015	0.044	0.117	0.110	0.491
CT abdomen and pelvis with contrast	74177	<.001	0.008	0.005	0.008	<.001	0.891	0.007	0.825
MRI brain with and without contrast	70553	0.043	0.011	0.003	0.010	0.035	0.309	0.187	0.725
MRI lumbar spine without contrast	72148	0.034	0.051	0.036	0.007	0.023	0.252	0.339	0.844
Ultrasound abdomen, limited	76705	0.010	0.017	0.020	0.005	<.001	0.585	0.117	0.627

Table 2: Results of linear regression analysis comparing imaging pricing to median income and ED volume

		Median Income of Hospital County				ED Volume of Hospital			
Description	CPT code	*p*-value (cp)	*R*-squared (cp)	*p*-value (np)	*R*-squared (np)	*p*-value (cp)	*R*-squared (cp)	*p*-value (np)	*R*-squared (np)
Chest X-ray (2 view - PA & lateral)	71046	0.203	0.007	0.967	<.001	0.177	0.008	0.809	<.001
Pelvis X-ray (1-2 views)	72170	0.594	0.001	0.127	0.011	0.144	0.010	0.532	0.002
Shoulder X-ray (2 views)	73030	0.935	<.001	0.437	0.003	0.378	0.004	0.474	0.003
Ankle X-ray (3 views)	73610	0.429	0.003	0.315	0.005	0.117	0.011	0.802	<.001
CT head without contrast	70450	0.209	0.007	0.920	<.001	0.011	0.029	0.750	<.001
CT angiography chest	71275	0.547	0.002	0.194	0.008	0.024	0.023	0.149	0.010
CT abdomen and pelvis with contrast	74177	0.357	0.004	0.047	0.019	0.097	0.013	0.254	0.006
MRI brain with and without contrast	70553	0.973	<.001	0.160	0.010	0.359	0.004	0.192	0.009
MRI lumbar spine without contrast	72148	0.877	<.001	0.653	0.001	0.244	0.006	0.470	0.003
Ultrasound abdomen, limited	76705	0.668	<.001	0.276	0.006	0.123	0.011	0.374	0.004

KEY
cp = Cash price; np = Negotiated price
= Statistically significant (<0.05)
= Not stastically signficant (>0.05)

No, authors do not have interests to disclose

206 Ambient Artificial Intelligence Versus Human Scribes in the Emergency Department

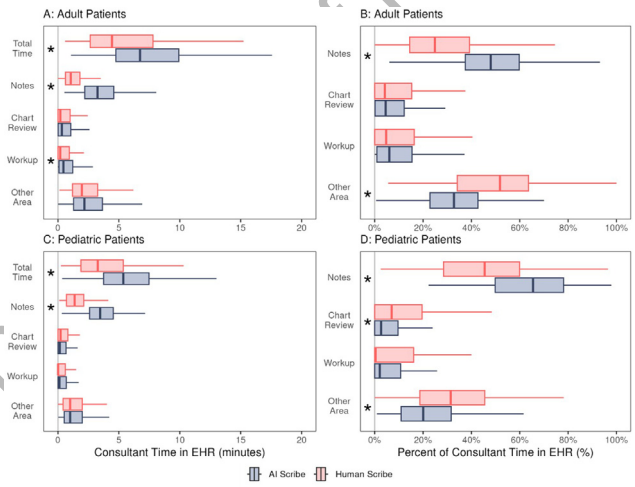
Morey J, Jones D, Walker L, Mullan A, Heaton H/Mayo Clinic, Rochester, Minnesota

Study Objectives: Clinical documentation has been a major source of burnout for physicians, including in emergency medicine. To alleviate this burden, human scribes have assisted in the drafting of notes, where available. In recent months, a potential alternative, ambient artificial intelligence (AI) scribes, has become available in a variety of clinical practice environments, including in the emergency department (ED). Our objective is to compare the time clinicians spend in the electronic health record (EHR) when utilizing a human scribe, as compared to an AI scribe, including the total amount and proportion of time allocated to specific activities.

Methods: A pilot trial was performed in our academic ED with 6 early adopters (5 physicians and 1 physician assistant) from December 2024 to January 2025. Clinicians were randomized to either a human or AI scribe (Abridge AI, Inc., Pittsburgh, PA, USA) for each of their shifts during the two-month period. Patients were separated into pediatric (age <18) and adult (age 18+) groups. We accessed the User Action Log within our EHR (Epic Systems Corporation, Verona, WI, USA) to collect the time spent in the EHR, including time on specific activities. Endpoints included total clinician time in the EHR per patient and time spent in notes, chart review, workup, and other sections. Comparisons were performed using two-sided Wilcoxon rank-sum tests.

Results: A total of 1,077 patient encounters occurred, 384 with human scribes (223 adult and 161 pediatric) and 693 with AI (501 adult and 192 pediatric). Both cohorts had similar patient demographics and ED visit characteristics, including sex, race, ethnicity, triage emergency severity index, chief complaint, diagnoses, and disposition, besides the age in adults were older in the AI scribe cohort (54 vs 47, p = 0.017). More total time per patient was spent when using an AI versus human scribe (adult: 6.7 vs 4.4 minutes (min), $p < 0.001$; pediatric: 5.4 vs 3.3 min, $p < 0.001$). The time and proportion of total time in the notes section (adult: 3.2 [48.0%] vs 1.1 min [24.9%], $p < 0.001$; pediatric: 3.5 [65.5%] vs 1.4 min [45.5%]) was also longer when using an AI versus human scribe. The time and proportion of time in chart review (adult: 0.3 [4.6%] vs 0.2 min [4.2%], p = 0.12; pediatric: 0.1 [2.7%] vs 0.2 min [7.0%], p = 0.20), however, was similar when using AI and human scribes, respectively.

Conclusion: The use of an AI scribe was associated with more total time spent in the EHR, as well as more time and proportion of total time in the notes section, as compared to human scribes. Further studies on larger patient and clinician populations, assessing note quality, and comparing physician EHR use without either scribe are warranted.



No, authors do not have interests to disclose

207 This Title Was Enhanced by ChatGPT: Provider Insights on Using AI to Write Discharge Instructions

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Study Objectives: Generative Artificial Intelligence (AI) tools like ChatGPT are gaining recognition for their potential to reduce provider workload in clinical documentation while also improving quality. Emergency department (ED) discharge instructions (DIs) are critical for treat-and-release patients, but can lack key elements like anticipatory guidance, return precautions, or the presumptive diagnosis due to time constraints when writing them. Generative AI may assist by drafting comprehensive DIs for review, hastening the writing process while also encouraging thoroughness and quality. This mixed-methods study aimed to provide a comprehensive understanding of provider attitudes toward AI-assisted documentation and its potential for improving discharge instruction quality and efficiency.

Methods: A three-part survey was distributed to Columbia University Medical Center ED providers via Qualtrics. A mixed-methods approach was adopted to provide a comprehensive understanding of provider attitudes toward AI-assisted documentation and its potential for improving discharge instruction quality and efficiency. Data was collected on provider role, years in practice, and opinions of AI. Participants rated the quality of three blinded DIs (brief provider-written, thorough provider-written, and AI-assisted) and were asked if each was written with or without AI. They also drafted DIs for a simulated patient using ChatGPT, evaluating ease of use and the quality of ChatGPT's output. Participants could re-prompt ChatGPT if they were unsatisfied with the first draft. Data was analyzed in Excel, with Likert scores computed (eg, ease of use, quality, enthusiasm), and ANOVA analyses assessed for

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differences between groups. Narrative synthesis and thematic analysis was independently performed by two investigators to identify common themes in short-answer responses and ChatGPT prompts. Ngram analysis examined free-text elements to assess keyword frequency, providing a quantitative evaluation of linguistic patterns in provider-written and AI-assisted DIs. This identified recurring phrases, wording differences, and stylistic distinctions between human and AI-generated content.

Results: Among 56 respondents (20% residents, 13% physician assistants, 67% attendings), 94% correctly identified AI-assisted DIs, while 74% correctly identified provider-written DIs. AI-assisted DIs were rated significantly higher in quality than handwritten DIs (p=0.0012). Quality ratings for AI-assisted DIs, thorough provider-written DIs, and brief provider-written DIs were 23.8, 23.9, and 21.4 among residents (p=0.337), 25.7, 21.8, and 19.3 among PAs (p=0.02), and 23.9, 22.5, and 20.7 among attendings (p=0.021). Recognition of AI-assisted DIs was highest among PAs (100%), followed by residents (100%) and attendings (91%), with significant differentiation ($p < 10^{-}14$). Overall, 90% of participants were satisfied with their ChatGPT-generated drafts. There was no significant difference in satisfaction, ease of use, quality, or enthusiasm between providers who re-prompted ChatGPT and those who did not ($p > 0.05$). Ngram analysis showed that nearly all AI-generated outputs explicitly included return precautions (97%), follow-up instructions (97%), medication details (76%), and structured headings (97%).

Conclusion: Generative AI has potential in helping providers write higher quality DIs more efficiently by editing drafts rather than writing them entirely by hand. Potential applications that should be studied include tailoring DIs to patients' reading levels, translation to other languages, as well as expansion of generative AI to writing clinical summaries such as handoff notes and hospital courses. Future work that quantifies time saved and quality of an AI-assisted documentation workflow as compared to the current standard of handwriting DIs is sorely needed. AI-assisted documentation likely also has the potential to improve physician well-being by reducing the burden of clinical documentation.

		Quality (Out of 30)	P-value	% recognized as ChatGPT	P-value
Resident	ChatGPT Prompt	23.8	0.337	100%	7.34×10^{-22}
	Thorough-provider Prompt	23.9		55%	
	Brief-provider Prompt	21.4		0%	
PA	ChatGPT Prompt	25.7	0.02	100%	4.64×10^{-26}
	Thorough-provider Prompt	21.8		33%	
	Brief-provider Prompt	19.3		0%	
Attending	ChatGPT Prompt	23.9	0.021	91%	1.04×10^{-14}
	Thorough-provider Prompt	22.5		37.50%	
	Brief-provider Prompt	20.7		14.71%	

No, authors do not have interests to disclose

208 Artificial Intelligence for Diagnosing Common Skin Disorders in the Emergency Department

Browne M, Paul K, Hoffmann H, Talbott M, Campbell K, Linfante A, Sorensen B, Wilkerson M, Jehle D/The University of Texas Medical Branch at Galveston, Galveston, Texas

Study Objective: Artificial intelligence (AI) and machine learning are increasingly used in dermatology, primarily for diagnosing skin cancer and classifying disease severity. Emergency and primary care providers (PCPs) have higher error rates in diagnosing dermatologic conditions compared to dermatologists. This study evaluates the performance of the AI-driven dermatologic image analytics tool, bellePro™, in identifying common skin disorders from classical images used in emergency medicine education.

Methods: In this prospective study, 42 classical images of common skin disorders were analyzed using the bellePro™ application (version 2.1.0), trained on over 400,000 dermatologic images. The 42 common skin disorder images "used in emergency medical education" underwent blind independent confirmation by our Academic Department of Dermatology. The bellePro™ 1K module provides AI-powered predictions from cell phone photos, ranking them by "image match scores" (higher values indicate better predictions). The primary outcome was the accuracy of three image predictions in identifying known diagnoses, along with the corresponding "image match scores."

Results: The AI tool correctly predicted 38 out of 42 skin disorders (90.5%) as the top differential on the first attempt for all three attempts. Four additional disorders were listed in the differential on all three attempts, but not always the top differential, bringing the total to 42/42 (100%). Four conditions (angioedema, squamous cell carcinoma, hand foot and mouth disease, and chickenpox) were included in the prediction list differential each attempt but never ranked first. None of the correctly identified disorders had an average "image match score" below 0.64. The average "image match score" for correct diagnoses was 0.896 (SD - 0.098).

Conclusions: The findings suggest that the AI-based dermatologic image analytics tool, bellePro™, performs effectively on classical images of common skin disorders typically seen in emergency settings. This has potential to ease EM providers' burden and improve patient outcomes in emergency care environments lacking timely access to dermatology resources.

No, authors do not have interests to disclose

209 Automating Treatment Team Interactions in the Emergency Department Using Real-Time Location Systems

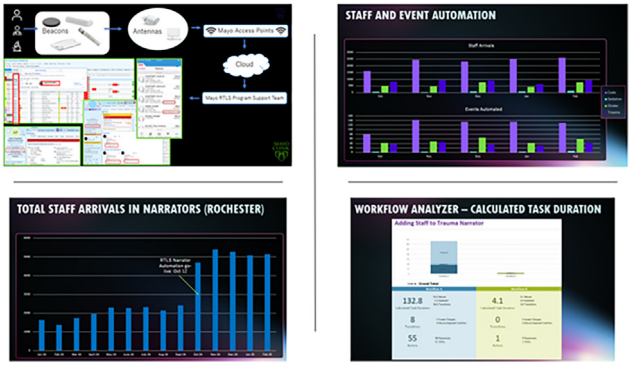
Jones D, Colletti J, Walker L, Davis G, Teasdale C, Watkins J, Heaton H/Mayo Clinic, Rochester, Minnesota

Study Objectives: Manual documentation of emergency treatment team member arrivals in the electronic health record (EHR) is inefficient, and error-prone during high-acuity events. We aimed to implement and evaluate an automated documentation system using real-time location systems (RTLS) to improve accuracy and efficiency in emergency department (ED) workflows, specifically during trauma, stroke, sedation, and code activations.

Methods: We deployed BluFi-based RTLS technology—combining Wi-Fi and Bluetooth—across our academic ED. Staff badges broadcast location signals every 5–20 seconds, enabling automated staff arrival logging. We integrated RTLS data into the EHR (Epic Systems Corporation) to populate specialty narrator event logs and treatment team print groups. We analyzed pre- and post-implementation workflows and quantified changes in staff arrival documentation, and time savings from October 2024 through February 2025. Feedback from nursing and trauma coordination staff was collected.

Results: Before automation, trauma event documentation involved multiple manual steps, cross-referencing logs and email communication, often resulting in delayed and incomplete data entry. Post-RTLS implementation (go-live: October 12, 2024), documentation became nearly instantaneous. Total staff arrivals in narrators increased from 2000 to over 4000 monthly after implementation. In trauma activations alone, average documented staff arrivals doubled. Simulation of manual versus automated workflows showed a minimum of 2-minute time savings per event, equating to over 8 hours of nursing time saved monthly. The system accurately captured support staff who previously went undocumented and enhanced trauma registry compliance for Level 1 accreditation. User feedback emphasized improved workflow efficiency and perceived safety.

Conclusion: RTLS integration into EHR workflows effectively automates critical care team arrival documentation, enhances data accuracy, reduces administrative burden, and improves operational efficiency in the ED. Further research is warranted to assess scalability and the impact on clinical outcomes and accreditation metrics.



No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

210 The Future of Work in Emergency Medicine: Susceptibility of Physician Tasks to AI Automation

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Study Objectives: Artificial intelligence (AI) is increasingly used in clinical settings, yet its implications for the structure of emergency physician work are not fully understood. While prior studies have examined AI applications in triage, documentation, and diagnostics, none have systematically evaluated which emergency medicine (EM) tasks are most susceptible to automation. This study aimed to analyze emergency physician responsibilities through a task-based lens to assess where AI may augment or replace human labor, with the goal of informing future workforce development and training.

Methods: We conducted a scoping review using data from existing time-motion studies and the Core Entrustable Professional Activities (EPAs) to identify core responsibilities of emergency physicians. Each task was classified using David Autor's automation framework, which includes four categories: routine manual, routine cognitive, non-routine manual, and non-routine abstract. These classifications were refined through collaboration with practicing emergency physicians to ensure clinical accuracy. Tasks were then mapped to current AI capabilities to assess their susceptibility to augmentation or automation.

Results: Fourteen discrete emergency physician tasks were identified. Only 21%—including documentation, medical records review, and emergency department operations management—were categorized as routine cognitive, and thus most susceptible to automation. In contrast, 79% of tasks were classified as non-routine manual (eg, physical examinations, performing procedures, patient handoffs) or non-routine abstract (eg, emergency care, point-of-care diagnostics, aftercare planning), which typically require interpersonal communication, physical skill, or complex decisionmaking. These categories are less amenable to full automation with current AI technologies.

Conclusion: Most emergency physician tasks involve nuanced judgment, physical dexterity, or interpersonal engagement—characteristics that significantly reduce their automation potential. While AI may improve efficiency by streamlining routine cognitive tasks, core EM responsibilities remain firmly human-driven. Preparing physicians to work effectively alongside AI systems will be essential for safe integration, optimized workflows, and future-ready clinical training.

No, authors do not have interests to disclose

211 Impact of the Revised Diabetic Ketoacidosis Diagnostic Criteria on Patient Classification

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Study Objectives: The American Diabetes Association (ADA) recently revised the diagnostic criteria for diabetic ketoacidosis (DKA) by lowering the glucose threshold and including beta-hydroxybutyrate rather than anion gap. We have previously identified a cohort of emergency department (ED) patients with DKA using the prior definition within a larger parent study. We evaluated the impact of the revised ADA DKA criteria on DKA identification to inform the potential effect of this new definition on ED DKA treatment protocols and study inclusion.

Methods: I USE LR was an implementation study conducted at Intermountain Health that enrolled over 148,000 patients. Within the parent study we identified 762 patients with DKA, of whom 99% were diagnosed in the ED. Using the prior DKA definition, we identified patients with DKA using automated queries and targeted chart review by applying the following criteria: ICD10 code for DKA, glucose >250 ml/dL, plasma bicarbonate ≤18 mEq/L, anion gap >10 mEq/L, and presence of ketones. We classified patients as having DKA if they met all five criteria and including additional patients through a process of criteria assessment, chart review, and adjudication. We repeated this identification process within the parent study, without any additional chart review, using the new ADA DKA criteria. The ADA definition lowered the threshold for glucose to ≥200 mg/dL and replaced anion gap with beta hydroxybutyrate ≥3.0 mmol/L. We compared those classified as having DKA using the new ADA DKA definition to those we had originally classified using the previous criteria.

Results: Utilizing the new ADA DKA criteria, we identified 452 patients who met all five criteria compared to 624 patients using the previous DKA criteria. Based on the original DKA definition, 31,054 patients from the parent study met one or more criteria for DKA while the new definition increased this to 31,905 patients. The original definition included anion gap and 5,653 patients of the 119,350 with a populated value who met that definition's threshold. Meanwhile, the new definition that utilized beta-hydroxybutyrate identified 595 that met this requirement, however, only 2,084 patients had a reported beta-hydroxybutyrate level. When considering glucose, there were 9,986 with values, and 5,954 met the original higher threshold while 9,759 met the new lower threshold. Adjudication of patients who met fewer than five criteria resulted in an additional 140 patients being classified as having DKA using the original criteria. This same adjudication process resulted in an additional 310 patients being included using the new ADA DKA criteria. The combination of inclusion by meeting five criteria, and adjudication of those meeting fewer than five criteria, led to identical cohorts of 762 total patients classified as having DKA both with the previous DKA definition and the new ADA DKA definition. However, if the targeted manual chart review and adjudication process were applied in the same fashion to newly identified patients based on the ADA criteria, there are an additional 207 charts to be reviewed and adjudicated for DKA.

Conclusion: We identified a subgroup of patients with DKA from a larger parent study using the previous DKA definition and the new ADA DKA definition. Despite differences in the DKA definitions, we confirmed the same cohort of patients. While the revised diagnostic criteria for DKA may impact laboratory testing, particularly with the use of beta-hydroxybutyrate, we do not anticipate a significant impact on numbers of patients included in clinical treatment protocols nor research studies.

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212 Overtreatment of Bacterial Vaginosis in the Emergency Department

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Study Objective: The most common standard for diagnosis of bacterial vaginosis (BV) is Amsel criteria, which includes vaginal/vulvar (VV) symptomatology/signs and abnormal diagnostic tests, including pH > 4.5, positive amine "whiff" test and positive clue cells. This is problematic in the emergency department (ED) as exam for clue cells is the only diagnostic test done in the ED. In addition, non-VV signs/symptoms such as abdominal, pelvic or flank pain, when faced with positive clue cells, may be substituted for true VV signs/symptoms in diagnostic decisionmaking related to BV. The goal of this study was to determine the proportion of ED patients diagnosed and treated for BV who lacked VV signs or symptoms consistent with BV, representing possible overtreatment.

Methods: This was a two-hospital, retrospective, chart review study of adults diagnosed and treated for BV during a one-year study period. The Informatics team assessed all ED patients presenting to these two hospitals from 1/1/2022 – 12/31/2022 and excluded all of the following patients: 1) non-female, 2) no ICD code for vaginitis/BV, 3) no wet mount performed, 4) gonorrhea/chlamydia- positive, 5) no outpatient metronidazole. For the chart review on the selected patients, four research personnel were trained on data abstraction and kept blinded to the study question. Charts were analyzed again for exclusion criteria and trichomonas-positive patients were also excluded. Data collection included six VV symptoms consistent with BV (VV pain, swelling, changed smell, discharge, dyspareunia, itching), non-VV abdominal/pelvic/flank symptoms (ie, bleeding, pain), four VV signs consistent with BV (discharge, "fishy" odor, any odor, tenderness), VV signs not consistent with BV (ie, bleeding, vesicles, mass, abscess, condylomata) and non-VV abdominal/pelvic/flank signs (ie, pain, distention). Pregnancy results were also collected. A separate chart review was done by the same trained, blinded abstractors examining all ED patients between 9/1/2022 – 12/31/2022 who had wet mount performed to determine what the treatment rate was for clue-cell positive patients.

Results: There were 473 patients treated for BV who were included in the analysis group. 99% of these patients were clue-cell positive. Of these, 264 (56%, 95% CI 95% CI 51% - 60%) had no VV symptoms, 211 (45%, 95% CI 40% - 49%) had no VV signs, and 149 (31%, 95% CI 27% - 36%) had neither VV signs nor symptoms. If excluding the 129 pregnant patients, these numbers change to 174 (50%, 95%CI 45% - 56%), 144 (42%, 95% CI 37% - 47%), and 91 (26%, 95%CI 22% - 31%), respectively. Uterine bleeding was the most common non-VV symptom in the all-patients and pregnancy-exclusion groups (65% and 53%, respectively) and abdominal/pelvic tenderness the most common non-VV sign (46% and 51%, respectively). In blinded review, there was 100% interobserver agreement on most symptom/sign elements. Regarding the chart review for clue-cell positivity, there were 537 patients with wet mount performed, of which 62 (11%, 95% CI 9% - 15%) were positive. Of those positive, 29 (47%, 95% CI 34% - 60%) were treated.

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Conclusion: Bacterial vaginosis is frequently diagnosed in ED patients without any VV signs or symptoms and, by most common BV definitions, represents possible antibiotic overtreatment. While almost all treated patients in our data set were clue-cell positive, only about half of our clue-cell positive patients were treated, suggesting that other factors likely affect decisionmaking. Proper antibiotic stewardship for these patients would require further research into more ED-centric practice patterns and treatment effect.

Patient Characteristics (n=473)	%	n
Demographics		
Age		
18-24	33.2%	157
25-34	33.4%	158
35-44	21.1%	100
45-54	8.7%	41
55+	3.6%	17
Ethnicity		
Hispanic/Latino	60.7%	287
Non-Hispanic/Non-Latino	39.3%	186
Race		
American Indian and Alaska Native	1.1%	5
Asian	4.4%	21
Black or African American	16.7%	79
Eastern Indian	0.4%	2
Native Hawaiian and Other Pacific Islander	0.4%	2
White or Caucasian	70.2%	332
More than one racial group identified	3.0%	14
Other	3.8%	18
Pregnant		
Yes	27.9%	132
No	59.4%	281
Unknown or not checked	12.7%	60
Lab Characteristics		
Clue Cell Positive	99.4%	470
Candida Positive	4.7%	22
Symptoms		
Vaginal/Vulvar Complaint Consistent with BV		
Discharge	33.4%	158
Odor	6.6%	31
Itching	6.8%	32
Dyspareunia	4.0%	19
Any of the above	44.2%	209
Complaints Not Consistent with BV (ie vaginal bumps, lesions, abscess, sores, cuts)	3.0%	14
Abdominal/Pelvic complaints		
Abdominal Pain	52.4%	248
Pelvic/Groin Pain	29.4%	139
Flank Pain	12.3%	58
Vaginal Bleeding	33.8%	160
Physical Exam Findings		
Vaginal/Vulvar Findings Consistent with BV		
Odor	0.2%	1
Discharge	53.5%	253
Tenderness	7.4%	35
Any of the above	55.4%	262
Findings Not Consistent with BV (ie brown discharge, friable cervix, vaginal foreign body)	15.0%	71
Abdominal/Pelvic Tenderness	40.8%	193
No Signs or Symptoms of BV	31.5%	149

No, authors do not have interests to disclose

213 Screening and Linkage to HIV Preventive Services for At-Risk Young Adults in a Safety-Net Pediatric Emergency Department

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Study Objectives: The pediatric emergency department (ED) at Los Angeles General Medical Center (formerly LAC+USC Medical Center), a large, urban public hospital, serves many adolescent and young adult patients at risk for HIV infection. Often, the ED is the patient's sole point of contact with the healthcare system. Opt-out non-targeted HIV screening among patients 13-21 has been offered in the Pediatric ED since May 2022. For patients screening HIV-negative, risk assessments were completed by trained navigators to determine the need for education and eligibility for linkage to outpatient comprehensive prevention services (CPS). This abstract describes the demographics and outcomes of program participants.

Methods: Patients between 13-21 years of age who were already receiving blood draws and did not opt-out were screened during their ED visit. Those who were medically stable, not in the custody of law enforcement, and found to be negative for HIV on screening were eligible for program participation. Eligible patients were offered education and linkage to CPS if reporting risk factors for HIV. Demographics and outcomes of patients screened, scheduled for, and attending CPS from May 2022 to June 2024 are described as outcomes for 10 weeks after the navigator program ended. CPS includes outpatient appointments where patients could be counseled regarding risk mitigation or options for medical prevention services.

Results: Between May 2022 and June 2024, 983 patients ages 13-21 meeting eligibility criteria for risk assessment screened negative for HIV, and among these, 494 (50.3%) screened positive for HIV risk factors and were eligible for linkage to CPS. Among these 494, 319 (64.6%) were female, 342 (69.2%) Hispanic, 48 (9.7 %) Black, and 17 (2.4%) White. Overall,193 (39.1%) were under 18 years of age. Risk factors identified included sexual activity in 332 (67.2%), intravenous drug use (IVDU) in 12 (2.4%), and other behavior-modifying substance use in 179 (36.2%). Females were primarily eligible due to sexual activity (n=244; 76.5%), though IVDU (n=11,2.4 %) and other drug use (108=%; 33.9%) were also reported. Risk factors reported by males included sexual activity (n=87, 49.7%) and other substance use (n=71, 40.6%). CPS was scheduled for 252 (52.0%), with one or more CPS visits attended by 237 (94.0%) of those for whom CPS was scheduled. Of 237 who attended one or more CPS appointments, 180 (75.9%) were female. Venues for CPS follow-up among 180 females attending one or more follow-up appointments included OB/GYN clinic (n=62; 34.4%), addiction medicine (n=60; 33.3%), primary care (n=18; 10%) and a specialized clinic providing forensic evaluations and care to high-risk patients (64; 35.6%). Among 57 males attending one or more scheduled CPS visits, sites included primary care (n=21; 36.8%), addiction medicine (n=11; 19.3%), and the aforementioned specialized clinic (n=9; 15.8%). In 10 weeks after navigator services ended, of 95 patients eligible for risk factor screening, 43 (45.2%) were eligible for linkage to CPS, and of these, 30 (69.8%) were female. In the post-navigator period, 8 (18.6%) of eligible patients were scheduled for CPS, with 7 (87.5%) of scheduled patients attending. Comparing the program period to the post-navigator period, the weekly mean number of patients identified as eligible for program participation was similar (4.6 vs 4.3), but the average number scheduled for (2.3 vs 0.8) and attending (2.2 vs 0.7) CPS were not.

Conclusions: Notably, high attendance rates at scheduled CPS appointments suggest enthusiasm among eligible patients for participation in CPS. Further work is needed to bridge the gender gap in screening and linkage to CPS and to educate this population about opportunities for risk mitigation. While HIV screening continued and the proportion of patients eligible for linkage to CPS remained relatively constant in the post-navigator period, scheduled and attended CPS appointments dropped substantially. While momentum for screening remained, the coordination of CPS did not after the navigator program ended, suggesting navigators played an essential role in ensuring linkage to CPS.

No, authors do not have interests to disclose

214 Missed Opportunities for the Diagnosis of Syphilis in the Emergency Department

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Study Objectives: Syphilis cases have increased steeply in recent decades, rising more quickly than any other sexually transmitted infection (STI). The emergency department (ED) is an opportune environment to screen for and diagnose syphilis, as it serves many high-risk, underserved populations who often lack access to primary care. Many individuals come to the ED to receive screening for an STI, yet these individuals may not receive screening for syphilis. Early diagnosis of syphilis can expedite treatment, but because they are not screened for syphilis, this leads to a missed opportunity of diagnosis. Few studies have investigated missed opportunities for syphilis diagnosis among those testing positive for syphilis in the ED, as well as the demographic and operational characteristics associated with a missed opportunity. The

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purpose of this study is to identify missed opportunities (MO) for a diagnosis of syphilis in the ED and sociodemographic and clinical characteristics associated with MOs.

Methods: This retrospective analysis assessed eligible patients (13+ years) identified as a "new syphilis diagnosis" at one of six EDs in a Southeastern hospital system between 1/1/2020 and 12/31/2024. New syphilis diagnosis was defined as a reactive *T. pallidum* antibody screen and a reactive rapid plasma reagin test with no previous history of syphilis in the electronic medical record. Individuals whose medical record showed a positive syphilis screening at an outpatient clinic were excluded. A MO occurred if a patient with newly diagnosed syphilis received STI testing at a previous ED encounter without being tested for syphilis at that same encounter. Age, sex, race, insurance status, ED opt-out program status, and history of STI were investigated as characteristics associated with an MO. ED opt-out program status was defined as any ED which had an opt-out program for screening HIV and Hepatitis C Virus. Emergency departments lacking an opt-out program utilized clinician-initiated screening for all STIs. Descriptive statistics were used to calculate the prevalence of MOs. Unadjusted and adjusted logistic regression was used to examine sociodemographic and clinical characteristics associated with a MO for syphilis diagnosis.

Results: Within 4 years, 146 patients screened positive for syphilis. Of the 146 newly diagnosed patients, most were male (68.5%) and White (59.6%), with an average age of 35.1 years (SD=9.5). Twenty-one (14.4%) of these new positive syphilis cases experienced an MO; 16 (76.2%) had one, and 2 (9.5%) had two, 2 (9.5%) had three, and 1 (4.8%) had four MOs. All 21 individuals experienced their MOs at the same ED where they were ultimately diagnosed with syphilis. In the adjusted model, individuals aged 13-24 had nearly 3 times greater odds of experiencing an MO compared to those aged 35-39 (OR=3.38, 95% CI=0.80-14.24, p=0.0085). Females were 48.0% more likely to experience an MO (OR=1.48, 95% CI=0.47-4.65, p=0.4992), though this did not reach statistical significance. Individuals seen in a hospital with an opt-out program for HIV/HCV testing were 72% less likely to have a missed opportunity compared to those screened at an ED utilizing clinician-initiated testing (aOR=0.28, 95% CI=0.08-0.97, p=0.0449).

Conclusion: One out of every seven newly diagnosed syphilis patients had an MO for syphilis diagnosis. Such findings strengthen the support for increased syphilis screening initiatives, especially for individuals aged 13-34. This analysis also showed that opt-out testing programs were more likely to lead to testing for syphilis. Future research utilizing a larger sample size would be optimal to accurately identify characteristics influencing gaps in ED syphilis screening, promoting earlier diagnosis, and ultimately connecting these individuals to treatment.

No, authors do not have interests to disclose

215 A Brief Education Module's Impact on Syphilis Co-Testing in Emergency Department Pregnant Patients

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Study Objectives: A dramatic increase in congenital syphilis cases in the United States has exposed critical gaps in the timely screening of pregnant patients. Although national guidelines recommend syphilis testing at multiple points during pregnancy, nearly 88% of congenital syphilis cases in 2022 were linked to inadequate or delayed testing. Given that emergency departments often serve as the primary access point for many patients, this study evaluated whether an educational module focusing on Centers for Disease Control and Prevention (CDC) recommendations targeted toward emergency department (ED) clinicians could improve the rate of syphilis co-testing during pregnancy.

Methods: This was a retrospective study of all patients presenting to a midwestern urban tertiary care center ED between 2023 and 2024 who underwent a pregnancy test. Data was systematically extracted from the health system electronic medical record (EPIC®) to determine rates for syphilis co-testing and other sexually transmitted infection (STI) screenings. In January 2024, an educational module was provided to ED staff and residents emphasizing CDC guidelines for syphilis screening during pregnancy, particularly in newly diagnosed cases. Two outcomes were analyzed among patients with positive pregnancy tests: syphilis co-testing and concurrent syphilis and HIV co-testing. A one-tailed two-proportion z-test (using R's prop. test without continuity correction) was performed to test that the 2023 co-testing rate was lower than that in 2024, with a significance threshold set at 0.05.

Results: The ED averaged approximately 70,000 visits annually during the study period. In 2023, 6301 pregnancy tests were performed with 212 positives. In 2024, 7181 tests were performed with 179 positive results. There were 391 positive pregnancy tests, 79 syphilis co-tests, and 66 syphilis and HIV co-tests over the two years. Syphilis co-testing rates increased significantly from 16.5% (35/212) in 2023 to 24.6% (44/179) in 2024 following intervention (one-tailed z-test: $\chi^2 = 3.92$, p = 0.0238; 95% CI: –1.000 to –0.0132). Similarly, concurrent HIV and syphilis co-testing increased from 13.7% (29/212) in 2023 to 20.7% (37/179) in 2024 (one-tailed z-test: $\chi^2 = 3.38$, p = 0.0330; 95% CI: -1.000 to -0.000678). These findings support a significant increase in co-testing rates following the educational intervention.

Conclusions: A single education module significantly improved syphilis and syphilis and HIV co-testing rates among newly diagnosed pregnant patients in the emergency department setting. This was part of an earlier targeted effort to improve ED STI testing. These findings suggest that targeted educational interventions can enhance adherence to screening guidelines, potentially contributing to earlier detection and reduction in congenital syphilis cases among high-risk populations. Additional strategies, however, will be necessary to further optimize screening practices in these critical care settings.

No, authors do not have interests to disclose

216 Syphilis Screening in the Emergency Department: Racial Disparities Underscored

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Study Objective: Since reaching an historic low in 2000-2001, the US has seen a recent sharp rise in syphilis incidence. Racial disparities have previously been noted in syphilis rates; the reported case rate among African Americans/Blacks is 4 to 5 times the rate among whites. Emergency departments (EDs) have been proven to be a valuable setting for public health screening and treatment linkage, particularly for communicable diseases and sexually transmitted infections (STIs). This project considers the early results of a focused, ED-based, automated syphilis screening project in the context of known racial disparities.

Methods: An automated system was developed to trigger a treponemal antibody (Ab) lab (with reflex RPR and titer, if positive) on any ED patient with a history of prior STI within 12 months of ED visit (determined by prior laboratory result in the electronic medical record) or a chief complaint or reason for visit keyword suggestive of an STI or pregnancy. Lab ordering and completion incidence, results, and subsequent interpretation were monitored. For patients determined to have active syphilis, definitive linkage was tracked and basic demographics were obtained. Descriptive statistics were performed.

Results: In the three-month project period reviewed, 746 automated treponemal Ab labs were ordered (approximately 4% of ED patient volume), 580 labs were obtained (77.7%), 56 (9.7%) were Ab positive and 29 (5.0%) were subsequently interpreted as consistent with active syphilis; to-date, 24 (82.8%) have successfully linked to definitive care. Among confirmed active cases, 23 (79.3%) were Black compared to 3 (10.3%) white and 3 (10.3%) Hispanic. Among Black active cases: 12 (52.2%) were female and 11 (47.8%) were male; age ranged from 18 to 81 although most common was age 25-34 (7; 30.4%); 10 (43.5%) were privately insured, 6 (26.1%) were publicly insured and 7 (30.4%) were uninsured. Several active cases (7; 30.4%) were consistent with secondary or tertiary syphilis. Of 22 eligible for treatment linkage, 19 (86.3%) have successfully linked to definitive care to date.

Conclusion: Focused, automated, risk-based syphilis testing in the ED setting is feasible and further, identifies an incidence of active syphilis infection much higher (> 10x) than that seen in the general population. Further, this ED cohort underscores the racial disparity that exists in syphilis incidence (>7.5x Blacks as compared to whites in this sample). Active syphilis identified by this type of screening program can result in successful linkage to definitive treatment.

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217 Neighborhood Socioeconomic Disadvantage and STI Positivity Among Emergency Department Patients in New York City

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Study Objective: Sexually transmitted infections (STIs) disproportionately affect socioeconomically disadvantaged communities, but the role of neighborhood-level factors in shaping STI risk among emergency department (ED) patients is underexplored. We examined the association between STI test positivity and census block group-level socioeconomic characteristics among ED patients tested for STIs across six EDs in New York City (NYC).

Methods: We conducted a retrospective analysis of STI testing data from 19,776 patients who visited six NYC EDs between 1/1/2015 and 12/31/2021. Patient addresses were linked to American Community Survey (ACS) demographic data at the census block group level. We used Welch's two-sample t-tests to compare neighborhood-level sociodemographic characteristics between STI-positive and STI-negative patients.

Results: STI-positive patients resided in census block groups with significantly lower median household income ($49,846 vs $54,528; $p = 0.0002$) and higher poverty rates (27.4% vs 25.8%; $p = 0.0008$). Educational attainment differed significantly, with STI-positive patients more likely to live in areas with a higher percentage of adults without a high school diploma (22.1% vs 21.0%; $p = 0.006$). Public assistance utilization was also higher in STI-positive patients' neighborhoods (8.0% vs 7.5%; $p = 0.022$). Racial/ethnic composition varied, with STI-positive patients residing in census block groups with a higher proportion of non-Hispanic Black residents (30.1% vs 27.4%; $p < 0.001$) and a lower proportion of non-Hispanic White residents (18.5% vs 21.1%; $p < 0.001$). Internet access disparities were notable, with STI-positive patients more likely to live in areas with a higher proportion of households lacking internet access (16.2% vs 15.1%; $p = 0.002$). No significant differences were observed in Hispanic/Latino population percentage, public transit use, limited English proficiency, unemployment, or housing vacancy rates.

Conclusions: Neighborhood-level socioeconomic deprivation, including lower income, higher poverty, lower educational attainment, and reduced internet access, is associated with STI positivity among ED patients. These findings highlight the need for targeted STI prevention and linkage-to-care efforts in socioeconomically disadvantaged communities. Future research should explore spatial clustering of STI risk, how individual patient-level data impacts the association between neighborhood and STI positivity, and interventions such as HIV PrEP initiation and expedited partner therapy to increase services in high-burden neighborhoods.

No, authors do not have interests to disclose

218 WITHDRAWN

219 Tanruprubart (ANX005) Targeted Therapy Reduces Ventilation Requirements in Guillain-Barré Syndrome

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Study Objective: Guillain-Barré syndrome (GBS) is a neuromuscular emergency requiring hospitalization and necessitating mechanical ventilation in severe cases. In GBS, an infection triggers antibodies that cross-react with gangliosides on peripheral nerve components, activating C1q and the classical complement pathway, leading to neuroinflammation and nerve damage. GBS-02, a randomized, double-blind, placebo-controlled, Phase 3 trial, assessed the safety and efficacy of tanruprubart (ANX005), a C1q inhibitor that inhibits the classical complement pathway, in patients with GBS. This analysis evaluated the impact of tanruprubart on duration of ventilation, a critical disease burden marker.

Methods: Ventilation duration was analyzed using a zero-inflated negative binomial (ZINB) model. Study patients who die or die early while on mechanical ventilation could bias ventilation duration. Therefore, death and treatment exposure at time of ventilation were considered intercurrent events, with those never ventilated assigned a duration of zero days, while those who died on ventilation were imputed with 182 days (trial length). This includes one patient in each active arm who died without ventilation. This analysis evaluates the subset of the population that required ventilation during the study and those that were ventilated before treatment using a Kruskal-Wallis test followed by a Wilcoxon test to compare each dose to placebo.

Results: The ZINB model showed significant reduction in ventilation duration with tanruprubart compared to placebo (tanruprubart 30 mg/kg: 28-day median reduction, p=0.0356; tanruprubart 75 mg/kg: 34-day median reduction, p=0.0011). In ventilated patients without imputation, median duration of ventilation was reduced by 15 days for tanruprubart 30 mg/kg (p=0.0079) and 20 days for tanruprubart 75 mg/kg (p=0.0080). Similar reductions were observed when analyses were restricted to patients receiving treatment during ventilation, median duration of ventilation was reduced by 16 days for tanruprubart 30 mg/kg (p=0.0137) and 22 days for tanruprubart 75 mg/kg (p=0.0020).

Conclusions: These results demonstrate that tanruprubart significantly reduces ventilation duration in patients with GBS, even those already ventilated at treatment initiation, highlighting tanruprubart's potential to improve critical outcomes in severe GBS.

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KCG: Consultancy/advisory role with Annexon Biosciences, Argenx, Janssen, and Sanofi

220 Targeted Intestinal Cooling Offers Superior Brain Protection in the Mouse Stroke Model

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Study Objectives: Intestinal inflammatory response play a detrimental role following stroke. Experimental deep hypothermia that lower core body temperature to around 10-20°C have demonstrated optimal tissue protection in animal ischemia-reperfusion injury models. However, clinical implementation of "deep" (< 18°C) hypothermia has been hindered by difficulty of rapidly cooling of an adult human body and high risk of sudden cardiopulmonary failure when core temperatures fall below 28°C. This study aimed to: (i) determine whether a novel targeted Colon Cooling (CC) technique could achieve faster and deeper intestinal cooling than the commonly used systemic Surface Cooling (SC) after ischemic stroke; (ii) evaluate the impact of these cooling approaches on histopathological brain injury volume, survival rate, and physical and functional recovery compared to the normothermia condition (NT).

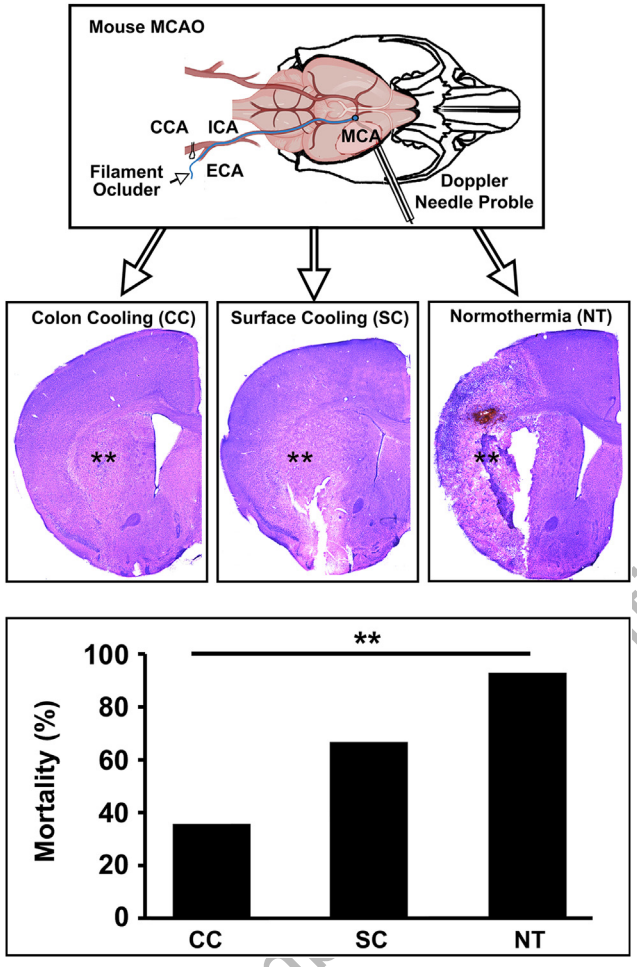
Methods: Mice were randomly assigned to CC, SC, or NT groups (n=10/group). All mice underwent 60 minutes of middle cerebral artery occlusion (MCAO) followed by 7 days of reperfusion. By the end of 60 min MCAO, we placed a TransRectal Intra-Colon (TRIC) circulating catheter to maintain intra-colon at either 37°C (NT) or 12°C (SC) for 270 minutes, while maintaining the esophageal as near 37°C as possible in both groups. In CC group, the esophageal temperature could only be maintained at 30°C. In SC group, both intra-colon and esophageal temperatures were maintained at 30°C. Temperature managements were initiated at 30 minutes post-MCAO and continued for 3 hours. Bodyweight, behavioral deficits, and neurological scores were assessed daily, and histopathological brain injury volume was examined at 7 days post-MCAO.

Results: Post-stroke histopathological brain injury volume was the smallest in CC, intermediate in SC, and largest in NT group. Body weight, nesting activity, and

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performance on pole test, Y-maze, and neurological score improved significantly in the CC group but was insignificant in the SC or NT groups post-MCAO stroke. The mortality rate was the lowest in CC group, intermediate in the SC group, and the highest in the NT group.

Conclusion: Our novel CC technique, demonstrated in a murine model, successfully achieved deep hypothermia in the intestines while maintaining safe upbody temperatures for maintaining normal cardiopulmonary function. This CC cooling approach significantly reduced stroke injury volume and mortality while enhancing functional recovery compared to the systemic surface cooling. Intestinal cooling could provide a safer more effective therapeutic hypothermic benefits for stroke treatment.



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221 Role for Metabolomic Biomarkers in Stroke Patients with Unknown Time of Onset: A Case-Control Study

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Study Objectives: Acute ischemic stroke (AIS) patients with unknown time of onset are typically excluded from intravenous thrombolysis (IVT) treatment. Feasible methods to identify which patients from this population fall within the thrombolysis time window of 4.5 hours (h) are lacking. This study aims to identify potential metabolomic blood biomarkers that differentiate stroke patients who are within the IVT window.

Methods: A case-control study using prospectively collected patients was conducted between June 2022 and July 2023 in Ningbo No. 2 Hospital. Adult AIS patients (mean age 70.6 years, 76.7% male) within 24h from symptom onset were included. We examined 4,559 metabolites in the plasma of AIS patients with known onset time and performed a stepwise analysis including random forest variable importance analysis to identify potential biomarkers. The primary outcome was AIS patients with onset time within 4.5 hours (h) (ES).

Results: 30 patients with AIS were included: ES (n=16), and the late AIS group (LS), with onset time within 4.5-24 hours (n=14). The AUCs of Biliverdin and Nicotinamide N-oxide (NAMO) for differentiating ES from LS patients were 0.85 (95% CI, 0.71-0.99) and 0.95 (95% CI, 0.87-1.00) respectively. Biliverdin, at a cutoff value ≥27,040 relative abundance (RA) ruled in ES with a specificity of 86% (95% CI, 60% - 96%), sensitivity of 63% (95% CI, 39% - 82%), and positive predictive value (PPV) of 83% (95% CI,55% - 95%). A cutoff <16,200 RA ruled out ES with a sensitivity of 94% (95% CI,72% - 99%), specificity of 79% (95% CI,52% - 92%), and negative predictive value (NPV) of 91.7% (95% CI, 65% - 99%). 80% of patients were optimally classified, with a 'grey zone' comprising 20%. NAMO, at a cutoff value of ≤755 RA ruled in ES with a specificity of 100% (95% CI, 78% - 100%) and a sensitivity of 69% (95% CI, 44% - 86%). A cutoff value of >2020 RA ruled out ES with a sensitivity of 100% (95% CI, 81% - 100%) and a specificity of 79% (95% CI, 52% - 92%). The proportion in the 'grey zone' was 26.7%. A combined panel of Bilirubin and NAMO, yielded an AUC of 0.964 (95% CI 0.9-1). ES was ruled in with a specificity of 85.71% (95% CI, 60% - 96%) and a sensitivity of 94% (95% CI, 72% - 99%). ES was ruled out with a sensitivity of 94% (95% CI, 72% - 99%) and a specificity of 100% (95% CI, 78% - 100%). No 'grey zone' was observed in this panel.

Conclusion: Biliverdin and NAMO demonstrate potential as a 'molecular clock' for ascertaining the onset time of AIS patients with unknown time of onset, providing them with an opportunity for IVT and enhancing their prospects for recovery.

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Ethical Approval and Informed Consent: The study protocol was approved by the ethics committee of Ningbo No. 2 Hospital (Approval number: YJ-NBEY-KY-2023-099-01), with all participants providing written informed consent.

No, authors do not have interests to disclose

222EMF N-Acetylcysteine Glucose-Dendrimer Nanoparticles Affect Behavior in Intracerebral Hemorrhage in Mice

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Study Objective: Intracerebral hemorrhage (ICH) is a devastating disease with high morbidity and mortality and no specific treatment, in part because of the inability to address injurious neuroinflammation following the initial bleed. This is associated with mitochondrial dysfunction and increased energy demand in the surrounding neurons and glia further exacerbating oxidative stress and inflammation. N-acetyl cysteine is an antioxidant and anti-inflammatory agent that has been considered for treatment of acute brain injury but has not been effective due to low brain penetration and potential worsening of excitotoxicity due to its intracellular transport though the cystine-glutamate antiporter xCT. In this study, we propose to overcome these by targeted delivery of NAC using novel glucose dendrimers (GD) that have been shown to specifically localize in hypermetabolic neurons and glia. We hypothesize that targeted delivery of GD-NAC to injured neurons will decrease inflammation and lead to improvement in behavioral deficits in a mouse model of ICH.

Methods: ICH were induced in mice by injecting collagenase into the striatum of the right hemisphere. For localization studies, GD nanoparticles tagged with Cy5 fluorescent dye (GD-Cy5) were retro-orbitally injected at 0 hours, 3 days, or 7 days post-ICH, and allowed to systemically circulate for 24 hours. Mice were then transcardially perfused with saline, and brains were harvested and sectioned. Immunohistochemistry was performed with Iba1 (a marker of microglia/macrophages), GFAP (astrocytes), and DAPI (cell nuclei). Brain sections were imaged using

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fluorescence microscopy to detect GD-Cy5 uptake over the multiple post-ICH dosing timepoints. For behavioral studies, at 3 hours post-injury, mice received a single retro-orbital injection of 10mg/kg GD-NAC (n=6) or GD-Vehicle control (Veh, n=6). Sham mice (n=4) received an injection of the same volume of heat-inactivated collagenase into the right striatum and no additional treatment post-injury. Behavior testing consisted of following weight recovery/gain, rotarod performance for motor/coordination, and Morris water maze (MWM) performance for cognitive function, through post-operative (POD) day 21. Additional experiments to increase n in each group are ongoing during the time of this abstract submission.

Results: Localization studies found that GD-Cy5 had greatest uptake on POD7 compared to POD0 or 3, with increased signal around the hemorrhage (**Figure 1ab**). Ongoing studies aim to quantify the uptake and look for cell-specific localization of GD. Regarding behavior, 5 of the 6 mice in the GD-NAC group, all Veh, and all Sham mice survived to POD21. ICH injury had a strong, consistent behavioral deficit, as demonstrated by early reductions in percent baseline weight (NAC 88%, Veh 93%, Sham 98% on POD1, **Figure 1c**), and percent baseline rotarod performance (NAC 22%, Veh 30%, Sham 92% on POD1, **Figure 1d**). Though not statistically significant at current n's, mice treated with GD-NAC showed better performance than Vehicle, and similar performance to Sham in MWM testing at POD7 (**Figure 1e**). There is no difference in weights or rotarod testing (**Figure 1cd**).

Conclusions: GD nanoparticles delivered systemically can localize to the area of intracerebral hemorrhage. Furthermore, a single dose of GD-NAC at 3 hours post-ICH showed promising trends towards neuroprotection as demonstrated by better cognitive function via MWM maze testing on POD7 compared to vehicle, reaching similar performance as Sham mice. These findings give preliminary data for the use of GD-NAC as a potential treatment for secondary brain injury in ICH.

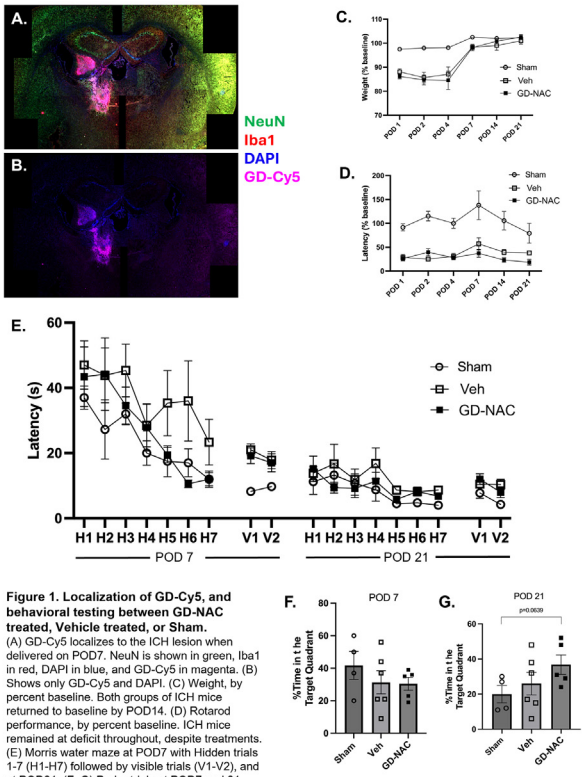


Figure 1. Localization of GD-Cy5, and behavioral testing between GD-NAC treated, Vehicle treated, or Sham.
(A) GD-Cy5 localizes to the ICH lesion when delivered on POD7. NeuN is shown in green, Iba1 in red, DAPI in blue, and GD-Cy5 in magenta. (B) Shows only GD-Cy5 and DAPI. (C) Weight, by percent baseline. Both groups of ICH mice returned to baseline by POD14. (D) Rotarod performance, by percent baseline. ICH mice remained at deficit throughout, despite treatments. (E) Morris water maze at POD7 with Hidden trials 1-7 (H1-H7) followed by visible trials (V1-V2), and at POD21. (F, G) Probe trials at POD7 and 21.

No, authors do not have interests to disclose

223EMF Biomarkers Predicting Functional Outcomes in Patients With Ischemic Stroke Requiring Thrombectomy

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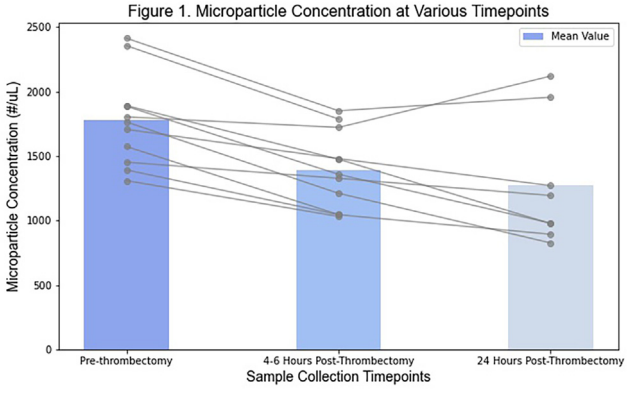
Introduction: Mechanical thrombectomy is the standard of care for patients with Ischemic Strokes from large vessel occlusions (IS-LVO). Previous research has focused on the importance of various factors regarding this treatment, especially the timing of stroke symptom onset, and various other initial time points, to thrombectomy treatment. Patient's prognostications are often relied on presenting symptoms, repeating imaging studies. Although biomarkers as prognostication factors are promising in other fields, they are not well understood in this particular population, particularly microparticles. However, neurological research has recently elucidated the importance of microparticle biomarkers in understanding and predicting the inflammatory processes that are occurring in similar patient populations.

Study Objectives: This study aimed to 1) establish whether the serum levels of brain-specific microparticles are different after mechanical thrombectomy in patients with IS-LVO and 2) establish whether the degree of reduction of serum levels of brain-specific or Ischemic Stroke- induced microparticles correlates with patients' good 90-day functional independence, defined as mRS 0-2.

Methods: This is a prospective observational study. Data will be gathered from patients at various timepoints, with them serving as their own baseline controls. Up to three blood samples will be obtained from patients, prior to mechanical thrombectomy/upon arrival and up to two blood samples within 24 hours post-mechanical thrombectomy. Functional status will be evaluated using the modified Rankin scale (mRS) at 90 days after discharge. Continuous variables were analyzed using paired t-tests, correlation tests, as appropriate, and data analysis was completed using SciPy. Statistical analysis was completed using Python.

Results: We enrolled 11 patients, with a mean (±SD) age of 66 (±11) years, 55% being female. The mean of microparticle concentration (#/ul) significantly decreased between pre-thrombectomy (1,777, SD ±358) and 4-6 hours post-thrombectomy (1,394.81, ±299, $p < 0.0001$) samples (total N=11). This difference was also observed between the pre-thrombectomy and 24 hours post-thrombectomy samples (1,277.81, ±SD 494, p=0.01, total N=8).

Conclusion: Preliminary data and analysis demonstrate a significant decrease in microparticle concentration from before thrombectomy to after thrombectomy. This result may indicate potential changes in the inflammatory response as a result of treatment. Further research and analysis should be conducted to understand the role of specific microparticles and the relationship between microparticles and favorable neurological outcomes.



Yes, authors have interests to disclose

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Samantha Camp
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Samantha Camp

Grant Support

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224 Can Emergency Department-Initiated Acupuncture Promote Lasting Pain Relief and Improvement in Function?

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Study Objectives: Pain is one of the most common reasons for seeking treatment in the emergency department (ED) with some studies reporting that pain is responsible for up to 78% of ED visits. Acupuncture has been used successfully as a non-pharmacologic treatment for pain outside of ED settings. Prior research has demonstrated that acupuncture is feasible in the ED setting. The aim of this study was to determine if ED-initiated acupuncture at the bedside or referral to clinic can improve pain and function.

Methods: This is a retrospective cohort analysis in an urban academic ED (annual census 130,000) of adult patients with intractable acute or chronic pain offered acupuncture treatment by board-certified acupuncturists at the discretion of the treating ED clinician. Demographic, clinical data, and Short Form Health Survey scores (SF-12) were recorded during intake and follow-up; patients with complete data 90 days after first treatment were eligible for analysis. Descriptive and paired student T-test were used where appropriate.

Results: Between 7/1/2021 and 6/30/2024, 438 ED patients received acupuncture treatment, and 142 (32%) completed a 90-day follow-up interview. Mean age was 52 years (SD 14.2) and 62.6% of patients were female. Race/ethnicity was 49.9% African American/Black, 36.7% Hispanic, Latino, or Chicano, 5.4% Asian, 6.7% Caucasian, and 37.1% Other. Sixty five percent received their initial acupuncture treatment in the ED, and the median number of acupuncture treatment sessions was 4 (range 1-9). At 90-day follow-up, the mean Physical Component Score of SF-12 improved from 28.4 to 36.5 ($P < 0.001$), the mean Mental Component Score improved from 44.7 to 46.2 (p=ns). At 90 days, 18% reported feeling they accomplish more and 27% felt less limited in the work they do ($p < 0.001$). At 90 days an average of 6 fewer days of work or school were missed because of pain, and the number of ED visits for pain was reduced by 40% ($p < 0.001$).

Conclusion: ED-initiated acupuncture treatment significantly improved SF-12 scores, increased function, decreased the need to miss work or school, and reduced ED visits for pain. These findings demonstrate that adding acupuncture therapy to a busy ED with linkage to clinic for follow-up treatment is feasible. Additional research is necessary to determine which painful conditions would benefit most from ED-initiated acupuncture treatment.

No, authors do not have interests to disclose

225 Pediatric Intraosseous Line Placement: A Simulation-Based Study on Skill Acquisition and Retention

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Study Objectives: Intraosseous (IO) line placement is a lifesaving procedure in pediatric emergency medicine, often required when IV access is difficult or delayed. Effective and timely IO placement is essential for critically ill children. Despite its importance, pediatric residents have limited exposure to this high-acuity, low-occurrence procedure, potentially impacting procedural confidence and skill retention. This study evaluates the effectiveness of a structured simulation-based emergency medicine training program in improving pediatric residents' knowledge, confidence, and procedural competency in IO placement. Additionally, it assesses long-term retention at two months post-training to determine the need for refresher sessions.

Methods: This prospective, collaborative, simulation-based study was conducted at a Level 1 pediatric trauma center with a three-year pediatric residency and a pediatric emergency medicine fellowship. Participants included 19 pediatric residents (PGY-1: 8, PGY-2: 4, PGY-3: 7). Each session included a pre-training survey assessing self-reported confidence using a 0–5 numeric scale and baseline procedural knowledge via four multiple-choice questions. Residents then underwent a one-hour structured simulation session demonstrating indications, contraindications, complications, and procedural technique followed by hands-on, supervised practice on an IO simulation model. Competency in IO placement was assessed using an 11-item skills mastery checklist, adapted from a validated assessment tool (score range 0-22). Residents completed post-simulation surveys immediately after training and again at two months to measure knowledge retention and confidence decay over time. Data collection and analysis followed established methods from intervention-based research. Survey results were linked via anonymous identifiers and analyzed using paired two-tailed t-tests ($\alpha=0.05$). 95% confidence intervals (CI) were calculated for all significant findings.

Results: Resident confidence and knowledge improved significantly after simulation training, with sustained retention at two months. Immediately after training, confidence in IO placement increased by 2.12 points ($p < 0.001$, 95% CI: 1.61–2.63), confidence in indications increased by 1.82 points ($p < 0.001$, 95% CI: 1.19–2.46), and confidence in anatomical site recognition increased by 1.82 points ($p < 0.001$, 95% CI: 1.21–2.43). At two-month follow-up, compared to pre-intervention: Confidence in IO placement remained significantly higher (+1.81, $p < 0.001$, 95% CI: 1.16–2.46). Confidence in indications remained improved (+1.00, $p < 0.02$, 95% CI: 0.15–1.85). Confidence in anatomical site recognition remained significantly elevated (+1.31, $p < 0.001$, 95% CI: 0.68–1.95). Knowledge scores also showed sustained improvement, increasing immediately post-training by 38% ($p < 0.001$, 95% CI: 27%–49%) and remaining 22% higher than pre-intervention at two months ($p < 0.005$, 95% CI: 0.07–0.36). Competency assessments demonstrated high performance (>91%) across all training levels, confirming successful skill acquisition.

Conclusion: A collaborative pediatric emergency medicine simulation training program significantly improved pediatric residents' knowledge, confidence, and procedural competency in IO line placement. Importantly, confidence and knowledge remained significantly higher at two months compared to pre-training levels, indicating successful skill retention. Limitations include the small sample size, single-institution setting, and reliance on self-reported confidence measures, which may introduce bias. Additionally, the study did not assess clinical application of IO placement in real patient encounters. Future research should explore real-world success rates, long-term retention, and optimal training intervals to ensure continued proficiency in IO placement for critically ill children.

No, authors do not have interests to disclose

226 Pericapsular Nerve Group Block Versus Fascia Iliaca Compartment Block for Hip Fracture Analgesia

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Study Objectives: Hip fractures are a common, painful injury in emergency department (ED) patients. Regional anesthesia techniques are more effective in managing hip fracture pain than systemic analgesia alone and can decrease risk of perioperative delirium in elderly patients. Literature suggests that efficacy is similar between the fascia iliaca compartment block (FICB) and femoral nerve block. In 2018 a new technique named the pericapsular nerve group (PENG) was described and has since been studied for hip fracture analgesia. This study aims to compare the analgesic effectiveness of the PENG block to the FICB.

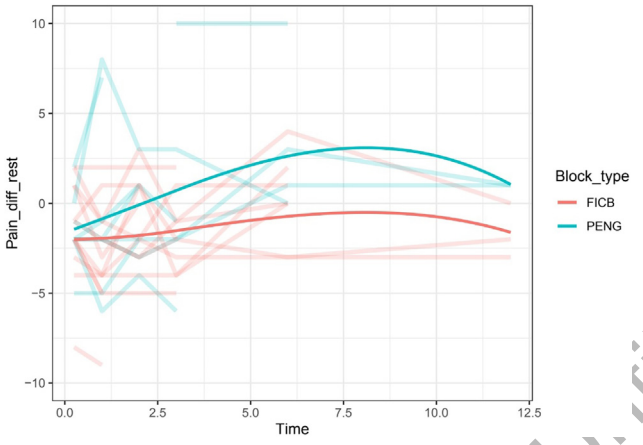
Methods: We performed a prospective, randomized trial on a convenience sample of adult ED patients diagnosed with hip fracture. The primary outcome was at-rest pain reduction on a 0-10 numerical rating scale (NRS) at predetermined time points. Based on previous studies, N=50 was chosen to attain 80% power to detect $\geq$1.5 NRS difference. The secondary outcome was opioid consumption from prehospital transport until surgery or 24 hours post-block (if surgery was delayed >24 hours) expressed in morphine milligram equivalents (MME) per hour. Blocks were performed by study investigators or trainees supervised by study investigators using active ultrasound guidance. A high frequency linear transducer probe was used for the FICB; a low frequency curvilinear probe was used for the PENG blocks unless patient body habitus allowed for acceptable image quality with a high frequency linear probe. Bupivacaine 0.25% without adjuvants was used in volumes described in previous literature. For regression analysis, we computed within-patient NRS time 0 differences as the response, analyzed via a Linear Mixed Model, which accounted for correlation between

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time points within patients. Univariate comparisons were performed using Wilcoxon-Rank, Mann-Whitney U, and chi-squared tests.

Results: This is an interim analysis of 24/50 patients: Fifteen received FICB blocks; 9 received PENG blocks. Average patient age was 71 years, 58% were biologically female. Femoral neck fractures were more frequent (66%) than intertrochanteric fractures. Patient age (p=0.228), sex (p=0.125), and fracture type (p=1.000) did not differ significantly between block types. The average pre-block pain score was 6. Adjusted only for time, FICB significantly improved the mean NRS time 0 differences compared to the PENG block by 3.21 (0.61, 5.81; p=0.0179) points. A similar difference of 3.19 (1.45, 4.94; p=0.0011) was found when adjusting for patient age. The average MME/hr consumption did not differ between the groups (FICB 1.50, PENG 1.48; p= 0.860).

Conclusions: This interim analysis presents evidence suggesting that the FICB is more effective than the PENG block for controlling hip fracture pain in ED patients. This finding is contrary to other studies that showed similar effectiveness of the PENG block to FICB or femoral nerve block. This could be secondary to as-of-yet unidentified confounding variables like degree of fracture displacement or contribution of muscle spasm to overall pain level. There was no significant difference in opioid consumption or patient characteristics between groups. Enrollment will continue to evaluate durability of these results.



Yes, authors have interests to disclose
Disclosure: Rivanna Medical
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227 Feasibility of Ultrasound-Guided Nerve Block for Distal Radius Fracture Reductions

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Introduction: Pain management for reduction of distal radius fractures is achieved through hematoma blocks (HB), sedation, or Ultrasound-Guided Nerve Block (UGNB). UGNB as an adjunct for pain management has been associated with reduced opioid use, shorter emergency department (ED) length of stay (LOS), fewer adverse events, and improved functional outcomes when compared to procedural sedation. Also, in patients with contraindications to procedural sedation, UGNBs may also be the only suitable method for analgesia. Despite evidence indicating both the feasibility and utility of UGNBs in the ED management of the acutely injured patient, reports indicate poor penetration in emergency medicine clinical practice.

Study Objective: To assess the feasibility of UGNB for distal radius fracture reductions in real world settings of a large health system including 20 community EDs and 1 academic hospital.

Methods: We followed the STROBE guidelines for cohort studies. We analyzed outcomes of all consecutive adult patients aged 18 and older presenting to the Mayo Clinic Health System (MCHS) ED with acute distal radius fractures from January 1, 2020 to April 15, 2024. Outcomes included pain scores, total milligrams of morphine equivalents (MME), ED LOS, hospitalization and ED return visits. Continuous variables were compared using Kruskal-Wallis tests and categorical variables were compared using Chi-square or Fisher's exact tests.

Results: A total of 2,608 patients were included. Twenty-two (1.1%) visits received UGNB, 138 (5.3%) PS, and 2,448 (93.9%) HB or no reduction. Median total MME was higher for UGNB (7.5 [6.8, 13.9]) and PS (7.5 [2.0, 14.0]) as compared to HB (5.0 [0, 9.7], p <0.001 for the 3 group comparison). Median time in the treatment room was similar for UGNB (242 min [199, 355]) and PS (247 [179, 320]), and lower for HB (181 [116, 273], p <0.001 for the 3 group comparison). Hospital disposition was similar for the 3 groups with 72.7%, 80.4%, and 82.5% going home in the UGNB, PS and HB groups, respectively. Of the patients given UGNB, 0% went emergently to the operating room, compared with 0.7% of those undergoing PS and 1.3% for HB (p-value 0.85). Thirty day return rates were similar, with 9.1% in UGNB, 16.7% in PS, and 12.9% in HB, p=0.38.

Conclusions: UGNB is feasible for distal radius fracture reductions in a large healthcare system including 20 community EDs. The results of UGNB are comparable to procedural sedation regarding MME, ED length of stay, and ED return rates. As previously shown, their uptake is low in the ED. Identifying barriers for its adoption will be important to disseminate and implement this practice.

No, authors do not have interests to disclose

228 Patient-Reported Outcomes Following Transcutaneous Electrical Nerve Stimulation

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Study Objectives: A three-year grant from the Substance Abuse and Mental Health Services Administration (SAMHSA), supported a program to deploy training and facilitated bedside utilization of various medications and procedures to address pain management without the use of opioids. This Alternatives to Opioids (ALTO) program, instituted within a busy level 1 trauma center emergency department (ED), provided electronic medical record (EMR) based order sets and enhanced training and bedside support for various procedures including acupuncture, trigger point injections, regional nerve blocks (RNBs), and Transcutaneous Electrical Nerve Stimulation (TENS) to provide alternatives to opioids to treat pain.

Methods: This is a single site prospective cohort study (8/1/2021- 11/30/2024) including all adult (18yrs or older) patients with reported pain within the only regional level 1 (~95K adult ED patients/year) trauma center in Greenville, SC. Patients were offered alternative pain relief treatments as per discretion of the treating physician. Patients were offered alternative treatments even if not enrolled in the study. All alternative medications and procedures offered are approved and standard therapies not often utilized within the ED. Patients were consented and enrolled in the ED and assessed for any and all treatment modalities utilized in the ED including MMEs if opioid were used. In addition, pre and post pain scores and overall satisfaction were collected in the ED. In addition, enrolled patients were contacted by a study team member by phone (~48hrs and up to 7 days if no response) after discharge to assess pain level, overall satisfaction and if they would request/utilize any alternative treatment as utilized again.

Results: Of the 550 enrolled patients that received TENS treatments in the ED, 349 (63%) completed their follow up survey. On follow up surveys as conducted phone by our research team, 88% of enrolled patients reported that they experienced pain relief with this treatment combination of TENS plus medication and 91% reported that they would want to use the TENS again as a future treatment. They also reported an average post treatment pain score of 5 out of 10 both while in the ED and after discharge. They also reported an average satisfaction score of 8 out of 10 even after discharge. Interestingly, even those patients who did not report a decrease in their pain scores often still reported a high satisfaction score based on the programs' deployment of these modalities in any attempt to treat the patient's pain.

Conclusion: This data highlights how TENS can be deployed even within a busy level 1 trauma center to aid in pain management. Patients reported decreases in overall pain that was sustained even after discharge and reported high overall satisfaction. They also reported that they would request TENS therapy again if treated in the ED. This program and this data has inspired the health system to adopt TENS within all our EDs. Interestingly, during the follow-up surveys many reported that they purchased a

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TENS unit for home use. This was not a specific data point we anticipated collecting and thus do not have data on the overall numbers of those who purchased units. It was however a large enough anecdotal number that we mention here for future consideration for future study as an intervention to continue upon discharge.

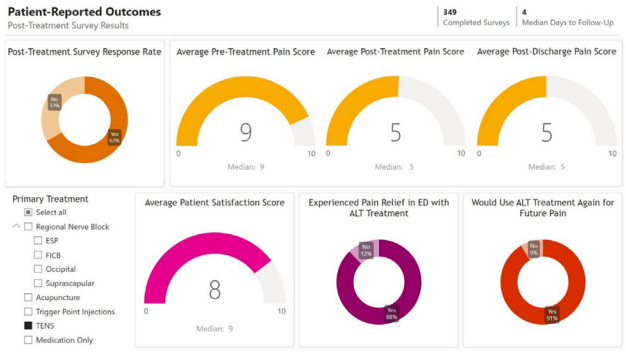


Figure 1. TENS Therapy Overview: Outcomes on all enrolled patients who received TENS therapy including post discharge pain scores and satisfaction.

No, authors do not have interests to disclose

229 Team-Based Agitation Management Simulation Training Program in the Emergency Department

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Study Objective: Symptoms of patient agitation and associated workplace violence against healthcare workers are increasingly prevalent within emergency care settings. Emergency departments (EDs) must care for agitated patients in a timely manner, requiring an interprofessional strategic approach to performing evaluations while ensuring the safety of both patients and staff. A simulation-based interprofessional training to respond to an agitated patient may create shared mental models and reduce the potential for harm.

Methods: We developed an immersive simulation experience during which interprofessional teams provided care of agitated patients in the ED with input from frontline staff, security officers, administrative leadership, and relevant stakeholders. Two signature cases using simulated participants acting as agitated patients were developed (alcohol intoxication/head trauma, psychosis/severe agitation) to represent the spectrum of agitation management. Interprofessional debriefing called attention to objectives of safety, de-escalation techniques, and interprofessional task prioritization. We used pre- and post-session surveys to assess the impact of interprofessional simulation training on both participants' attitudes toward the care of agitated patients, and the utility of interprofessional simulation as a tool to address this skill. The survey questions were sourced from the Management of Aggression and Violence Attitude Scale (MAVAS) and KidSIM Attitudes Towards Teams in Training Undergoing Simulation Questionnaire. The post-session survey also included a brief written response requesting feedback and major take-aways gained from participating in the interprofessional simulations. Two coders independently performed qualitative content analysis and met iteratively over the course of the data collection period to derive key themes from the responses in total.

Results: Between July 2022 and June 2023, 85 ED staff members participated in the simulation program. We found three of five questions targeting attitudes toward violence significantly improved from pre-session to post-session. Q1, "It is largely situations that can contribute towards the expression of aggression by patients," increased from 5.4 to 5.7 out of 7 ($p = 0.02$); Q3, "Poor communication between staff and patients leads to patient aggression," increased from 5.5 to 5.9 ($p = 0.01$); and Q4, "f the physical environment were different, patients would be less aggressive,", increased from 4.9 to 5.3, ($p = 0.05$). All five out of five survey items regarding attitudes towards simulation and teamwork had significant improvements as a result of the simulations. Content analysis of participants written responses demonstrated three recurrent themes: (1) hands-on engagement with an SP increased the fidelity of simulation and enhanced participant engagement and emotional impact; (2) communication across professions and pre-emptive planning between clinicians and security officers led to development of shared mental models; and (3) practicing in an interprofessional team increased awareness of others' roles and perspectives related to workplace violence and agitation management.

Conclusion: Our team-based simulation training program for agitation management was successful in improving staff participant attitudes toward patient violence and interprofessional learning. We believe that our curricular materials and design approach that incorporates hospital quality and safety buy-in may be useful for other institutions that routinely care for ED patients who experience behavioral crises and symptoms of agitation. Developing a simulation environment where ED staff participants can safely practice agitation management as a team may improve coordination of care across professions in a clinical situation where physical danger may be imminent.

No, authors do not have interests to disclose

230 Evaluating Pediatric Behavioral Health Emergency Visits Before and After the COVID-19 Pandemic

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Study Objective: Emergency departments (EDs) serve as a critical safety net for pediatric behavioral health (BH) emergencies. Even before the COVID-19 pandemic, pediatric BH visits were rising nationwide. The onset of the pandemic introduced profound psychosocial stressors—including school closures, social isolation, family economic hardship, and grief—that may have exacerbated existing conditions and triggered new mental health crises among youth. These disruptions destabilized both ED and inpatient pediatric BH operations, contributing to delays in evaluation, limited psychiatric bed availability, and increased strain on children, families, and frontline providers. While several studies have documented the impact of COVID-19 on pediatric BH care during the height of the pandemic, there remains limited literature describing how these patterns have evolved during the recovery period. This study analyzes trends in pediatric BH ED visits before and after the pandemic's onset, highlighting shifts in ED utilization and quality of care.

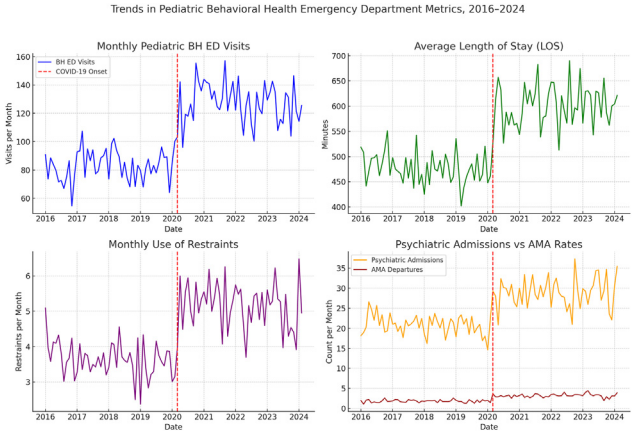
Methods: We conducted a multi-center, retrospective cohort study of pediatric ED visits within a large integrated health system in Michigan, including nine urban and suburban EDs. Data were collected from January 2016 through February 2024 using electronic health records for patients under 18 years with visits coded for BH-related conditions using ICD classifications. The study period was divided into pre-pandemic (January 2016–February 2020) and post-pandemic (March 2020–February 2024) cohorts. Patient demographics, clinical characteristics, and ED operational variables were collected. Variables included visit frequency, ED length of stay (LOS), psychiatric and general medical admission rates, use of physical restraints (violent/self-harm vs non-violent), and frequency of patients leaving against medical advice (AMA). Trends were analyzed using descriptive statistics, two-tailed t-tests, and 12-month rolling averages for temporal visualization.

Results: Across the study period, our health system recorded 3,469,947 ED encounters, of which 434,482 (12.5%) were pediatric visits. Among these, 12,307 visits (2.83%) were BH-related. Overall, monthly pediatric BH visits increased by 13.0% post-COVID (from 120.7 to 136.4/month, $p < 0.01$). Pediatric psychiatric admissions rose by 33.7% (21.1 to 28.2/month, $p < 0.01$). ED LOS for pediatric BH patients increased from an average of 475 minutes (7.9 hours) pre-pandemic to over 600 minutes (10+ hours) in the post-pandemic months, representing a 50% increase in ED boarding ($p < 0.01$). Use of violent/self-destructive restraints rose by 39.7%, from 3.7 to 5.17 incidents per month ($p < 0.01$), while non-violent restraint use remained rare and unchanged. AMA rates also rose significantly post-pandemic by 81.0%, from 1.84 to 3.33 cases per month ($p < 0.01$). These trends are visually summarized in the **Figure**, which highlights the sharp inflection points in BH ED visits, LOS, restraint use, psychiatric admissions, and AMA rates following the onset of the COVID-19 pandemic.

Conclusion: The COVID-19 pandemic has had a profound and sustained impact on pediatric BH care in our EDs. The observed increases in visit volume, psychiatric admissions, LOS, restraint use, and AMA departures point to a rising acuity among pediatric BH patients and reflect escalating strain on ED operations. These findings likely highlight systemic gaps in pediatric psychiatric infrastructure and demonstrate

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the need for expanded pediatric mental health resources, including timely outpatient access, inpatient psychiatric capacity, crisis stabilization units, and enhanced ED support for BH care. Efforts to improve coordination between EDs and community mental health services will be critical to meeting the complex needs of this growing and vulnerable patient population.



No, authors do not have interests to disclose

231 Applying a Hierarchy of Needs Model to Improve Pediatric Readiness Scores at a Large Public Hospital

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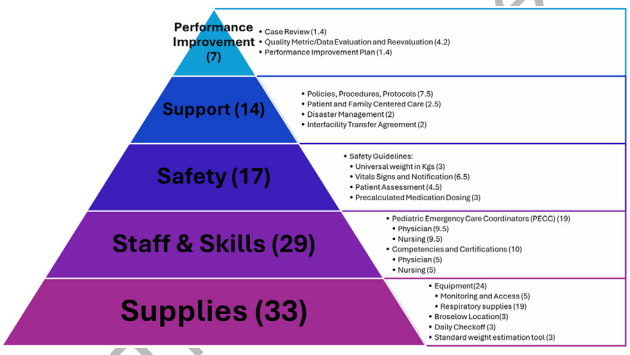
Introduction: Large public hospitals primarily serve adult populations; however, many also care for pediatric patients, often without the infrastructure and resources of dedicated children's facilities. Our hospital is one of the nation's largest public hospitals and interfaces with pediatric patients in several of its flagship programs including emergency care, trauma, and burn care without a standardized mechanism to evaluate the scope or effectiveness of its pediatric care. This is reflected in our 2021 National Pediatric Readiness Project (NPRP) score of 47, which falls in the lowest quartile.1 As children's hospital capacity narrows nationwide, pediatric care at safety net hospitals increases and is reflected in our pediatric emergency department (ED) volume trends which have increased by approximately 25% each quarter for the last three years.

Study Objective: To address our pediatric readiness challenges, collaborators in the Departments of Pediatrics, Emergency Medicine, Surgery, and Nursing Administration applied NPRP concepts promoted by EMS-C, AAP, ACEP, ENA, and ACS to a to a hospital-wide quality improvement effort.

Methods: Stakeholders performed key driver and value analyses of our NPRP Score and Gap Analysis. Identified targets were arranged based on the organizational hierarchy of needs to determine highest priority and yield categories (**Figure**). *Supplies:* Standardized Broselow cart to include all respiratory, monitoring, and access supplies needed for pediatric resuscitations through central supply chain management and daily checkoff procedures. *Staff and Skills:* Secured one shift/week of protected time for Nurse Pediatric Emergency Care Coordinator (RN-PECC) and invested in nationally recognized Pediatric Advanced Life Support (PALS) and Emergency Nurses Pediatric Course (ENPC). *Safety:* PECCs identified discrepancies between safety policies and case review; developed "code sheets" with precalculated medication doses based on estimated weight and formulary. *Support:* Identified policies, procedures, and protocols requiring updates and included pediatric patients in disaster management plan, mutual aid agreements, and MCI drills. *Performance Improvement:* Developing a pediatric registry informing our performance improvement plan with patient data and quality metrics; proposed a Pediatric Oversight Committee to centralize subject matter expertise, increase standardization between units, and pool resources.

Results: Our NPRP score improved from 47 to an ~71 with our interventions. This is a 51% improvement in score but is still below the median for our new status as a medium volume center based on ED volume trends. Continued investment could secure 22 more points, totaling 93. This would be ~100% improvement in score, place us in the top quartile for medium volume centers, and well above the threshold of >87 points associated with reduced pediatric mortality.

Conclusions: Our team sought solutions for our NPRP Gap Analysis that were reliable and sustainable through standardization of our Broselow carts, utilization of certification programs such as PALS and ENPC and providing protected time to our RN-PECC in order to recruit and retain highly qualified and productive candidates. Despite our success, implementation challenges include discrepancies between policy and daily practice, highlighting the need for continuous evaluation of NPRP metrics by a pediatric oversight committee co-lead by both a physician and nurse PECC. Ongoing investment in NPRP practices will propel us to become a standout leader among our peer group hospitals and improve the quality and safety of care provided to our pediatric patients.



No, authors do not have interests to disclose

232 The Incidence and Characteristics of C-Spine Injuries in Young Children in Community Hospitals

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Study Objectives: In 2024, the Pediatric Emergency Care Applied Research Network (PECARN) group published a cervical spine injury prediction rule for injured children. While their suggestions seem reasonable, the data used to create and validate the rule came entirely from level 1 pediatric trauma centers, which see a different spectrum of disease and have very different staffing compared to typical community hospitals (that are not trauma or pediatric centers). The incidence and characteristics of cervical spine injuries for young children presenting to community hospitals is unknown. We performed a retrospective analysis to estimate the frequency with which children aged 0-8 years old present to community hospital emergency departments (EDs) with cervical spine injuries, to summarize the clinical characteristics of those patients, and to determine if the PECARN rule would have identified the injuries.

Methods: We performed a retrospective chart review of ED patients aged 0-8 years old treated within Kaiser Permanente Northern California (KPNC) between January 1, 2010 and December 31, 2024. There are 21 EDs in the KPNC system but no pediatric trauma centers. We used ICD 9 and 10 diagnosis codes as well as procedure codes for cervical spine surgeries to search for patients who sustained cervical spine injuries defined as those with a fracture or ligamentous injury of cervical spine, cervical intraspinal hemorrhage, cerebral artery injury, changes in the cervical spinal cord on MRI, or cervical spinal cord injury without radiographic association. We manually reviewed the medical records of all patients identified through that search. We excluded cases in which the patient initially presented to a KPNC ED or if the patient did not have a clear history of a traumatic injury. The following data points were abstracted for each patient: demographic data, mechanism of injury, Glasgow Coma Score (GCS), presence or absence of focal neurologic deficits, imaging test results, type of cervical spine injury, treatments received, and neurologic status at the time of hospital discharge. Lastly, we retrospectively applied the PECARN rule to determine the type of imaging test (if any) that would have been recommended to see how the rule would have performed.

Results: Between January 1, 2010 and December 31, 2024, a total of 723,459 unique patients aged 0-8 years made 1,826,598 visits to a KPNC ED. Of those, we

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identified 15 patients who were diagnosed with a traumatic cervical spine injury, 9 of whom initially presented to a KPNC ED. Therefore, a cervical spine injury was identified in 1 of every 202,955 ED visits made by children 0-8 years old. In the sample of 9 patients who initially presented to a KPNC ED, 5 (55.6%) were female and none of the patients were < 2 years old. The mechanism of injury was fall from a height in 8 (88.9%) of 9 patients, and 8 (88.9%) presented with a GCS 15. No patients had surgery for their cervical spine injury, and none had neurologic deficits at the time of hospital discharge. The PECARN injury prediction rule would have recommended the consideration for CT scan for 1 (11.1%) patient and x-ray in 8 (88.9%). Cervical spine x-rays were performed in 5 cases of those 8 cases, and the radiologist read the x-ray as normal in 3 (2 of which were ultimately diagnosed with ligamentous injuries and 1 of which was diagnosed with a fracture).

Conclusion: For children 0-8 years old presenting to our community hospital system, cervical spine injuries were exceedingly rare. Although cervical spine x-rays (as recommended by PECARN) missed some injuries, all patients had good outcomes without need for surgical intervention, supporting the use of PECARN for young children presenting to community hospitals.

No, authors do not have interests to disclose

233 Respiratory Viral Infections and Risk of Group A Streptococcus Pharyngitis in Pediatric Patients

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Study Objectives: Group A Streptococcus (GAS) is the primary bacterial cause of pharyngitis in children requiring antibiotic treatment, making accurate diagnosis essential. Few studies have examined the association between GAS pharyngitis and viral co-infection using laboratory-confirmed viral testing rather than clinical features. The estimated risk of GAS pharyngitis in children with a detected viral infection has been reported as 5-17%. This study aimed to evaluate the risk of GAS pharyngitis in children with concurrent respiratory viral infections, including respiratory syncytial virus (RSV), influenza, and COVID, over the past 15 years. A subgroup analysis assessed the risk of GAS pharyngitis in children with COVID-19 during the past five years.

Methods: This retrospective, propensity-matched study utilized the TriNetX database, comprising over 113 million patients from 67 U.S. healthcare organizations. The study included children aged 3–18 years with fever and sore throat from 2010 to 2025. Cohort 1 consisted of children with a confirmed respiratory viral infection (RSV, influenza, or COVID), while Cohort 2 included children without a detected respiratory virus. The primary outcome was a GAS-positive test within one week of viral testing. A subgroup analysis examined GAS pharyngitis risk in children with COVID-19 over the past five years.

Results: Among 104,845 children with fever and sore throat, 6,051 (Cohort 1) had a confirmed viral infection, while 98,794 (Cohort 2) did not. The risk of GAS pharyngitis was significantly lower in children with a viral infection (30% vs 38%, RR=0.79, 95% CI 0.74–0.84, p <0.001), indicating a 21% lower likelihood of GAS detection. In the subgroup analysis, children with COVID-19 were 34% less likely to test positive for GAS compared to those without a viral infection (27% vs 41%, RR=0.66, 95% CI 0.58–0.75, p <0.001).

Conclusion: Children with fever and sore throat with concurrent respiratory viral infections had a lower likelihood of GAS pharyngitis than those without viral infections, though the observed rates were higher than previously reported. These findings highlight the importance of strep and viral testing in the diagnostic evaluation of pediatric pharyngitis.

No, authors do not have interests to disclose

234 Utilizing a Novel Methodology to Identify Emergency Department Patients With Diabetic Ketoacidosis

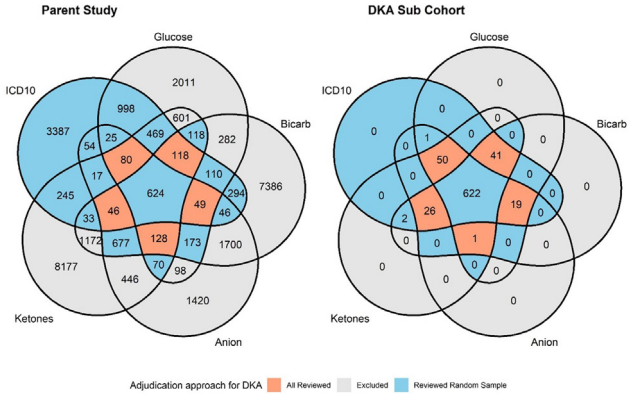
Groat D, Adamson M, Jephson A, Bennion D, Bunnell RJ, Newbold D, Peltan I, Smith A, Madsen T, Bledsoe J/Intermountain Health, Murray, Utah

Study Objectives: Emergency department (ED) implementation studies may enroll large populations. Secondary analyses of subgroups can discover differences from that of the parent study. Cohort identification in clinical and research settings remain a challenge in part due to complexities and inaccuracies inherent of medical data and the time intensive resources required for chart review and adjudication. Here we report on an approach with automated and manual aspects to retrospectively identify a subgroup of patients with diabetes ketoacidosis (DKA) within an implementation trial.

Methods: I USE LR was an implementation study conducted at Intermountain Health from November 2018 through February 2020. In August 2019 a system-wide intervention was implemented to promote lactated Ringer's (LR) over normal saline. The study enrolled over 148,000 patients and demonstrated that LR improved outcomes. To conduct a secondary analysis focused on patients with DKA, it was necessary to identify patients with DKA within the parent study. We prespecified that we preferred specificity over sensitivity in the identification of patients with DKA. We also prespecified that DKA classification consists of an ICD10 code for DKA and thresholds for lab values (glucose >250 ml/dL, plasma bicarbonate ≤ 18 mEq/L, anion gap > 10 mEq/L, and presence of ketones). We also recognized that applying strict criteria that required a DKA ICD10 code and all four laboratory values would likely exclude patients with DKA. Starting with the parent dataset, which was obtained via SQL queries of the electronic data warehouse, we identified patient encounters with ICD10 codes for DKA. Additional queries were required to collect the necessary lab data. The intersections of ICD10 codes and laboratory criteria created 31 categories. We selected a process for manual review of each category that would confirm exclusion for those categories that likely were not DKA, while including all patients adjudicated as DKA regardless of the category to which they belonged. Patients at the intersection of all 5 criteria, 3 criteria, and selected ICD10 categories (ICD10, ICD10 & glucose, ICD10 & ketones) were reviewed at random; sampling included 5, 10, 15, or 55 patients per category based on category size. Patients at the intersection of 4 criteria were reviewed in full, while patients with 2 or fewer criteria not already mentioned were excluded. Categories adjudicated ≥ 85% for DKA were included in the cohort. Meanwhile categories found to be <85% DKA were excluded. (**Figure**)

Results: 31,054 patients from the parent study met one or more criteria for DKA. The categories prespecified for review included 4,374 patients, of which 508 were manually reviewed by a research assistant; 10 required additional review by a physician for final adjudication. The intersection of 5 categories was included (n=622) with 87% (13/15) adjudicated as DKA. No other categories met the 85% threshold for inclusion. Only one patient without an ICD10 code was included. 46% (136/293) of the remaining categories where the intersection of 4 parameters occurred were found to have DKA. Only 3 additional patients were adjudicated as true DKA, for a total of 762 patients.

Conclusion: We developed and implemented a methodology for leveraging automated queries and manual chart review to retrospectively identify a sub-cohort of patients with DKA from a large implementation study. Relying solely on ICD10 codes would have included many patients who were not treated for DKA, thus diluting the analytic cohort and any signal specific to DKA. However, we also found that very few patients were included who did not have an ICD10 code for DKA. This novel methodology for DKA cohort identification may be used to inform the development of real-time practice alerts in ED settings as well as future ED research studies.



No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

235 Effect of Social Determinants on Emergency Visits and Admission Rates in Pediatric Bronchiolitis

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Study Objectives: Bronchiolitis is a common and potentially serious respiratory illness effecting the pediatric population. Vulnerable populations, including patients living in areas of social vulnerability, may influence the risk of more severe disease in these patients. The purpose of this study was to determine the incidence of emergency department (ED) encounters, admission rate, and length of stay for young pediatric patients diagnosed with bronchiolitis compared between social determinants of health and patient demographics.

Methods: A large national electronic health records database of more than 250,000,000 patients (Cosmos, Epic systems) was used to identify patients under the age of six presenting to the ED with an encounter diagnosis for bronchiolitis between September 2021 and September 2024. Patient demographics including social vulnerability index (SVI), race, gender, and ethnicity were determined. The primary outcome was admission to the hospital during an ED visit for bronchiolitis. Hospital length of stay (<2 days vs 2 days or greater) was also determined. Chi-square analysis was performed to determine significance at $p < .05$.

Results: There were 4,351,151 pediatric patients under six years of age presenting to the ED between September 2021 and September 2024. The incidence of ED presentations was similar amongst SVI quartiles. However, a higher percentage of patients were admitted to the hospital after a diagnosis of bronchiolitis in the lower SVI quartile vs the higher SVI quartile (18.61% in SVI <25 to 14.55% SVI ≥75, $p < .001$). There was no significant difference in hospital length of stay across SVI quartiles. There was a significant difference regarding race with White patients and Native Hawaiian or other Pacific Islander being admitted more frequently than other races (17.5% and 17.1% of ED bronchiolitis visits respectively vs 13.6% to 16%, $p < .001$). There was no difference in hospital length of stay by race. Non-Hispanic patients had a higher admission rate than Hispanic patients (16.7% vs 15.4%, $p < .001$), and there was no difference in hospital length of stay. Male patients had a higher admission rate than females (16.7% vs 15.9%, $p < .001$) but a shorter length of stay (13.5% <2 days vs 12.8% <2 days, $p = .004$).

Conclusion: A higher SVI was not associated with increased admission rates following a clinical diagnosis of bronchiolitis. White, Native Hawaiian or other Pacific Islander, Non-Hispanic, and male patients have a higher rate of admission to the hospital. Understanding the effect of social determinants on ED presentation and admission rates may help guide decisionmaking in the ED.

No, authors do not have interests to disclose

236 Feasibility of a Falls Reduction Program in the Emergency Department: A Randomized Controlled Trial

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Study Objective: Falls in older adults are a significant public health problem, often leading to increased morbidity, loss of independence, and use of healthcare. The emergency department (ED) is an important venue to intervene and implement fall prevention. This study evaluates the feasibility and effectiveness of a novel Falls Reduction for Elderly Emergency Department (FREED) checklist in reducing recurrent falls among older adults presenting to the ED after a fall.

Methods: Randomized controlled trial conducted in a single academic ED in Bangkok, Thailand, involving patients aged 60 and above who experienced a fall in the previous seven days. Patients were randomized into receiving either the FREED intervention or usual care, including a systematic fall risk assessment, review of medication, supplementation of vitamin D, referrals for physical therapy, and assessment of the home environment for safety hazards. The primary outcome was the proportion of patients with repeated falls at six months. Secondary outcomes were treatment adherence to intervention components and change in functional status (Activities of Daily Living [ADL] scores). Th primary outcome was analysis by intention to treat (ITT) and per-protocol (PP). The proportion in difference of recurrence fall between intervention and control was used Chi-square test and 95% confidence interval (95% CI) were calculated.

Results: Following the exclusion of 1,026 individuals who met the study eligibility requirements, 216 patients (108 FREED intervention, 108 usual care) were enrolled. The median age was 75 years (IQR 69–81), and 65% of subjects were women. Baseline characteristics were well-matched in intervention and control arms. Six-month follow-up data were available in 97% of participants. The primary result of repeated falls was not significantly different between groups (20.4% intervention vs 25.0% control; absolute risk reduction -4.6%, 95% CI -15.8% to 6.5%, $p = 0.42$). High levels of intervention were taken up: 75.9% had physical therapy, 95.4% received a home safety assessment, and 59.7% commenced vitamin D supplementation. Both groups had a very small fall in ADL scores at six months with no between-group differences.

Conclusion: The FREED intervention was feasible and acceptable among older ED patients who had fallen, but did not result in a statistically significant reduction in repeated falls at six months. These findings highlight the challenging nature of fall prevention in the ED setting and suggest that more intensive or longer interventions may be necessary to induce meaningful reductions in the risk of fall. More multicenter studies with longer follow-up are required to explore the impact of ED-initiated fall prevention interventions on long-term outcomes.

Keywords: Falls prevention, emergency department, older adults, recurrent falls, geriatric emergency medicine, randomized controlled trial, functional decline, fall risk assessment, emergency care interventions, FREED checklist.

No, authors do not have interests to disclose

237 Emergency Department Boarding for Older Adults: The Impact of Geography, Temporal Trends, and Dementia Status

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Study Objectives: With increasing patient volume and acuity outpacing hospital capacity, emergency department (ED) boarding has become a growing challenge in the U.S., particularly for older adults. ED boarding, defined as the time an admitted patient remains in the ED due to the unavailability of inpatient beds, poses risks for older adults with Alzheimer's Disease and Related Dementias (ADRD), who are susceptible to harm in overstimulating and understaffed environments. Our study aims to examine trends in ED boarding over time, with a focus on geographic variation, rurality, and its impact on older adults with and without ADRD.

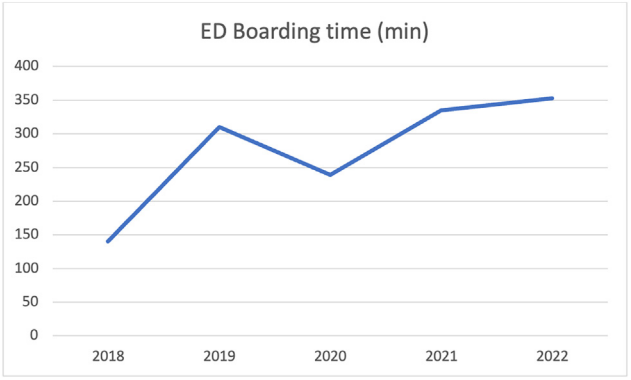
Methods: We conducted a cross-sectional analysis using National Hospital Ambulatory Medical Care Survey data from 2014 to 2022. ED boarding trends were examined among adults aged 65 and older, with comparisons based on rurality, geographic region, and dementia status. The study utilized a multi-stage probability design, with each visit weighted to provide nationally representative estimates of annual ED utilization. Weighted frequencies and proportions were calculated to assess ED boarding rates among all ED patients older than 65 years of age over time [RC1]. Linear probability models (LPM) were used to evaluate the associations of study year, rurality, geographic region, and ADRD status with ED boarding (2, 4, and 8 hours) as binary outcomes, and linear regression was used to examine boarding duration in minutes as a continuous outcome.

Results: An estimated 5,390,000 ED encounters met inclusion criteria, including 435,000 (8.1%) involving patients with ADRD. Of these, 3,953,000 (73.3%) encounters without ADRD and 333,000 (76.6%) with ADRD [RC2] experienced ED boarding. Overall boarding rates for older adults remained in the mid-80% range from 2015 to 2018, with a decline to the mid-70% range in 2017 and 2020, followed by an increase to 92% in both 2021 and 2022. Mean boarding time was 140 minutes (95% CI: 112–169) in 2018, 310 minutes (95% CI: 178–441) in 2019, 239 minutes (95% CI: 169–308) in 2020, 335 minutes (95% CI: 195–474) in 2021, and 353 minutes (95% CI: 220–486) in 2022 (**Figure**). Linear probability models assessing ED boarding at 2-, 4-, and 8-hour thresholds showed that for the 4-hour model, study year and the West region were significant predictors of prolonged boarding. Patients with ALZHD had a 3.65% higher probability of boarding (95% CI: -0.72% to 8.02%) compared to those without ALZHD. Boarding probability was 8.34% higher in the West (95% CI: 2.35% to 14.33%) compared to the Midwest. Each additional study year was associated with a 3.14% increase in 4-hour boarding probability (95% CI: 2.33% to 3.95%). The 8-hour model also identified study year and the West region as significant factors. Patients in the West had a 3.24% higher probability of boarding (95% CI: 0.61% to 5.87%) compared to the Midwest. Each additional study year was associated with a 1.55% increase in 8-hour boarding probability (95% CI: 1.04% to 2.06%). Each additional study year was associated with an increase of approximately 41 minutes in boarding time (95% CI: 9.10 to 73.10 minutes).

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Conclusion: This study highlights that ED boarding is a persistent and worsening issue for older adults. Boarding times and prolonged boarding have increased over time, with significant variation by geographic region and dementia status. These findings emphasize the need for targeted policy and operational strategies to address prolonged ED stays, especially for vulnerable populations such as those with ADRD.

Figure. ED boarding time over year 2018 to 2022.



No, authors do not have interests to disclose

238 Type and Severity of Hemorrhage in Older Adults Presenting to the Emergency Department

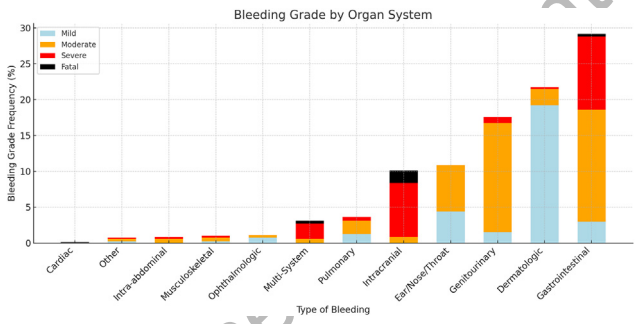
Kirk A, Casey M, Bhimani S, Goyal P, Bohrmann T, Busby-Whitehead J, Hwang U, Meyer M/University of North Carolina School of Medicine, Chapel Hill, North Carolina

Study Objectives: The risk of hemorrhage increases with age, leading older adults to seek emergency department (ED) care more frequently. Hemorrhage has typically been characterized by individual organ systems (eg, intracranial or gastrointestinal bleeding). However, less is known about the epidemiology of hemorrhage in older adults across various organs and its etiologies, such as trauma or antithrombotic-induced bleeding. This study aims to characterize hemorrhage by organ system, presence of trauma, antithrombotic use, and severity in older adults presenting to the ED.

Methods: We conducted a nested cross-sectional study within an ongoing prospective cohort study on medication-related hemorrhage. Data were collected from a diverse sample of four southeastern EDs between November 2024 and March 2025. Eligible patients included older adults, aged 65 years and older, with hemorrhage as identified using 213 ED chief complaints or 505 ED primary diagnostic codes (based on the International Classification of Diseases, Tenth Revision, Clinical Modification [ICD-10-CM]). A chart review was conducted to confirm the occurrence of hemorrhage. Additionally, chart abstractors categorized hemorrhage by anatomical location, spontaneity (ie, traumatic vs non-traumatic), presence of antithrombotic use, and severity. Severity was assessed using the Bleeding Academic Research Consortium (BARC) criteria, categorizing hemorrhage as mild, moderate, severe, or fatal. We report descriptive statistics on the prevalence and 95% confidence intervals (CIs) by the various categorizations of hemorrhage listed above. To ensure data quality, chart abstractors met with the lead investigator weekly and underwent random chart audits to receive feedback on data capture.

Results: From 11/3/24 to 3/11/25, there were 18,522 ED encounters by older adults. The chief complaint and diagnostic code algorithm identified 1,208 encounters with possible hemorrhage, of which 802 met inclusion criteria. The observed sample was predominantly male (50.5%), non-Hispanic white (73.3%), and cognitively intact (82.1%). As depicted in the **Figure**, the organ systems in which hemorrhage occurred most often were gastrointestinal (ie, luminal, 29.2%), dermal (21.7%), genitourinary (17.6%), intracranial (10.1%), nasopharyngeal (10.9%), pulmonary (3.6%), and multisystem (3.1%). Traumatic hemorrhage was found in 35.3% (95% CI: 32.1-38.7%) of encounters. Similarly, hemorrhage concurrent with or complicated by antithrombotic use occurred in 66.8% (95% CI: 63.5-70.0%) of encounters. Hemorrhage severity graded on a mild, moderate, severe, and fatal scale was found in 30.6% (95% CI: 27.4-33.8%), 44.8% (95% CI: 41.4-48.2%), 22.1% (95% CI: 19.3-25.1%), and 2.6% (95% CI: 1.7-4.0%) of ED encounters, respectively. Fatal hemorrhage occurred more frequently among antithrombotic users at 3.2% compared to 1.5%.

Conclusion: Hemorrhage occurs across a diverse array of organs in older adults presenting to the ED and severity is variable across organ systems. Notably, prevalence of fatal hemorrhage was found to be higher in patients experiencing intracranial bleeds and on antithrombotic medications. Our data may inform future research initiatives to prevent fatal hemorrhage.



No, authors do not have interests to disclose

239 Minor Head Injury in the Older Adult: Do All Patients Greater Than 65 Years Old Require Head Computed Tomography?

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Study Objectives: A body of literature has evolved to guide decisionmaking for when to obtain head CT imaging of patients after minor head injury (MHI). The existing decision rules, including the Canadian Head CT Rule (CHCTR), incorporate age ≥65 years as a criterion for head CT consideration, even if age is the only identified risk factor. A more nuanced understanding of older patients, including presence of other clinical criteria for CT imaging and associated outcomes, could inform refinements to evidence-based clinical decisions. Our objectives are to describe the characteristics of older adults with MHI and to compare resource utilization, clinical outcomes, and revisits across different age groups.

Methods: This is a multicenter retrospective study spanning hospital systems throughout Michigan (42 emergency departments) that contribute to the MEDIC data registry, which contains clinical (eg, ICD-10-CM diagnoses, demographics, etc) and abstracted data from electronic health records. Adult patients who presented to a study ED with a head injury chief complaint from April 2016-March 2024 were screened for MHI, as indicated by initial Glasgow Coma Scale of 15. MHI cohort exclusions were: presentation >24 hours after injury, pregnancy, history of shunt or mass, bleeding disorder or anticoagulation, penetrating trauma or suspected abuse, cognitive or neurologic deficits, as identified by trained abstractors. CHCTR criteria were also abstracted. Descriptive statistics were calculated. We compared head CT utilization, CT findings of potential or definite severe injury-based ICD-10-CM codes, and 7-day return visits across age cohorts: 18-64, 65-74, 75-84, and > 84 years using chi square statistics and Fisher's exact test category.

Results: A total of 98,038 patients with MHI were identified and 17,827 had cohort exclusions; 6,323 (35.5%) excluded were aged ≥65 years. Among the 80,211 patients included in analysis 19,032 (23.7%) were aged ≥65, 47.8% male, 66.6% white, 19.1% Black, 5.3% Hispanic, 43% presented outside of clinic hours, 34.1% presented via ambulance, and 58.7% had an estimated severity index 3. Head CTs were obtained for 56.6% of the sample overall, ranging from 47.8% for patients 18 to 64 years old to 91.0% for patients 85 years and older, p <0.001 (**Table**). Among the 16,767 patients for whom age was the only CHCTR criterion, 84.1% received a head CT. The rate of definite or possible severe TBI decreased with increasing age cohort (**Table**). Return visits were similar across age groups but the youngest and oldest age groups had higher 7-day return visits than the middle two age groups.

Research Embargoed Until Date/Time of Presentation

Conclusion: In this preliminary analysis, amongst patients with MHI, younger patients had higher rates of TBI than those ≥ 65 years old. Older patients had markedly higher rates of HCT utilization, and most older patients had only age as CHCT criteria for imaging. We observed no difference in rates of TBI in patients for which age was the only CHCT criteria for imaging. Definite or possible severe TBI rates were lower with increasing age overall, suggesting some imaging may be deferred in these patients.

Table 1: Head Injury Cohort Findings by Age Group

	18-64yrs	65-74yrs	75-84yrs	85+ yrs	p value
All Head Injury Chief Complaints	72683	10825	8201	6329	
MHI Cohort	**61179**	**9017**	**6223**	**3792**	
Head CT Obtained	29,240 (48%)	7,254 (81%)	5,431 (87%)	3,450 (91%)	<0.001
Definite or Possible Severe TBI*	1,098 (3.8%)	241 (3.3%)	157 (2.9%)	91 (2.6%)	<0.001
7-day return visit after CT	534 (1.8%)	94 (1.3%)	73 (1.3%)	58 (1.7%)	0.003
7-day return visit after no CT	645 (2.0%)	25 (1.4%)	11 (1.4%)	4 (1.2%)	0.15
Subpopulation Positive for Age Criterion Only on CHCTR	-	**7772**	**5573**	**3422**	
Head CT Obtained with Age as Only Criterion for CHCTR	-	6153 (79%)	4843 (87%)	3103 (91%)	<0.001
Definite or Possible Severe TBI* after CT with Age as Only Criterion	-	161 (2.6%)	106 (2.2%)	69 (2.2%)	0.28
*Based on ICD-10-CM diagnosis codes					

No, authors do not have interests to disclose

240 72-Hour Returns for Falls Amongst Oldest-Old Patients in a Large Academic Center, 2002-2022

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Study Objectives: The oldest-old population (defined here as those older than 80) is expected to triple in the next 30 years. Studies show 50 to 60 percent of oldest-old patients who present to the emergency department (ED) get admitted to the hospital. Thus, better understanding oldest-old patients who are discharged from the ED but return within three days can helpfully inform future interventions to reduce ED returns amongst a high-risk population.

Methods: We analyzed data from a sample of all adults over the age of 80 who visited a large academic medical center between 2002 and 2022 and returned within 3 days for re-evaluation (n=1,791) to investigate the relationship between individual and contextual predictors and the likelihood of experiencing a return within 3 days for a fall. A generalized structural equation model (GSEM) was used to assess both direct and indirect effects, with initial presentation for a fall as the mediator and re-presentation within 3 days for a fall as the outcome. Predictors included age zeroed at 81, sex, self-reported race/ethnicity, weekday versus weekend at time of first presentation, time of day at first presentation (morning, afternoon, or evening), and season (winter, spring, summer, fall). The model specified that presenting initially for a fall could influence the probability of a second fall while accounting for other covariates. Effects were assessed for statistical significance using logistic regression with a logit link function. All analyses were conducted in Stata 18.

Results: Approximately 17.5 percent of the sample presented with a fall initially, accounting for the most common chief complaint amongst oldest-old patients returning within 3 days. About eight percent of patients presented for a fall on their second visit, with 43 percent of second falls having presented initially for a fall. Patients with initial and repeat evaluations for fall had fewer hours between presentations compared to patients presenting for other reasons (35 hours compared to 42 hours). After estimating generalized structural equation models (GSEM), presenting initially for a fall was the strongest predictor of a subsequent return for a fall (OR=3.99, p <0.001). Older age also significantly increased the risk of both initial and subsequent falls (OR=1.04, p = 0.003 and OR=1.04, p=0.063, respectively). Additionally, being female was significantly associated with a higher likelihood of falling initially (OR=1.60, p <0.001). However, other factors, including race, weekend, time of day, and season, did not show consistent significant effects.

Conclusion: The strongest predictor of a return within three days to the ED amongst the oldest-old population is initial presentation for a fall. Amongst a high-risk population to discharge, paying special attention to interventions to reduce recurrence of fall shortly after ED discharge may improve overall morbidity and mortality and may prolong patients' ability to age safely at home. In preparation for ACEP, we will perform retrospective chart review to understand differences in return visits based on patient interventions at the first visit including case management, physical therapy, and social work evaluations, and we will assess second-visit dispositions and time-to-death data for patients returning to the ED after an initial or follow-up encounter for a fall.

No, authors do not have interests to disclose

241 Rising Burden of Fall-Related Traumatic Brain Injury in Older Adults in United States, 2015 to 2024

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Study Objective: Falls are the leading cause of traumatic brain injury (TBI) and a major public health concern. Fall-related TBIs are associated with high morbidity and mortality, particularly among older adults. However, recent post-pandemic trends remain unclear. This study examines national trends in fall-related TBI emergency department (ED) visits from 2015 to 2024, focusing on changes in hospitalization and in-hospital mortality.

Methods: We conducted a repeated cross-sectional study of adults (age ≥18 years) who had an ED visit with a chief complaint of a fall and where TBI was listed among the final ED diagnoses, as defined by the Centers for Disease Control and Prevention's ICD-10 codes, from 2015 to 2024. Data were obtained from Epic Cosmos, a de-identified electronic health record dataset from 1,700 hospitals across all 50 states and D.C., encompassing over 296 million patients. The dataset is broadly representative of U.S. demographics. Patients were stratified into age groups: 18-44, 45-64, and 65+. Outcomes included the incidence of fall-related ED visits with TBI, hospitalization, and in-hospital all-cause mortality, calculated annually and reported per 100,000 ED visits. Additionally, we analyzed quarterly trends in hospitalization and mortality using Kendall's tau-b as a nonparametric test for trends.

Results: Between January 2015 and December 2024, there were 260,913,752 adult ED encounters in the US. 11,782,524 were fall-related ED encounters. Of these, 2,992,972 (25%) included TBI as one of the final ED diagnoses. The median ages in 2015 vs 2024 were 31 vs 31 (18-44), 56 vs 57 (45-64), and 81 vs 80 (65+). In 2015, the age distribution was 14.5% (18–44), 23.9% (45–64), and 61.6% (65+); by 2024, it was 10.0%, 18.3%, and 71.7%, respectively. Overall, rates of fall-related TBI ED visits rose by 79%, increasing from 787.4 to 1,408.4 per 100,000 between 2015 and 2024. Hospitalizations rose by 67%, from 136.7 to 226.5 per 100,000 ($p < 0.001$), and mortality increased by 45%, from 4.2 to 6.1 per 100,000 ($p < 0.001$). Among the 65+ age group, ED visit rates more than doubled, increasing from 485.1 to 1,010.2 per 100,000 (108%). Hospitalizations increased from 104.6 to 187.8 per 100,000 (80%, $p < 0.001$), and mortality rose by 57%, from 3.5 per 100,000 in 2015 to 5.5 in 2024 ($p < 0.001$), peaking at 6.5 in 2022. In the 45–64 age group, ED visits increased from 183.1 to 250.8 per 100,000 (37%), and hospitalizations grew from 24.0 to 29.9 per 100,000 (25%, $p < 0.001$). Mortality remained flat between 0.4 and 0.8 per 100,000 ($p = 0.11$). In the 18-44 age group, ED visits rose from 119.2 to 147.4 per 100,000 (24%), while hospitalizations increased from 8.1 to 8.8 per 100,000 (8%, $p = 0.005$). Mortality remained nearly zero (0.09 to 0.1 per 100,000, $p = 0.35$). Quarterly data revealed seasonal variation, with spikes occurring during fall and winter among older adults.

Conclusion: From 2015 to 2024, ED visit rates for fall-related TBIs among older adults more than doubled, with an 80% rise in hospitalizations and a 57% increase in mortality–trends most pronounced after 2020. Seasonal spikes during colder months suggest increased vulnerability. Adults under 65 experienced smaller increases in outcomes. Some of the increase among older adults may reflect the aging of this group, with more visits involving patients in their late 60s and 70s. These findings underscore the implications of population aging for fall-related TBI incidence and highlight the need to enhance fall prevention and TBI management strategies to address the growing burden of TBI in older populations.

No, authors do not have interests to disclose

Research Embargoed Until Determined Time of Presentation

242 Improving CMS Compliance Improves Mortality for Sepsis Patients

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Study Objectives: Sepsis remains a leading cause of mortality among hospitalized patients, prompting the Centers for Medicare & Medicaid Services (CMS) to implement the Severe Sepsis and Septic Shock Management Bundle (SEP-1) as a standardized treatment protocol. While increased SEP-1 compliance has been linked to improved patient outcomes, its direct effect on observed-to-expected (O:E) mortality remains unclear, particularly in community hospital settings. This study evaluates whether improvements in SEP-1 compliance correlate with reductions in O:E mortality across one large academic tertiary care hospital and four community hospitals in New Jersey.

Methods: This retrospective cohort study analyzed CMS-mandated SEP-1 compliance data and O:E mortality ratios from five hospitals over a four-year period (FFY 2020–FYTD 2024). One site, Hospital A, was a large academic tertiary care center (>100K annual visits), while the other four were community hospitals with annual visit volumes of >90K, >35K, >45K, and >20K, respectively. Data were abstracted by hospital-employed data abstractor, with 10% of charts independently reviewed for quality assurance by a Quality department reviewer. Data were collected in November 2024. SEP-1 compliance rates and O:E mortality were compared to state and national averages and benchmarked against the annual mortality index (1.38 in 2021, 1.26 in 2022, 1.24 in 2023) for similar hospitals. The primary outcome was the correlation between SEP-1 compliance trends and changes in O:E mortality. Descriptive statistics and trend analyses were used to assess institutional performance relative to state and national benchmarks.

Results: As revealed in the **Figure**: SEP-1 compliance improved at all five hospitals between FFY 2020 and FYTD 2024: Hospital A: 46.4% → 63.5%; Hospital B: 38.2% → 56.3%; Hospital C: 42.5% → 55.0%; Hospital D: 49.4% → 62.7%; Hospital E: 46.2% → 57.6%. During this period, O:E mortality ratios declined across all sites: Hospital A: 1.27 → 0.73; Hospital B: 1.04 → 0.68; Hospital C: 0.88 → 0.82; Hospital D: 1.26 → 0.74; Hospital E: 1.57 → 0.95 Compared to state and national benchmarks, study hospitals initially had lower SEP-1 compliance rates but showed greater overall improvement, closing the gap in adherence by FYTD 2024. By this time, most study sites had O:E mortality ratios at or below the benchmark mortality index (1.38 in 2021, 1.26 in 2022, 1.24 in 2023).

Conclusion: This study suggests that higher SEP-1 compliance is associated with improved O:E mortality across diverse hospitals, reinforcing the role of standardized sepsis care in reducing mortality risk. However, compliance alone does not fully explain mortality trends, as hospital-specific factors, critical care resources, and patient severity likely contribute to outcomes. Notably, some hospitals with the largest compliance gains did not see proportional mortality reductions, suggesting that time-to-intervention, illness severity, and ICU resources may influence outcomes beyond bundle adherence. Study hospitals outperformed national mortality benchmarks, highlighting the potential impact of local sepsis education initiatives and EHR optimization efforts. This study is limited by its retrospective, observational design, which prevents causal conclusions. CMS abstraction methods may not account for severity differences between hospitals, and variability in clinician adherence to bundle components could influence outcomes. Future research should analyze individual bundle components to determine which interventions most impact mortality, examine long-term sepsis mortality trends beyond CMS reporting periods and compare hospitals with similar compliance rates but differing mortality outcomes to identify best practices. Improved SEP-1 compliance correlated with lower O:E mortality, but other factors also played a role. These findings emphasize the need for continued sepsis education, process optimization, and targeted interventions to maximize the benefits of standardized sepsis care.

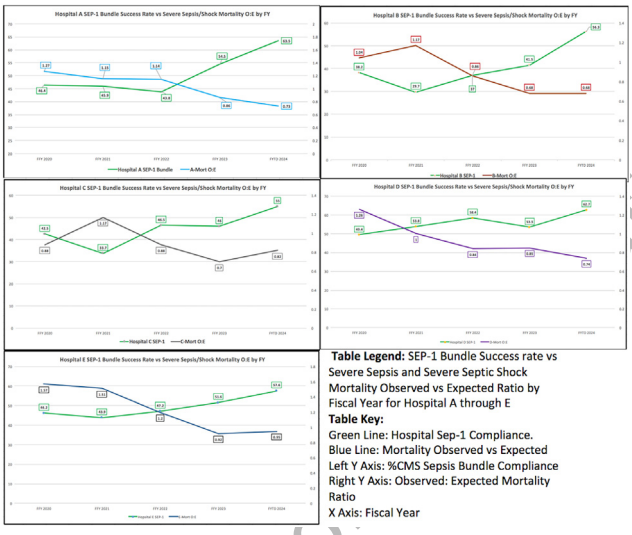


Table Legend: SEP-1 Bundle Success rate vs Severe Sepsis and Severe Septic Shock Mortality Observed vs Expected Ratio by Fiscal Year for Hospital A through E
Table Key:
Green Line: Hospital Sep-1 Compliance.
Blue Line: Mortality Observed vs Expected
Left Y Axis: %CMS Sepsis Bundle Compliance
Right Y Axis: Observed: Expected Mortality Ratio
X Axis: Fiscal Year

No, authors do not have interests to disclose

243 Reducing Unnecessary Cervical Spine CTs in Elderly Trauma Patients With a Nursing-Driven Protocol

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Study Objective: Cervical spine CT (CSCT) scans are frequently ordered for elderly patients presenting with head trauma, often leading to unnecessary radiation exposure and increased healthcare costs. We implemented a nursing-driven protocol (NDP), based on validated NEXUS criteria, to reduce unnecessary CSCT imaging in this population while maintaining patient safety.

Methods: We conducted a retrospective analysis comparing CSCT utilization before (pre-I) and after (post-I) implementation of an NDP. Nurses applied the validated NEXUS criteria by assessing patients for midline cervical tenderness, neurological deficits, altered mental status, distracting injury, and intoxication. Patients with Glasgow Coma Scale scores below 14, signs of polytrauma, abnormal vital signs, focal neurological deficits, or significant intoxications were excluded from the NDP and immediately evaluated by a physician. Patients presenting with midline cervical spinal tenderness or who arrived wearing a cervical collar placed by EMS received a CSCT; all others underwent head CT alone unless CSCT was subsequently independently ordered by a physician. The inclusion criteria were patients $\geq$ 61 years old on anticoagulants or anti-platelet medications (excluding aspirin) with chief complaints (CC) of head injury, fall, or syncope who received a head CT upon arrival to the emergency department. The primary outcome was the proportion of patients receiving CSCT pre-I and post-I. A secondary safety analysis reviewed cases in which physicians later independently ordered a CSCT after receiving a head CT under the NDP. All available patients were included post-I, not only patients screened via the NDP. Proportions of patients receiving CSCT in the pre-I and post-I periods, both overall and stratified by CC, were compared via the chi squared test (α=0.05).

Results: 789 patients were included pre-I, 647 (82%) of which had CSCT, and 932 patients were included post-I, of which 353 (38%) had CSCT (difference 44%, p <0.001). Compared to the pre-I period, the proportion of patients undergoing CSCT in post-I significantly decreased across all CC categories except syncope: head injury (51/63 vs 69/121, 81% vs 57%, p=0.001), fall (576/696 vs 267/781, 83% vs 34%, p <0.001), and syncope (20/30 vs 17/30, 67% vs 57%, p=0.430). Safety analysis included review of 59 cases in the post-I period where physicians ordered CSCT after the NDP initially recommended only head CT imaging; none identified clinically significant cervical spine injuries (57 unremarkable or chronic findings, one thoracic spine fracture, and one new cervical anterolisthesis without fracture).

Research Embargoed Until Date/Time of Presentation

Conclusion: Implementation of an NDP based on NEXUS criteria significantly reduced CSCT utilization among elderly patients presenting with head trauma. Secondary safety review of physician-ordered CSCTs outside the NDP identified no clinically significant injuries overlooked by the NDP. Further prospective studies are warranted to assess the generalizability, safety, and impact of broader implementation.

No, authors do not have interests to disclose

244 Does an Emergency Department Geriatric Hip Alert Protocol Improve Patient Care?

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Introduction: Hip fractures are a significant cause of morbidity and mortality. Timing of surgery has long been a topic of debate. The current American College of Surgeons recommendation for geriatric hip fractures, is surgery within 48 hours. A 2017 Canadian study found that surgery within 24 hours was associated with significantly lower 30-day mortality and fewer postoperative complications at 30 days. We instituted a multidisciplinary hip alert protocol in November 2023 to improve upon our goals of meeting these time sensitive quality goals.

Study Objective: The objective in this study was to evaluate whether instituting a geriatric hip alert protocol in the emergency department (ED) would reduce time to OR and decrease post-surgical complications.

Methods: This quasi-experimental cohort evaluated adult patients 65 years and older who presented to the ED of a level 1 trauma center with a radiologically confirmed isolated hip fracture. Higher level trauma activations and multisystem trauma were excluded. A multidisciplinary "hip alert" protocol was instituted November 1, 2023 for rapid ED identification of hip fractures in geriatric patients in the ED. Special order sets were created with prioritization of radiographic studies along with real time involvement of both internal medicine and orthopedics once fractures were identified. Data was collected ten months prior to (01/01/23 to 10/31/23) and eleven months (11/1/23 to 9/30/24) after protocol implementation through a standardized trauma database. Demographic data along with times to operating room (OR) complications, ICU admission and mortality were collected. Time is presented in hours and minutes (hrs:min). The primary outcome was time to the OR and the secondary outcome was a complicated post-operative course represented as composite measure including mortality, unplanned ICU admission, unplanned return to the OR, any infection, sepsis, DVT/PE, MI/stroke, and delirium.

Results: Prior to alert implementation, there were 227 (40%) hip fractures and post there were 346 (60%) hip fractures. Demographics were similar in the pre and post groups with mean age of 81.6 (SD8.7) years in the pre group versus 81.3 (SD8.3) years in the post group (p=0.71) and 156 (69%) females in the pre group and 245 (71%) in the post group (p=0.58) Overall the average time to the OR was 25 hours and 56 minutes. In the pre-implementation group, it was 29:23 (95%CI 27:24 – 31:19) and in the post-implementation group 23:41 (95%CI 22:19 – 25:03) (p <0.001). There were significantly fewer post-surgical complications post-implementation, 43 (19%) in the pre-group and 43 (13%) in the post-group (p=0.042).

Conclusion: Based on this preliminary data, initiation of a dedicated geriatric hip alert protocol for isolated hip fractures led to decreased time to OR and fewer post-surgical complications in this vulnerable population at a busy Level One trauma center ED. Further studies comparing longer term outcomes would be helpful in processing the clinical benefit to geriatric patients with isolated hip fractures.

No, authors do not have interests to disclose

245 Comparison of Single-Lumen Midline Catheters to Long Peripheral Intravenous Lines in the Emergency Department: A Randomized Controlled Trial

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Study Objectives: Achieving intravenous (IV) access in emergency department (ED) patients may be challenging. Prior work has demonstrated that 1-in-9 ED patients may have difficult IV access, which has been associated with morbidity due to delays in diagnostic testing, treatment, and ED length of stay. Recently, midline catheters (MCs) have gained popularity for patients with difficult IV access. We hypothesized that MCs have increased dwell time over US- guided long PIV (US-PIV) in patients with difficult IV access presenting to the ED.

Methods: We performed a preliminary analysis of a single center, prospective, 2-arm, nonblinded, randomized clinical trial to determine if ultrasound-guided 10-cm single-lumen midline catheters (US-MCs) have longer dwell times compared to ultrasound-guided 4.78-cm peripheral intravenous catheters (US-PIVs) in a convenience sample of patients with difficult IV access presenting to the ED. The study setting was a large, urban, academic, tertiary care center enrolling eligible patients since October 2024. The primary outcome was dwell-time of each type of catheter. Secondary outcomes included rates of complications and completion of care. Demographic and clinical data were also collected. Statistical analysis was performed using descriptive analytics and p-values were calculated by student's t-test.

Results: Twenty patients were enrolled during the study period (US-MC group n=10 and US-PIV group n=10). The median (IQR) age was 55 (39-67) years,62% (13/21) of patients were female, and 62% (13/21) were white/Caucasian. Of all patients, 71% (15/21) were considered "high-risk" by ED Difficult IV Access score. The mean (standard deviation [SD]) dwell times of US-MC and US-PIVs were 49 (84) and 20 (21) hours respectively (p = 0.3). Of all patients, 42% (9/21) were admitted to the hospital, among which the mean dwell-time for US-MC and US-PIVs was 68 (107) and 37 (31) hours respectively (p = 0.6). Only one complication (dislodgement) was reported in one patient in the US-MC cohort. All other vascular access devices were functional until completion of care.

Conclusion: The preliminary analysis of this ongoing study demonstrates that US-MCs may have similar dwell-times and complication rates compared to US-PIVs in those with difficult IV presenting to the ED.

No, authors do not have interests to disclose

246 Improving Outcomes in Sepsis Utilizing Standardized Care Process Metrics

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Study Objectives: Severe sepsis and septic shock, common presentations to the emergency department (ED) are associated with significant morbidity and mortality. To allow for granular surveillance of sepsis care and associated outcomes, we implemented a process metrics program for sepsis care. The goal of this project was to evaluate the impact of sepsis care-related initiatives on key outcome measures for patients with sepsis following a standardized approach to sepsis care.

Methods: This was a retrospective observational review of sepsis management process metrics across a large integrated healthcare system (19 hospitals) from January 2022-December 2024. We sought to evaluate the impact of sepsis metric improvement on mortality. In a subset of this data (January 2024-December 2024), we evaluated ED-specific process metric improvement and severe sepsis/septic shock mortality. Patients were identified using the ICD-10 codes for sepsis, severe sepsis and septic shock. Data was abstracted from institutionally managed electronical medical record (EMR) derived sepsis short cycle dashboards and included time to antibiotic administration (with a target of 60-minutes from order), use of sepsis order set, sepsis alerts (team-based care), ED Narrator (EMR-based nursing documentation) use and mortality. Process metric adherence and overall mortality and observed to expected (O:E) rates are reported with 95% CI.

Results: 52,428 patients with sepsis were included in the hospital data set. Overall sepsis mortality was 6.45%. The 60-minute antibiotic pass rate was 82.8% (43,931/52,428). Mortality was 6.2% in the pass group and 7.78% in the fail group for a relative difference of 20.3% (absolute difference of 1.58%, 95%CI 0.97, 2.19) with O:E of 0.65 v 0.76, respectively. Sepsis order set use occurred in 71.4% (37,445/52,428). Order set usage was associated with a 6.2% (2,334/37,445) hospital mortality rate compared to a 7.0% (1,049/14,983) mortality without order set use (0.80% absolute difference, 95%CI 0.30, 1.28) or a 11.4% relative difference. Specific ED process metrics of antibiotic pass rates, sepsis alerts and ED nursing Narrator documentation were also examined. There were 9,365 patients with severe sepsis/septic shock in the ED study period, with an overall mortality of 10.9%. Antibiotic pass rate was 84.7% (7,932/9,365). Mortality rates in antibiotic pass v fail were 10.3% (817/7,932) v 14.1% (202/1,433) respectively, (absolute difference 3.8%, 95%CI 1.9, 5.7), a relative mortality decrease of 27%. O:E improved from 0.87 (fail) to 0.69 when the antibiotic pass metric was met. Sepsis alert was used in 5,813 cases (62%) and improved antibiotic pass rate from 75.1% (no sepsis alert) to 89.5% (14.4% difference, 95%CI 16.4,19.8); use was associated with a lower unadjusted mortality rate (9.4 vs 13.3%). ED Narrator use was also associated with higher antibiotic pass rates (91.7% vs 81.4%) and lower unadjusted mortality rates (9.2% vs 11.5%).

Research Embargoed Until Date/Time of Presentation

Conclusion: To improve sepsis care across a large integrated healthcare system, we implemented simple process metrics for a standardized approach to sepsis care. Antibiotic administration timing, sepsis order sets, sepsis alerts and sepsis documentation processes were all associated with lower mortality rates. Clear, actionable process metrics, such as antibiotics within 60 minutes of order, enhance provider and team engagement and operational efficacy. These actionable process metrics are easily implemented, measurable and reportable, and are associated with improved sepsis outcomes.

No, authors do not have interests to disclose

247 Clinical Factors Associated With "Failed" Observation Unit Stays for Patients With Cellulitis

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Introduction: Short-term observation units are frequently used for patients seen in the emergency department (ED) with cellulitis to initiate intravenous antibiotics followed by transition to oral antibiotic regimen upon discharge. Given that healthcare costs are becoming increasingly scrutinized and resources are limited, it is important to appropriately identify patients with cellulitis who are unlikely to improve during a short stay in the observation unit.

Study Objectives: We sought to identify clinical factors that would predict which patients would be appropriate for a short-term observation stay in the observation unit versus those who, by clinical criteria, are more likely to require an extended stay and would therefore benefit from inpatient admission.

Methods: For this quality improvement study, we conducted a retrospective review of electronic health records data for ED patients admitted to the observation unit of our Level 1, academic, tertiary care ED with cellulitis from 11/2023 to 10/2024. Demographic and clinical variables were examined for their relationships with three outcomes: length of stay (LOS) greater than 48 hours, LOS greater than 72 hours, and inpatient admission. Chi-square analysis or Fisher's exact test was used to compare the proportion of patients experiencing each outcome based on demographic and clinical variables. Correlation analysis with Spearman's rho was used to explore univariate associations, with significantly correlated variables moving forward to multivariate logistic regression modeling.

Results: During the study period, 225 patients with cellulitis were cared for in our observation unit; 73 (32.4%) of the patients were female; median age 50 years (range 16-91). When comparing demographic and clinical variables, significant difference in the proportion experiencing a 48-hour LOS for those with diabetes (20.4% vs 43.2%, p=0.002), elevated creatinine (6.6% vs 13.6%, p=0.048), and low sodium (10.5% vs 22.7%, p=0.030). Low sodium levels were also associated with 72-hour LOS (11.9% vs 42.9%, p=0.016) and inpatient admission (9.3% vs 22.2%, p=0.009). Inpatient admission was also experienced by a greater proportion of patients with an infection located on the trunk (1.2% vs 6.3%, p=0.049). Univariate correlation analysis revealed significant relationships between both diabetes (ρ=0.209, p=0.002) and creatinine (ρ=0.223, p=0.002) and 48-hour LOS. 72-hour LOS was significantly correlated with initial blood pressure (systolic: ρ=0.170, p=0.010; diastolic: ρ=0.166, p=0.012) and initial temperature (ρ=0.146, p=0.029). In multivariate modeling, diabetes (odds ratio [OR] 2.6, 95% CI: 1.2-5.5) and creatinine (OR 2.9, 95% CI: 1.0-8.4) predicted 48-hour LOS; systolic blood pressure (OR 1.1, 95% CI: 1.0-1.1) predicted 72-hour stay; and systolic blood pressure (OR 0.98, 95% CI: 0.96-0.99) and immature granulocytes (OR 3.8, 95% CI: 1.3-11.0) predicted inpatient admission.

Conclusions: There are some clinical factors which predispose patients with cellulitis to an extended stay in the hospital and therefore make them inappropriate for short-term observation unit stays. In our study, patients with cellulitis were more likely to "fail" a short-term observation unit stay if they had diabetes, an elevated creatinine or a low sodium levels. Patients who had cellulitis on the trunk were also found to be more likely require an inpatient admission. Patients with these clinical features may be more appropriate for an inpatient admission rather than a stay in an observation unit. Further studies with additional demographic data collection may help to improve predictions for patients with cellulitis who will "fail" a short term stay in the observation unit.

No, authors do not have interests to disclose

248 At Risk and Ready: Emergency Department Patient Interest and Concerns Around Medication for Alcohol Use Disorder

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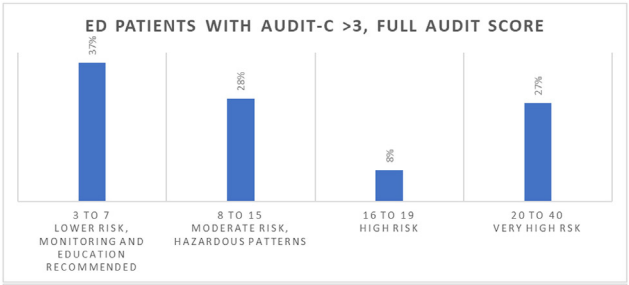
Study Objective: Alcohol use disorder (AUD) and heavy drinking remain a persistent threat to public health. Several medications to treat alcohol use disorder are effective at reducing binge drinking, heavy drinking days, and alcohol-related emergency (ED) visits. Despite their efficacy, these medications remain underutilized across care settings. EDs frequently treat patients impacted by alcohol, and some recent Medicaid Quality Incentive Program measures aim to encourage EDs to link patients presenting with alcohol and substance use disorders to addiction care, including in the measure prescriptions for medication for addiction treatment (MAT) such as naltrexone for alcohol use. However, little is known about ED patient interest in MAT for alcohol, or the concerns that may influence willingness to engage in MAT. This study summarizes a survey of ED patients who use alcohol and their interest and concerns around MAT.

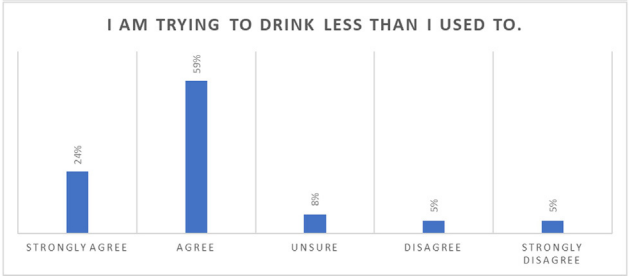
Methods: The study was conducted at an urban, academic, level 1 trauma center. A systematic sampling strategy was used to screen ED patients for enrollment in one of three survey studies between 8am-11pm, seven days a week over 8 weeks. Participants were eligible for inclusion in the MAT survey if they were able to provide informed consent in English or Spanish, were 21 years of age or older, and screened positive for alcohol use with an AUDIT-C of >=3. Patients who were altered, critically ill, actively intoxicated, in custody, on a psychiatric hold, or noted to be combative were not approached. The brief survey included full AUDIT, Readiness to Change, and directed questions on MAT and addiction treatment. The study was approved by the IRB at USC.

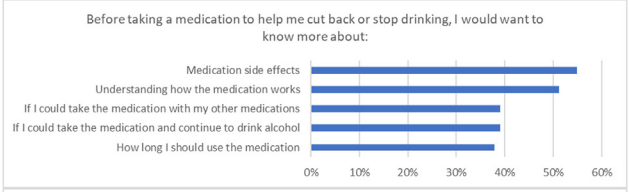
Results: Of 2,024 ED patients assessed for eligibility, 1,033 met exclusion criteria, 638 consented to screening, 132 screened positive for the MAT survey, and 83 provided informed consent and agreed to participate. The majority (63%) had full AUDIT scores over 8, suggesting potentially hazardous alcohol use; and 27% had scores of 20 or higher, indicating very high risk. One third (33%) reported consuming 7 or more drinks on a typical drinking day, an additional 29% reported 5-6 drinks. Forty percent reported interest in learning more about medication to cut back or stop drinking, and 83% reported agreement with the statement "I am trying to drink less than I used to". Only 13% had previously tried medication to cut back or stop drinking. Of these, 4 had used included gabapentin, 3 naltrexone, the others were unsure of the medication used. When asked what information they would like before considering MAT for alcohol, most desired information about medication side effects (55%), understanding how the medication works (51%), interactions with current medications (39%), and interactions with continued alcohol use (39%). Concerns included side effects (43%), medication dependence (30%), cost (26%), finding a doctor to prescribe (26%), and stigma around telling others about taking MAT (16%). Interest in specific MAT modality included monthly shot (31%), oral medication taken in anticipation of drinking (30%), and daily pill (25%).

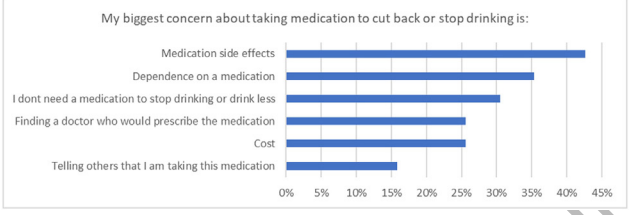
Conclusion: In this survey of ED patients in an urban, academic tertiary care and trauma center, we found high rates of heavy, high risk, and binge drinking. Over 4 in 5 patients reported actively trying to cut back and 2 in 5 expressed interest in MAT, identifying barriers that could be addressed through timely educational resources or allied staff, such as side effects or medication interactions. These findings underscore the ongoing need and opportunity for ED-based programs to recognize and engage patients at high risk of AUD. Emergency clinicians are well-positioned to initiate conversations about alcohol use and offer evidence-based interventions, including MAT, but often have fragile ancillary and support staffing, and face, with their patients a fractured outpatient system. To support better health and treatment, health systems and payors should invest in ED-based strategies that enhance care navigation for vulnerable patients, expand access to MAT, and facilitate more seamless referral and transition to longitudinal addiction care.

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No, authors do not have interests to disclose

249 An Emergency Department-Based Peer Model for Patients With Substance Use Disorder

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Study Objective: Rates of emergency department (ED) visits for substance use disorders (SUD) continue to increase. Peer Support Specialists (Peers) can be a valuable addition to the recovery plan for persons impacted by SUD. Incorporation of Peers into the ED setting specifically has not been previously extensively described.

Methods: A 16-hour in-person daily Peer coverage model was implemented at an urban, academic ED. Peers were prompted for patient engagement via consult from the clinical or social work team and/or via a triage-based universal SUD screener which was in place for the latter eight months of the reviewed time period. Peer-patient touchpoint data was considered over 12-months (July 2023 through June 2024). Basic patient demographics, reason for Peer consult/engagement, Peer services provided, and ED 30-day recidivism rates were collected. Descriptive and chi-square analyses were performed.

Results: ED Peers recorded 1,269 interactions with 1,063 unique patients. The majority of patients were male (66.1%), white (60.1%), between the ages of 25-44 (57.3%), and self-pay (40.6%). Nearly a quarter (23.7%) were experiencing homelessness. Opioid misuse was the most common (32.6%) cited reason for Peer engagement, followed by alcohol misuse (20.7%) and stimulant misuse (11.6%). Peers provided a variety of care and services, most frequently 'shared life experience' (77.1%) followed by 'provision of resources (local) specific to recovery' (59.9%), 'provision of personal contact information with anticipation of future contact' (55.8%), and 'provision' of resources (local) specific to social needs' (52.6%). In total, 379 (29.9%) of Peer-engaged patients returned to the ED within 30 days of initial visit. Patients with private insurance (26.6%; $p < .05$) and those admitted to the hospital (22.0%); $p < .00001$) were less likely to return to the ED while patients experiencing homelessness (43.0%; $p < .00001$) or concomitantly impacted by other non-SUD DSM-V diagnoses (38.8%; $p < .00001$) were more likely to demonstrate recidivism. Patient with whom Peers shared personal contact information for anticipated future contact were also more likely to return to the ED ($p < .05$).

Conclusion: Peers can be integrated into the ED setting to assist in the care and management of persons with SUD. Peer-engaged ED patients represent a particularly vulnerable cohort disproportionately impacted by concomitant psychiatric illness and negative social determinants of health.

No, authors do not have interests to disclose

250 Social Determinants of Health Assessment Among SBIRT Participants in a Southern United States Hospital

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Study Objectives: Screening, Brief Intervention and Referral to Treatment (SBIRT) is a public health initiative endorsed by the Substance Abuse and Mental Health Services Administration (SAMHSA), used in emergency departments (EDs) to connect patients with substance use disorders (SUDs) to care. While ED patients interact within SBIRT programs to identify potential SUDs, many barriers prevent treatment access. Identifying barriers to referrals and treatment access is crucial for successful linkage to treatment, yet few studies address these challenges. The objective of this analysis was to assess the social determinants of health (SDOH), and reasons for not receiving referrals for or attending outpatient medication assisted treatment (MAT) among individuals reporting opioid or alcohol misuse.

Methods: This is a retrospective cohort study (1/1/2023 and 12/31/2024) within a community level one trauma center in Greenville, South Carolina. All eligible adults (18+) who were screened positive for opioid or alcohol misuse were used as part of the embedded SBIRT program within this ED and assessed by a certified peer support specialist (CPSS). Data on SDOH and services provided were documented by the CPSS into RedCAP. Opioid and alcohol misuse were defined as anyone who reported either opioid use without a prescription or problematic alcohol use in the last 30 days. Descriptive statistics calculated the frequency of sociodemographic and clinical variables, social medical history, and CPSS services provided.

Results: Of the 2,204 SBIRT recipients, 373 recipients (16.9%) endorsed opioid misuse and 1,041 recipients (47.2%) endorsed alcohol misuse. Those endorsing opioid misuse reported a higher prevalence of unemployment (63.7% vs 10.2%), unstable housing (37.5% vs 27.1%), and lack of transportation (43.5% vs 29.8%) compared to those endorsing alcohol misuse. Further, those endorsing opioid misuse were more likely to be in law enforcement custody during their visit (5.7% vs 1.7%). Three of every four individuals endorsing opioid misuse (77.9%) or alcohol misuse (77.1%) received a referral to treatment, with outpatient appointments scheduled for 79.3% of those reporting opioid misuse and 25% of those reporting alcohol misuse. Compared to individuals endorsing opioid misuse, those endorsing alcohol misuse were more likely to report a lack of interest (16.7% vs 10.5%) and lack of insurance (8.3% vs 0%) as a reason for not scheduling an outpatient appointment. Individuals endorsing opioid misuse reported a lack of transportation (10.5% vs 0%).

Conclusion: Despite reporting barriers with several SDOH, a significant percentage of individuals were successfully referred for treatment after SBIRT screening and were able to schedule an outpatient appointment to pursue care. Those who did not schedule appointments rarely cited SDOH as barriers and very few reported other reasons. While these results highlight the potential for successful linkage, it also reveals a need to improve strategies to address SDOH more effectively. This may include a need to assess acute versus long term treatment goals, underlying motivations, address potential stigma or systemic barriers that may prevent them from addressing SDOH. In return, these findings may lead to better catered engagement strategies and comprehensive interventions that address SDOH barriers to enhance treatment and outcomes for individuals with substance use disorders.

No, authors do not have interests to disclose

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251 Perspectives on Emergency Department Opioid Use Disorder Care Guide Quality Improvement Intervention

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Study Objective: The Building Opioid Use Disorder and Overdose Support and Training (BOOST) initiative is an implementation-facilitation (IF)-based intervention to improve care of emergency department (ED) patients with opioid use disorder (OUD). It was designed to provide tailored, iterative implementation support for EDs who are already participating in ACEP's Emergency Quality (E-QUAL) Substance Use Disorder network but accepted an additional intervention to improve adoption of evidence-based OUD care. Here we describe the results of the formative evaluation that was deployed across 29 geographically disparate participating EDs with little existing medication for opioid use disorder (MOUD) use that was used to inform and tailor the BOOST intervention, including individual and ED staff IF sessions, individualized site feedback and learning collaborative calls, which is currently ongoing.

Methods: Between June 2023 and June 2024, 29 EDs were recruited to participate in the BOOST intervention. Either the medical director or local physician champion completed a mixed method formative evaluation prior to their first IF meeting. The survey included questions about the readiness (on a scale of 0 to 10) of clinicians in their ED to initiate buprenorphine or methadone for the treatment of opioid withdrawal, clinician readiness to prescribe buprenorphine and provide a warm handoff for ongoing treatment, and willingness to prescribe take home naloxone for those at risk of overdose. Participants were also asked to identify facilitators and barriers to the implementation of evidence-based OUD care using open-ended responses. Descriptive statistics were used to evaluate quantitative results and qualitative responses were evaluated using content analysis, organized by themes.

Results: Twenty-nine EDs who agreed to participate in BOOST completed the formative evaluation. When asked about the readiness of clinicians in their EDs to use buprenorphine to treat opioid withdrawal in the ED, the mean response was 4.55 (range 0-9; SD±2.92). The mean readiness of clinicians to use methadone to treat opioid withdrawal was 1.14 (range 0-8; SD±1.86). Reported readiness to prescribe buprenorphine and provide warm handoff was 3.6 (range 0-10; SD±2.97) and readiness to provide naloxone to those at risk of overdose was 7.24 (range 2-10; SD± 2.66). The 29 sites identified a total of 48 barriers and 39 facilitators in their responses. The most commonly identified barriers centered overwhelmingly on a lack of outpatient resources for follow-up, followed by cultural norms and stigma among ED staff, and a lack of education or training. The most commonly identified facilitators were clinician champions, interdisciplinary support staff (with an emphasis on pharmacists), and educational resources and partners.

Conclusion: Among a group of 29 EDs with little MOUD implementation that elected to participate in the BOOST OUD intervention to improve care, strategies were identified that could be used to inform an IF-based intervention to improve care including building relationships with outpatient referral resources, leveraging local interdisciplinary resources including pharmacists, providing tailored education and leveraging an existing willingness to provide take home naloxone. This ongoing intervention was iteratively developed and deployed using tailored discussions based on site specific readiness, barriers and facilitators to improve care of ED patients with OUD and the development of a series of monthly interactive learning collaborative conference calls targeted to addressing barriers and leveraging facilitators across sites.

Yes, authors have interests to disclose
Disclosure: Foundation for Opioid Response
All
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252 Emergency Department Prescribing Patterns of Medication-Assisted Therapy for Opioid Use Disorder

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Study Objectives: This study sought to identify the prescribing patterns for medication assisted therapies (MAT) in the treatment of opioid use disorder (OUD) among emergency medicine (EM) providers.

Methods: An online survey was distributed to emergency department (ED) faculty, residents, and advanced practice providers (APPs) who practice in the ED querying demographics, exposure to OUD patients, and practice patterns regarding MAT prescribing. The survey was distributed via the Council of Residency Directors in Emergency Medicine (CORD) listserv and was posted on the CORD forum. Additionally, the survey was made available on the Society for Academic Emergency Medicine's (SAEM) online forum. To obtain broader input from community providers, the survey was posted on the EM Docs Facebook forum, a private group limited to emergency physicians.

Results: Survey participants included 93 EM providers ages 26-70 (mean 39.8) with a range in practice from 1 to 44 years. A majority of responses were returned from those who trained primarily in the academic setting (69.3%) and who practice in the Midwest (85.2%). Of respondents, 24.1% of EM providers reported treating patients suffering from opiate addiction every shift. An additional 31.3% of EM providers do so every 2-3 shifts. Eighty-nine percent of EM providers agreed that it is within their scope to prescribe MAT for OUD. Attitudes toward MAT prescribing are detailed in table 1. Of those surveyed, 65.8% of EM providers agreed that they have the necessary knowledge to prescribe MAT and 62.2% of EM providers agreed that they have the necessary training to prescribe MAT. Most respondents (86.8%) reported feeling comfortable dispensing a single dose of buprenorphine to patients in the ED. Fewer respondents (72.3%) agreed that they feel comfortable prescribing buprenorphine for treatment of acute opiate withdrawal as home induction therapy, and only 67% reported feeling safe prescribing MAT. Regarding prescribing patterns, only 37.3% of respondents reported always offering MAT when encountering patients withdrawing from opiates, and only 12.0% of EM providers reported always prescribing MAT to patients in acute opiate withdrawal. When considering dosing buprenorphine, the most common maximum dose ED providers reported comfort prescribing per dose was 8mg (34.6%) followed by 16mg (24.4%) and 4mg (10.3%). Over half (55.2%) of respondents reported a maximum dose they felt comfortable prescribing that was less than 16mg per dose. Respondents were queried regarding naloxone comfortability and prescription patterns. While 96.4% of respondents agreed they felt comfortable prescribing naloxone, just 48.2% of EM providers reported always prescribing naloxone to patients who abuse opiates.

Conclusion: While results are limited by a small cohort size, these data suggest that EM providers agree that while they have the necessary scope, knowledge, training to prescribe MAT for OUD, few providers are consistently considering MAT for their patients. Moreover, there is a wide variation between the dosages that providers feel comfortable prescribing buprenorphine daily. Current FDA guidelines recommend a target dosage of Suboxone (buprenorphine/naloxone) sublingual tablet of 16 mg/4 mg buprenorphine/naloxone/day as a single daily dose. In this cohort, 55.2% of providers did not feel comfortable prescribing the recommended daily dose of Suboxone. There are many potential barriers to prescribing MAT, and work should be done to evaluate and address potential barriers to best practices for treating patients suffering from OUD. In addition, standardized education throughout EM residency programs and national-level guidelines regarding MAT prescribing agreed upon by emergency physicians may lead to increased implementation of MAT prescribing.

	Disagree	Neutral	Agree
I feel comfortable dispensing a single dose of buprenorphine for OUD.	7.2%	6.0%	86.8%
I feel comfortable prescribing buprenorphine for home induction for OUD.	19.2%	8.4%	72.3%
I am comfortable prescribing naloxone for OUD.	1.2%	2.4%	96.4%
I have the necessary training to prescribe MAT for OUD.	19.5%	18.3%	62.2%
I have the necessary knowledge to prescribe MAT.	14.7%	19.5%	65.8%
I feel it is my responsibility to prescribe MAT for OUD.	8.6%	19.5%	71.9%
It is within my scope of practice to prescribe MAT for OUD.	4.8%	6.1%	89%
I feel safe prescribing MAT for OUD.	9.8%	23.2%	67.0%

Table 1: Attitudes of EM prescribers toward MAT prescribing for OUD.

No, authors do not have interests to disclose

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253 Implementation Facilitation Improves Readiness for Buprenorphine Initiation in Opioid Use Disorder

Strout T, Dziura J, Barrett T, Cowan E, Hawk K, Herring A, Manteuffel J, McCormack R, Fiellin D, D'Onofrio G, Edelman EJ/Main Medical Center, Portland, Maine

Study Objective: Treating opioid use disorder with buprenorphine (BUP) is safe and effective, however, uptake of emergency department (ED)-initiated BUP is limited. Implementation facilitation (IF) is a multifaceted approach for translating evidence to practice that can support the integration of scientific knowledge into routine healthcare practice. The goals of this study were to evaluate the effect of IF activities on perceptions of ED readiness for providing ED-initiated BUP as well as on perceived barriers to and facilitators of ED-initiated BUP.

Methods: From 2019-2024, we surveyed ED medical directors and site principal investigators from diverse U.S. sites participating in Emergency Department-INitiated bupreNOrphine VAlidaTION (ED-INNOVATION), a hybrid type I effectiveness-implementation trial, at three time points: pre-IF, early-IF, and late-IF (post-conclusion of enrollment in the clinical trial) using the Qualtrics electronic survey platform. IF activities included sharing materials (teaching materials, protocols, discharge instructions, clinical pathways, order sets), providing education (trainings, educational websites, mobile applications), weekly case discussions, and providing expert physician consultation in real time. General linear mixed models and correlation analysis were used to evaluate relationships between readiness, barriers and facilitators and changes over time using ratings in each domain on a 10-point scale (1 = not ready, 10 = totally ready).

Results: Across 31 sites, mean readiness increased pre-IF to early-IF (mean 6.29 vs 8.23, $p < 0.0001$) and pre-IF to late-IF (mean 6.29 vs 8.39, $p < 0.0001$) periods. There was no difference in readiness early-IF to late-IF (mean 8.23 vs 7.39, $p = 0.76$). Decreases in 13/15 barriers and increases in 13/19 facilitators were observed. When examining relationships between changes in readiness, barriers, and facilitators, strongest relationships were observed for follow-up program availability (r=0.64, p=0.0001), prescribing practices knowledge (r=-0.64, p=0.001); insurance coverage (r=-0.52, p=0.002); ED nursing support for BUP initiation (r=-0.48, p=0.01); and knowledge about addiction and its treatment in the ED (r=0.47, p=0.007). Weak relationships were observed for: availability of X-waivered providers (r=0.22, p=0.97); performance audit and feedback QI initiatives (r=0.01, p=0.95); concern that patients will come to the ED only for BUP (r=-0.03, p=0.86); and patient interest in BUP (r=-0.09, p=0.60).

Conclusions: IF was associated with improved readiness for ED-initiated BUP, a decrease in barriers, and an increase in facilitators across all time points. Access to follow-up for patients, knowledge of prescribing practices, insurance coverage for BUP, ED nursing support, and knowledge of addiction and its treatment were the strongest correlates of improved readiness. When resources are constrained, prioritizing these areas may yield the greatest gains in readiness to promote ED-initiated BUP. Avoiding strategies focused solely on audit and feedback programs, X-waiver training, and addressing concerns related to patients presenting to the ED only for BUP initiation are less likely to yield meaningful advances in ED readiness to provide BUP, particularly with increasing familiarity with BUP prescribing and policy change removing the X-waiver requirement.

Yes, authors have interests to disclose

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Gail D'Onofrio, David A. Fiellin

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Disclosure: Medications for opioid use disorder clinical consultant for the Community Foundation for Southeast Michigan. I have served as a consultant on an opioid overdose reversal committee for Indivior and our institution has received support for peer recovery coaches from an Indivior charitable grant. I serve on the Cepheid Speakers Bureau. I have support from a Gilead Sciences Frontlines of Communities in the United States (FOCUS) grant.

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Medications for opioid use disorder clinical consultant for the Community Foundation for Southeast Michigan. I have served as a consultant on an opioid overdose reversal committee for Indivior and our institution has received support for peer recovery coaches from an Indivior charitable grant. I serve on the Cepheid Speakers Bureau. I have support from a Gilead Sciences Frontlines of Communities in the United States (FOCUS) grant.

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Tyler W. Barrett

Other

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Tania D. Strout

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255 Assessing Emergency Clinicians' Needs From Trauma Clinical Guidance: A Mixed-Methods Study

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Study Objectives: In the United States, emergency medicine (EM) clinicians are often the first to care for injured patients in the hospital setting. However, awareness and usage of trauma clinical guidance among U.S. EM clinicians today is inconsistent at best, often hindered by fragmented information that is difficult to access, interpret, and apply in critical moments of patient care. To better understand end-user needs, we evaluated emergency medicine clinician priorities and preferences of trauma clinical guidance.

Methods: EM clinicians were recruited for semi-structured interviews via email using a combination of purposeful criterion and snowball sampling. Sampling matrix informed diverse representation across gender, race, ethnicity, geographic region, trauma center level, clinician credentials, years in practice, and level of urbanity. Interviews were held via video conference during August and September 2024 to understand barriers and facilitators to using trauma clinical guidance. Interviews were audio recorded and reviewed by two analysts using rapid directed qualitative analysis informed by the updated Consolidated Framework for Implementation Research. A quantitative survey was developed to validate and further explore the findings identified during the semi-structured interviews. The survey was distributed in February and March 2025 via email to relevant members of the Society for Emergency Medicine PAs and the American College of Emergency Physicians. Survey results were analyzed using descriptive and inferential statistics.

Results: Twelve EM clinicians participated in semi-structured interviews. 156 responded to the email survey. Clinicians expressed support for trauma clinical guidance overall, citing its ability to bring clarity to complex patient presentations. When asked how often they use trauma clinical guidance in their decisionmaking, clinicians reported an average score of 6.1 (n = 83) on a scale from 0 (never) to 10 (always). However, when clinicians consult existing guidance, they often find the available resources lacking. Key barriers to guidance usage include lack of awareness, difficulty locating guidance, and cumbersome design. Clinicians emphasized that clinical guidance should be objective, concise, updated, and easy-to-use at bedside. They identified the most important factor determining the

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usability of trauma clinical guidance as being quickly understood in a time-pressured situation (46% ranked as top priority, n = 71), followed by being up-to-date with the latest evidence (37%, n = 67). Reducing wordiness and visual clutter were top priorities for improving guidance design. A mobile app was the preferred modality for accessing guidance, with 45% ranking it as their top choice (n = 78). Guidance often assumes the presence of resources not available in resource-constrained settings, particularly in rural practice environments. Rural clinicians reported more often than non-rural clinicians that they do not have the amount of staff ($t(80) = -2.19$, $p = 0.02$), the type of staff ($t(79) = -3.98$, $p < 0.01$), the diagnostic tools ($t(80) = -2.59$, $p < 0.01$), and the medical supplies ($t(79) = -3.50$, $p < 0.01$) needed to follow trauma clinical guidance. Clinicians were divided on how they prefer to learn about updates to guidance, with the most preferred option, live trainings held by their hospital, only chosen by 18% (n = 83) of respondents.

Conclusion: To further advance outcomes after injury, the trauma surgery community should continue to consider the variety and diversity of end users and clinical settings involved in trauma care, including EM clinicians, when developing trauma clinical guidance. Improvements in how guidance is accessed, designed, implemented, and customized for unique practice settings are needed to better suit clinicians' needs. Developing mobile-friendly guidance that is easily understood in time-pressured settings should be a priority for authors of trauma clinical guidance, as should options for those practicing in more resource-constrained settings.

No, authors do not have interests to disclose

256 Incidental Findings Identified by Universal Screening for BCVI Using CT Angiography

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Study Objectives: Blunt cerebrovascular injuries (BCVIs) are acute blunt injuries of the carotid and vertebral arteries that are screened for using neck computed tomographic angiography (CTA). Although several screening protocols have been developed, many institutions including our regional Level 1 trauma center, have begun implementing universal screening protocols to ensure no injuries are missed. When screening for acute injuries, incidental findings (IFs) may be discovered as a result. The aim of this study is to determine the number and ratio of IFs discovered with universal screening for BCVI.

Methods: Priority 1 and 2 adult (>18) blunt trauma patients between April 2023 and April 2024 at Erie County Medical Center, a Level 1 trauma center, were identified from the trauma registry. Medical records were retrospectively reviewed to identify the incidence of IFs in patients screened for BCVI.

Results: A total of 1,832 eligible blunt trauma patients were evaluated, of whom 1,554 (84.83%) had a neck CTA. Of these, 58 patients (3.73%) had CTA evidence of BCVI, 20 (34.48%) of whom had no risk factors based on the expanded Denver criteria. A total of 252 IFs were discovered in 224 patients (14.55%). Included in these IFs were arterial occlusions (n=24), aneurysms (n=10), moderate-severe stenoses (n=138), and significant thyroid nodules (n=25). Eighty-one patients (36.16%) survived their injuries yet had no evidence in their charts that they were informed of these incidental findings.

Conclusions: IFs are discovered in a significant number of blunt trauma patients when screened for BCVI. Our data, along with many others', supports the use of universal screening for BCVI, as it indicates that injuries are missed when using traditional screening protocols. Thus, trauma centers using universal screening for BCVI should have protocols in place for informing patients of IFs to ensure proper follow-up care is obtained for these patients.

No, authors do not have interests to disclose

257 A Pilot Study: The Duration of Sexual Assault Nurse Examinations in an Emergency Setting

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Study Objectives: Sexual Assault Nurse Examinations (SANEs) are forensic medical examinations performed in the setting of acute sexual assault, frequently in the emergency department (ED), by trained medical providers. The duration of this examination is important as it has medical, legal, and economic implications for ED operations, clinicians, and patients. To the authors' knowledge, no study has been undertaken to quantify the duration of SANEs or their impact on ED visit duration in any American ED. This pilot study aims to more clearly define the timeline of an ED visit for acute sexual and key factors contributing to variation within these encounters.

Methods: This research was performed as a retrospective chart review and included 800 emergency encounters in the University of Florida medical system, a tertiary medical institution with a level one trauma center, between the years of 2011-2023 with an ICD-9 or 10 code of sexual assault or concern for sexual assault. 577 adult patients met inclusion criteria. Demographic, logistical, and medical data were collected, de-identified, and logged by a team of trained researchers into a standardized REDCap form. Epidemiological factors included age, sex, race, 3-digit zip code, preferred language, housing status, known pregnancy, and disability. Clinical data included time to presentation, additional presenting concerns alongside sexual assault, medications administered during the encounter, and diagnostic testing or imaging performed during the encounter. Emergency encounter duration and SANE examination duration were logged as outcomes of interest and statistical analysis was performed.

Results: 480 patients received SANE examinations and of these, 385 had documented SANE start and endpoints. The average SANE duration was found to be 2.45 ± 1.33 hours for this population with a positive skew and extremes of 0.18 and 9.29 hours. SANE exams were not found to significantly prolong emergency encounters (average ED visit duration with a SANE versus without a SANE was 7.21 ± 4.91 hours and 6.88 ± 4.95 hours respectively). The following factors were found to have a statistically significant impact on the duration of a SANE: time from assault to presentation (2.45 ± 1.23 hours for presentations within the first 120 hours versus 4.59 ± 0.29 hours for presentations at 121 hours or beyond) and administering provider type (2.09 ± 1.33 hours for physicians, 2.56 ± 1.29 hours for trained Sexual Assault Nurse Examiners, and 1.60 ± 0.93 hours for other healthcare providers). In addition, administration of medication (2.52 ± 1.34 hours for those given medication and 1.95 ± 1.08 hours for those without) and diagnostics performed (2.54 ± 1.91 for encounters with diagnostics and 2.16 ± 1.38 hours for those without) were also statistically significant correlates with SANE duration. Epidemiological factors were not found to significantly impact the duration of SANEs in this population.

Conclusions: This data suggests that SANE exams do not significantly prolong ED visits for patients presenting acutely for sexual assault. The relationships SANE exam duration and time to presentation, provider type, medications administered, and diagnostics ordered are hypothesis generating and necessitate further exploration. Limitations of this research include inconsistencies in documenting SANE start and endpoint times, small subgroup population sizes, and the study's regional/geographic specificity to a southeastern medical institution. Further research is needed to better understand SANE exam durations and the broader impact of key influencing factors.

No, authors do not have interests to disclose

258 How Important Is Time to Angiography in Isolated Liver Injuries?

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Study Objectives: In liver injuries, angiography is both diagnostic and therapeutic, offering assessment of vascular flow with the possibility of angioembolization. Associations between time to angiography and patient outcomes have not been previously investigated in isolated liver injuries. This study sought to uncover the association between time to angiography with or without embolization and patient outcomes.

Methods: This study used the ACS-TQIP National Trauma Data Bank (NTDB) from 2017-2022 using ICD-10 codes to identify patients with hepatic injuries undergoing hepatic angiography or angioembolization within 24 hours of presentation. Extrahepatic injuries with AIS scores of three or greater were excluded, except for head injury in which scores of two or greater were excluded. ICD-10 codes were used to exclude extrahepatic intra-abdominal vascular and solid organ injuries. The NTDB hemorrhage control surgery variable was used to exclude patients who underwent surgery prior to angiography. The NTDB time-to-procedure variable was used to subset patients by time to angiography in the following groups: <1 hour, 1-2 hours, 2-

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4 hours, 4-8 hours, or 8-24 hours from initial presentation. Age, sex, Injury Severity Scale (ISS), and Shock Index (SI) were used to describe the patient population. The outcomes of interest were blood transfusion within the first four hours of arrival, incidence of conversion to exploratory laparotomy after angiography, and mortality. Chi-squared, Fisher's Exact, Kruskal-Wallis, and ANOVA tests were used as appropriate to assess differences between groups.

Results: There were 576 patients that met inclusion and exclusion criteria (Table); 4.7% of patients (n=27) underwent angiography in <1 h, 16% (n=92) were within 1-2 hours, 39% (n=222) in 2-4 hours, 27% (n=154) in 4-8 hours, and 14% (n=81) were within 8-24 hours. The overall mortality rate for patients undergoing hepatic angiography was 2.1% (n=12). There were no significant differences in age (p=0.45), sex (p=0.91), ISS (p=0.36), or SI (p=0.26) between groups. There were no significant differences in transfusion within four hours (p=0.08), exploratory laparotomy rates (p=0.35), or mortality (p=0.74).

Conclusion: In patients with isolated liver injuries, there were no differences in the number of packed red blood cells transfused within the first four hours, rates of conversion to exploratory laparotomy, or mortality. While angiography is a time-sensitive procedure, critical time thresholds may not be necessary to achieve clinical outcomes. Although there were no differences in ISS or SI between groups, this study is limited by its retrospective nature and the ability to control for clinical characteristics.

Table 1: Comparison of time to angiography and patient characteristics with outcomes

Hours to Angiography	<1	1-2	2-4	4-8	8-24	Overall	p-value
N	27	92	222	154	81	576	
Age	42.9 ± 23.1	42.1 ±21.8	41.3 ±18.8	42.1 ±19.8	46.3 ±21.3	42.4 ±20.1	0.45
Female	12 (44.4%)	42 (45.7%)	91 (41.0%)	61 (39.6%)	33 (40.7%)	239 (41.5%)	0.91
Injury Severity Score							0.36
1-8	5 (18.5%)	9 (9.8%)	22 (9.9%)	18 (11.7%)	15 (18.5%)	69 (12.0%)	
9-15	6 (22.2%)	19 (20.7%)	56 (25.2%)	45 (29.2%)	25 (30.9%)	151 (26.2%)	
16-24	12 (44.4%)	52 (56.5%)	122 (55.0%)	71 (46.1%)	35 (43.2%)	292 (50.7%)	
25+	4 (14.8%)	12 (13.0%)	22 (9.9%)	20 (13.0%)	6 (7.4%)	64 (11.1%)	
Shock Index >1	4 (14.8%)	19 (20.7%)	35 (15.8%)	17 (11.0%)	9 (11.1%)	84 (14.6%)	0.26
Mortality	1 (3.7%)	1 (1.1%)	4 (1.8%)	4 (2.6%)	2 (2.5%)	12 (2.1%)	0.74
Ex-Lap	2 (7.4%)	1 (1.1%)	4 (1.8%)	3 (1.9%)	1 (1.2%)	11 (1.9%)	0.35
Units of PRBCs	0.668 ±1.10	0.600 ±1.15	0.526 ±1.30	0.609 ±1.92	0.506 ±1.95	0.564 ±1.55	0.08

PRBCs = Packed Red Blood Cells, transfused within the first four hours. Ex-Lap = Conversion to exploratory laparotomy after angiography.

No, authors do not have interests to disclose

259 Hypocalcemia as a Predictor of Mortality and Need of Blood Transfusion in Major Trauma Patients

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Study Objectives: 1. To investigate the association between on-arrival hypocalcaemia and adverse outcomes (coagulopathy, mortality at 6 hrs, mortality at 24 hrs, 7 day in-hospital mortality). 2. To investigate the association between admission hypocalcaemia and multiple transfusions [≥5 units packed red blood cells in 24 hours] and massive transfusion [≥10 units packed red blood cells in 24 hours. 3.To assess the combination of Calcium levels and ABC score in predicting the need of MTP.

Methods: It will be a retrospective observational study. All data will be extracted from JPNATC registry. Major trauma defined as Injury Severity Score (ISS) of >12, death after injury, admission to ICU for more than 24 h with mechanical ventilation, urgent surgery within 48 h from arrival such as craniotomy, thoracotomy, laparotomy, pelvic or spine surgery. Assessment of blood consumption score involves HR >120, SBP < 90 mm of Hg, FAST + and penetrating injury. We will calculate ionised calcium levels from serum calcium values. Ionized hypocalcaemia defined as <1mmol/L in accordance with the hospital laboratory reference ranges. Acute traumatic coagulopathy defined as an INR >1.5. All blood test results will be extracted at admission and prior to any blood product administration. Controls: Not required. Data were entered into Microsoft Excel, cleaned and analysed using SPSS version 26. Descriptive statistics were done. Distribution of subjects according to age-group, gender, and status of hypocalcaemia were tabulated. Chi-square tests were conducted to examine associations between coagulopathy, mortality at 6 hrs, mortality at 24 hrs, 7 day in-hospital mortality, multiple transfusions and massive transfusions with 'on admission hypocalcaemia', with odds ratios (OR) and p-values reported to quantify the strength and significance of these relationships. Additionally, binomial logistic regression was performed to identify significant predictors of hypocalcaemia, with adjusted odds ratios (AOR) and 95% confidence intervals (CI) calculated to assess the independent contribution of each predictor.

Results: Primary Objective 1: To investigate the association between on-arrival hypocalcaemia and adverse outcomes (coagulopathy, mortality at 6 hrs, mortality at 24 hrs, 7 day in-hospital mortality). On arrival hypocalcaemia was found to be significantly associated with 'mortality at 6 hrs' and '7 day in-hospital mortality'. Primary Objective 2: To investigate the association between admission hypocalcaemia and multiple transfusions [≥5 units packed red blood cells in 24 hours] and massive transfusion [≥10 units packed red blood cells in 24 hours. Hypocalcaemia was not significantly associated with multiple transfusions [≥5 units packed red blood cells in 24 hours] and massive transfusion [≥10 units packed red blood cells in 24 hours. Secondary objective: To assess the combination of Calcium levels and ABC score in predicting the need of MTP. ABC score >=2 combined with hypocalcaemia was found to be significantly associated with the need of MTP. This is evident from the odds ratio of 5.946 with p value 0.008.

Conclusion: On-arrival hypocalcemia was found to be significantly associated with early mortality, specifically at 6 hours and 7-day in-hospital mortality, highlighting its potential role as a prognostic marker in critically ill patients. However, no significant association was observed between admission hypocalcemia and the need for multiple or massive transfusions. Interestingly, the combination of an ABC score ≥2 and hypocalcemia was significantly associated with the need for massive transfusion protocol (MTP), suggesting that integrating calcium levels with trauma scoring systems may enhance early identification of patients requiring aggressive resuscitation. These findings underscore the importance of monitoring calcium levels in trauma patients and warrant further research to explore its potential role in guiding resuscitative strategies.

❖ **Descriptive statistics**

Table 1 Distribution of subjects according to status of hypocalcaemia (N=118)

Hypocalcemia	Subjects	Percentage (%)
Yes	116	1.7
No	2	96.7
Total	118	100

Table 2 Distribution of subjects according to gender (N=118)

Gender	Number	Percentage (%)
Female	16	13.6
Male	102	86.4
Total	118	100

Table 3 Distribution of subjects according to Age-group (N=118)

Age Group	Subjects	Percentage (%)
18-29	56	47.5
30-39	34	28.8
40-49	19	16.1
50-59	6	5.1
60-69	1	0.8
70 and above	2	1.7
Total	118	100

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❖ **Primary Objective 1:** To investigate the association between on arrival hypocalcaemia and adverse outcomes (coagulopathy, mortality at 6hrs, mortality at 24 hrs ,7 day in-hospital mortality)

Table 4 Association of Coagulopathy with hypocalcaemia

Coagulopathy	Hypocalcaemia		Total	p-value*
	Yes	No		
Yes	67	2	69	0.249
No	45	0	45	
Total	112	2	114	

*Chi square test (p value < 0.05 was considered significant)

Table 5 Association of mortality at 6hrs with hypocalcaemia

Mortality at 6 hrs	Hypocalcaemia		Total	p-value*
	Yes	No		
Yes	8	1	9	0.023
No	108	1	109	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

Table 6 Association of mortality at 24hrs with hypocalcaemia

Mortality at 24 hrs	Hypocalcaemia		Total	p-value*
	Yes	No		
Yes	11	1	12	0.06
No	105	1	106	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

Table 6 Association of mortality at 7 days with hypocalcaemia

Mortality at 7 days	Hypocalcaemia		Total	p-value*
	Yes	No		
Yes	17	2	19	0.001
No	99	0	99	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

❖ **Primary Objective 2:** To investigate the association between admission hypocalcaemia and multiple transfusions [≥5 units packed red blood cells in 24 hours] and massive transfusion [≥10 units packed red blood cells in 24 hours

Table 7 Association of multiple transfusions [≥5 units packed red blood cells in 24 hours] with hypocalcaemia

Multiple transfusions	Hypocalcaemia		Total	p-value*
	Yes (1)	No (0)		
Done (0)	42	0	42	0.289
Not done (1)	74	2	76	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

Table 8 Association of massive transfusion [≥10 units packed red blood cells in 24 hours] with hypocalcaemia

Massive transfusions	Hypocalcaemia		Total	p-value*
	Yes (1)	No (0)		
Activated (0)	60	2	62	0.175
Not Activated (1)	56	0	56	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

❖ **Secondary objective:**
To assess the combination of Calcium levels and ABC score in predicting the need of MTP.

Table 9 Distribution of subjects according to ABC score with hypocalcaemia

ABC score	Hypocalcaemia		Total	p-value*
	Yes (1)	No (0)		
0	1	0	1	0.986
1	13	0	13	
2	45	1	46	
3	54	1	55	
4	3	0	3	
Total	116	2	118	

*Chi square test (p value < 0.05 was considered significant)

Table 10 Combination of (ABC score ≥ 2 and hypocalcaemia) vs Massive transfusion protocol

Combination of ABC score >=2 and Hypocalcaemia	Massive transfusions		Total	p-value*
	Yes (1)	No (0)		
0	13	3	16	0.004
1	43	59	102	
Total	56	62	118	

*Chi square test (p value < 0.05 was considered significant)

Table 11: Binary Logistic Regression model for predicting need of MTP

Binary Logistic regression: Combination of ABC score >=2 and Hypocalcaemia vs Massive transfusion protocol							
Predictor	Estimate	SE	Z	p	Odds Ratio	95% CI (Lower)	95% CI (Upper)
Combination of ABC score >=2 and Hypocalcaemia	1.783	0.671	7.055	0.008	5.946	1.596	22.157

No, authors do not have interests to disclose

260 Ultrasound-Guided Transgluteal Sciatic Nerve Hydrodissection for the Treatment of Acute Sciatica

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Introduction: Sciatica, characterized by lower extremity radicular pain, affects up to 40% of individuals in the United States. Traditional medical treatments in the emergency department (ED) include NSAIDs, acetaminophen, opioids, systemic steroids, muscle relaxants, and topical analgesics, some of which may be contraindicated or ineffective for some patients. Ultrasound-guided regional anesthesia has emerged as a valuable non-opioid analgesic option in the ED. Concerns about motor dysfunction and falls, especially in elderly patients, may preclude sciatic nerve blockade using local anesthetics in the ED setting. Recent case reports highlight the novel use of perineurial hydrodissection of the sciatic nerve using 5% dextrose in water (D5W) without any local anesthetics to rapidly alleviate nerve compression and related symptoms in the ED.

Study Objective: To evaluate the effectiveness of ultrasound-guided transgluteal sciatic nerve hydrodissection (TSNH) using D5W for the treatment of acute sciatica in the ED.

Methods: A prospective case-control study was conducted at a dual-site hospital system, enrolling adult patients presenting to the ED with acute sciatica. Patients were categorized based on a non-randomized convenience sampling depending on the availability of study investigators to perform the study procedure. The control group received standard medical therapy at the treating physician's discretion, while the intervention group underwent ultrasound-guided TSNH. Patients were positioned in the lateral recumbent position and the sciatic nerve was identified using a curvilinear (2-6 MHz) transducer (Zonare, Mountainview, CA) along the transgluteal region. A 20 g 100 mm block needle (Pajunk, Alpharetta, GA) was inserted in-plane under ultrasound guidance and 20 mL of D5W was injected within the fascial plane between the gluteus maximus and quadratus femoris muscles to hydrodissect the sciatic nerve away from its surrounding tissues. Pain scores were measured using a 10-point numeric rating scale on arrival, post-treatment, and at 72-hour telephone follow-up.

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Results: In total, 36 control and 31 intervention group patients were enrolled. Initial pain scores were similar between groups (Control: mean = 8.6, Blocked: mean = 8.7; P = 0.65631). Post-procedure pain scores significantly decreased in the blocked group (mean = 2.3) compared to the control group (mean = 6.8; P < 0.0001). Follow-up pain scores also showed significant reduction in the blocked group (mean = 2.6) versus the control group (mean = 6.7; P < 0.0001). The differences between initial and post-procedure pain scores, as well as initial and follow-up pain scores, were significantly greater in the blocked group (P < 0.0001).

Conclusion: Ultrasound-guided TSNH significantly reduces pain in patients with acute sciatica and offers a safe, rapid, and effective alternative to standard medical therapy in the ED.

Table 1: Pain Score Difference

	Group			
	Control (N=36)	Blocked (N=31)	Total (N=67)	P-value
Initial Pain Score				0.65631
N	36	31	67	
Mean (SD)	8.6 (1.40)	8.7 (1.67)	8.6 (1.52)	
Median (IQR)	8.5 (8.0, 10.0)	9.0 (8.0, 10.0)	9.0 (8.0, 10.0)	
Range	5.0, 10.0	4.0, 10.0	4.0, 10.0	
Post Procedure Pain Score				<.00011
N	25	19	44	
Mean (SD)	6.8 (1.45)	2.3 (2.21)	4.8 (2.88)	
Median (IQR)	7.0 (6.0, 8.0)	2.0 (0.0, 4.0)	5.5 (3.0, 7.0)	
Range	3.0, 10.0	0.0, 7.0	0.0, 10.0	
Pain Score (FU)				<.00011
N	35	31	66	
Mean (SD)	6.7 (1.87)	2.6 (2.80)	4.8 (3.14)	
Median (IQR)	7.0 (5.0, 8.0)	2.0 (0.0, 5.0)	5.0 (2.0, 7.0)	
Range	3.0, 10.0	0.0, 8.0	0.0, 10.0	
Difference between Initial PS and Post Proceddure PS				<.00011
N	25	19	44	
Mean (SD)	1.8 (1.08)	6.5 (2.25)	3.8 (2.89)	
Median (IQR)	2.0 (1.0, 3.0)	6.0 (5.0, 8.0)	3.0 (2.0, 5.8)	
Range	0.0, 4.0	3.0, 10.0	0.0, 10.0	
Difference between Initial PS and PS(FU)				<.00011
N	35	31	66	
Mean (SD)	1.8 (1.31)	6.1 (2.62)	3.8 (2.99)	
Median (IQR)	2.0 (1.0, 3.0)	6.0 (4.0, 8.0)	3.0 (2.0, 6.0)	
Range	-2.0, 5.0	1.0, 10.0	-2.0, 10.0	

1Unequal variance two sample t-test;

No, authors do not have interests to disclose

261 Venous Excess Ultrasound Score Predicts Outcomes and Disposition in Suspected Heart Failure Patients

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Study Objectives: In the emergency department (ED), rapid identification of patients with acute decompensated heart failure (ADHF) with reduced ejection fraction remains a critical challenge. The Venous Excess Ultrasound (VExUS) Score is a noninvasive point-of-care ultrasound protocol that quantifies venous congestion. This protocol may help effectively screen for ADHF exacerbations or volume overload and guide decisions on the appropriate level of care. This study aimed to evaluate the utility of the VExUS score for the quantification of venous congestion in the ED. We performed VExUS exams on patients with a clinical suspicion of ADHF and volume overload prior to hospital disposition. Our primary objective was to characterize the spectrum of VExUS findings in this pre-admission ED cohort. In particular, we sought to determine whether VExUS grade predicts: (1) acute kidney injury (AKI), (2) the presence of underlying heart failure with a current ejection fraction (EF) below 40%, and (3) initial patient disposition (admission vs ED observation).

Methods: This prospective observational study at an urban academic ED enrolled a convenience sample of 100 adults (≥18 years) with suspected ADHF. Exclusions included inability to consent, critical instability, pregnancy, and prisoners. VExUS-trained Emergency Medicine (EM) and Internal Medicine (IM) providers (ie, attendings, fellows, residents) performed VExUS exams. The protocol evaluated IVC diameter and hepatic, portal, and intra-renal vein with Pulsed-wave Doppler to assign a congestion grade (0-3). Primary outcomes were: 1) AKI (KDIGO criteria within 48 hours), 2) Heart failure with reduced ejection fraction (HFrEF) (EF <40% on index hospitalization echocardiogram), and 3) initial ED disposition (ED-observation vs admission). Multivariable logistic regression (adjusted for age, sex) evaluated associations between VExUS grade and outcomes. ROC curves compared VExUS and NT-proBNP performance for detecting HFrEF (EF <40%).

Results: Of 100 enrolled patients, 89 underwent formal echocardiography and were included in the ROC analysis. The observed VExUS grades in the ED ranged from 0 to 3, with a median grade of 1 (Interquartile Range [IQR]: 1-3) and a mean grade of 1.63. Higher VExUS grades were significantly associated with HFreF (p=0.002). VExUS demonstrated similar diagnostic performance for HF (AUC 0.75, 95%CI 0.64-0.87) compared to NT-proBNP (AUC 0.77, 95%CI 0.65-0.90). Low VExUS grade (Grade 1) was negatively associated with developing AKI (p=0.04). Importantly, higher VExUS grades (indicating greater venous congestion) were significantly associated with the need for inpatient admission over ED-observation unit placement (p=0.006).

Conclusion: In this prospective observational study of adult patients presenting with suspected ADHF, higher VExUS grades—measured before disposition decisions—were significantly associated with reduced left ventricular ejection fraction, increased risk of acute kidney injury, and the need for inpatient admission. Notably, VExUS demonstrated comparable diagnostic performance for identifying patients with HFrEF to NT-proBNP. More importantly, VExUS identified and quantified venous congestion, and has the potential to guide decisionmaking around fluid management. These findings underscore how VExUS, as a noninvasive and rapid point-of-care tool, could augment traditional cardiac markers, yielding more precise risk stratification, decisionmaking, and disposition planning for emergency physicians. Further validation in larger, multicenter studies is warranted, but VExUS holds considerable promise for improving the evaluation and management of patients with suspected ADHF in the ED.

No, authors do not have interests to disclose

262 Can Emergency Physicians Identify Frozen Tissue on Ultrasound?

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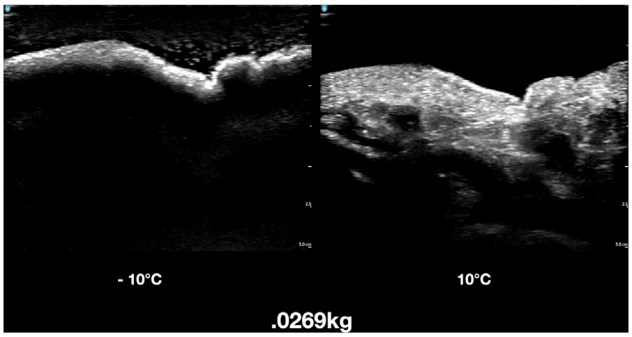
Study Objectives: Frostbite injury leads to disfigurement and loss of functionality. Recent FDA approval of iloprost offers a treatment option for patients presenting early with severe frostbite. Currently employed imaging modalities often do not provide a clinically actionable result early in patient care. Ultrasound can be used by physicians at point of patient care to assess a host of soft tissue and musculoskeletal pathologies. The objective of this study is to assess the accuracy of emergency physician identification of frozen tissue on ultrasound.

Methods: Three advanced emergency ultrasound physicians were shown standardized clips of porcine tissue in a range of temperatures from -10 to 10 degrees Celsius. Physicians were blinded to the temperature of 25 ultrasound clips comprising 5 different porcine tissue specimens recorded as the tissue thawed from temperatures of -10 to +10 degrees Celsius. Clips were randomized and viewed by each physician separately. The physician was tasked with selecting frozen (-10, -5, 0) from nonfrozen (5, 10). A total of 25 clips were created with a total of 15 frozen and 10 non-frozen. A 2-by-2 table was used to calculate sensitivity and specificity of the emergency physician's ability to detect frozen tissue by virtue of its sonographic appearance.

Results: A total of 75 clips were reviewed by the emergency physicians. The overall sensitivity was 76% (95% CI, 0.60-0.87) and a specificity of 87% (CI, 0.68-0.96) for the detection of frozen tissue as compared to the gold standard of tissue thermometer. This resulted in an overall accuracy of 80% (95% CI, 0.69-0.88).

Conclusion: In this pilot study, emergency physicians were able to detect the sonographic appearance of frozen tissue in a porcine model of frostbite injury. Future research should examine the sonographic appearance of frozen tissue in vivo and in human subjects. Consideration should be given to further understanding the test characteristics in sonographers of varied skill level and experience.

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263 Duration and Frequency of Methamphetamine Use and Associated Reduced Cardiac Ejection Fraction

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Study Objectives: Methamphetamine is an addictive central nervous system stimulant that is widely abused in the US, with the CDC reporting over 1.6 million people aged 18 and older with usage in the past year. Greater than 50% of those who reported methamphetamine use met diagnostic criteria for methamphetamine use disorder, while only 31.5% of these individuals had any treatment for substance use disorder in the past year. Increased risk is seen in those who are male, those with less than a high school degree, those who make less than $20,000 annually, and those with Medicaid only or who are uninsured. While the health risks associated are numerous and wide-reaching, one of the most dangerous associations is the one formed between methamphetamine use and heart failure. Methamphetamine-associated heart failure (MethHF) is on the rise with an increase of 231% in hospital admissions from 2008-2020. This dangerous association is well documented. Still, understanding of the temporal relationship between how much methamphetamine use leads to MethHF remains elusive. Quantifying the relationship between methamphetamine use and duration is of utmost importance due to the need for early diagnosis and prompt intervention.

Methods: This study explored the length and frequency of methamphetamine abuse and its effect on the severity of heart failure through calculations of the left ventricular ejection fraction (LVEF) and cardiac dilation using Point-of-Care Ultrasound (POCUS). Eligible UC Irvine Medical Center's emergency department patients were approached and consented. Patients were surveyed, and personal data was acquired on demographics, polysubstance use, and duration and frequency of methamphetamine use. A licensed clinician performed a bedside ultrasound evaluation, including a parasternal long-axis video clip and the E-Point Septal Separation (EPSS) measurement. This was utilized to calculate Left Ventricular Ejection Fraction (LVEF). The left ventricular diameter was also measured by capturing images of the heart in systole and diastole. The LVEF percentage was utilized to determine the severity of each of the patient's heart failure.

Results: Out of 136 total enrolled patients, 84 patients reported methamphetamine use. In univariable analysis, methamphetamine use was associated with reduced LVEF ($p < 0.001$). Both the duration ($p < 0.001$) and frequency ($p < 0.001$) of methamphetamine use were also associated with higher prevalence of reduced LVEF. In univariable analysis, methamphetamine use was associated with abnormal LVEDD for sex (table 2, $p = 0.016$). Duration of methamphetamine use was also associated with abnormal LVEDD for sex indicating a worsening of LVEDD abnormalities with longer methamphetamine use (table 2, $p = 0.001$). We did not observe a statistically significant association between the frequency of methamphetamine use per week and abnormal LVEDD for sex ($p = 0.057$).

Conclusion: MethHF is a dangerous effect of methamphetamine use, associated with morbidity, mortality, and significant health care costs. This study draws strong conclusions between frequency and duration of use and the parallel risk of developing MethHF. Given that evidence indicates the effects of MethHF could be reversible if diagnosed and treated promptly, this data suggests that early use of emergency department POCUS to screen methamphetamine use in patients may offer the opportunity to get our most vulnerable patients help before the effects become permanent.

Table 2. Association Between Cardiac Measures Evaluated by POCUS, with Methamphetamine Use, Duration and Frequency of Use.

		Methamphetamine use					Years of Methamphetamine use						Frequency Methamphetamine use per week					
		No		Yes		p-value	0		1 - 10		11+	p-value	0		1 - 3 days		4+ days	p-value
		N	(%)	N	(%)		N	(%)	N	(%)	N (%)		N	(%)	N	(%)	N (%)	
LVEDD abnormality for sex	Normal	43	82.7	54	64.3		27	79.4	17	58.6	9 36.0		43	82.7	17	58.6	34 65.4	
	Mild/Moderate	6	11.5	15	17.9	0.016*	4	11.8	8	27.6	5 20.0	0.001*	6	11.5	5	17.2	10 19.2	0.057*
	Severe	3	5.8	15	17.9		3	8.8	4	13.8	11 44.0		3	5.8	7	24.1	8 15.4	
Reduced LVEF	Normal	49	94.2	48	68.6	<0.001**	33	97.1	13	59.1	11 57.9	<0.001**	33	97.1	13	59.1	11 57.9	<0.001**
	Abnormal	3	5.8	22	31.4		1	2.9	9	40.9	8 42.1		1	2.9	9	40.9	8 42.1	

* Based on Mantel-Haenszel Chi-Square test for trend
** Based on Pearson Chi-Square test

Yes, authors have interests to disclose
Disclosure: Butterfly Network
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Butterfly Network

264 Comparison of the Static and Dynamic Paramedian Ultrasound-Guided Approaches for Lumbar Puncture

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Study Objectives: Lumbar puncture (LP) remains a challenging procedure for the practicing emergency physician given the reliance on anatomical landmarks. Ultrasound guidance has been explored to improve success rates, but is limited secondary to the static nature of the procedure. This involves the operator marking the target location on the skin with ultrasound, but not actively following the needle under dynamic ultrasound guidance. The dynamic paramedian (DP) approach to LP allows for live ultrasound guidance of the needle directly into the spinal canal. This has not been rigorously investigated in the field of emergency medicine. We sought to investigate the efficacy of this approach as compared to traditional static ultrasound guidance using a cadaver model.

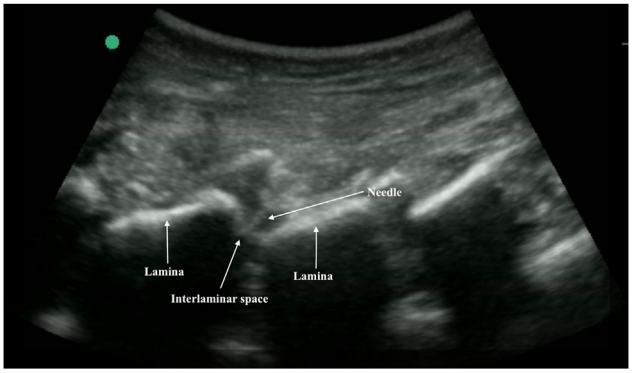
Methods: This was a prospective study at a single academic tertiary care center and institutional review board (IRB) approval was obtained. Three study enrollment dates occurred between November 2024 and March 2025. Three emergency physicians, two of which are ultrasound fellowship trained, performed lumbar punctures on three different soft-embalmed cadavers. Prior to each enrollment, the cadavers were placed in the prone position and a 20 gauge spinal needle was inserted into the thoracic spinal canal. The location in the spinal canal was confirmed with omnipaque injection under fluoroscopic guidance. A saline infusion bag was then connected to the spinal needle to provide continuous flow of saline into the spinal canal. Following this, each emergency physician performed static and DP ultrasound guided lumbar punctures at each of the following spinal levels: L2/L3, L3/L4, and L4/L5. The order of LP technique was randomized for each level. Video recording of each attempt occurred and was reviewed for outcomes at a separate time. Outcomes evaluated included the time from needle entry to spinal fluid being acquired, number of bony contacts self-reported by the operator, number of needle repositioning maneuvers, and number of needle entries during the attempt. A maximum of 300 seconds was allotted per attempt, after which the procedure was considered a failure. Needle repositioning was defined as needle withdrawal with subsequent advancement. The Mann Whitney U test was used to assess statistical significance of the outcome measurements between the two types of ultrasound-guided LP technique. The Wilson method without continuity correction was used for calculation of confidence intervals for overall success. Physicians reported confidence levels on a 1 to 5 scale (5=highest confidence) for each approach and the significance was assessed using the Wilcoxon signed-rank test.

Results: There were 48 LP attempts performed on three separate cadavers, with 24 being live dynamic ultrasound-guided and 24 being static ultrasound-guided. The average time to spinal fluid was 183 seconds (standard deviation (SD) 113) for static attempts and 109 seconds (SD 105) for DP attempts, p=0.02. Average number of bony contacts was 14.6 (SD 13.8) for static and 3.6 (SD 5.4) for DP attempts, p=0.001. Mean number of needle insertions was 1.8 (SD 1.2) for static and 1.3 (SD 0.43) for DP attempts, p=0.22. Average number of needle redirections was 18 (SD 17) for static and 8.3 (SD 12) for DP attempts, p=0.03. Overall LP success rate was 58% (95%CI 39-75) for static attempts and 79% (95%CI 60-91) for DP. Median confidence level on a 1 to 5 scale, with 5 being

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highest, was 2 (interquartile range (IQR) 1-3) for the static approach and 4 (IQR 2.5-5) for the DP approach, p=0.001. The **Figure** provides a representative image of the DP approach to LP.

Conclusion: The dynamic paramedian approach for ultrasound-guided lumbar puncture resulted in fewer bony contacts and needle redirections as compared to the static ultrasound approach in a cadaver model. Time to procedural success was also shorter in the dynamic paramedian approach and this technique was associated with higher levels of confidence amongst physician operators. Further study on emergency department patients using multiple operators would be beneficial.



No, authors do not have interests to disclose

265 Saline Standoff Pads: A Practical Method for Ultrasound Visualization of Superficial Structures

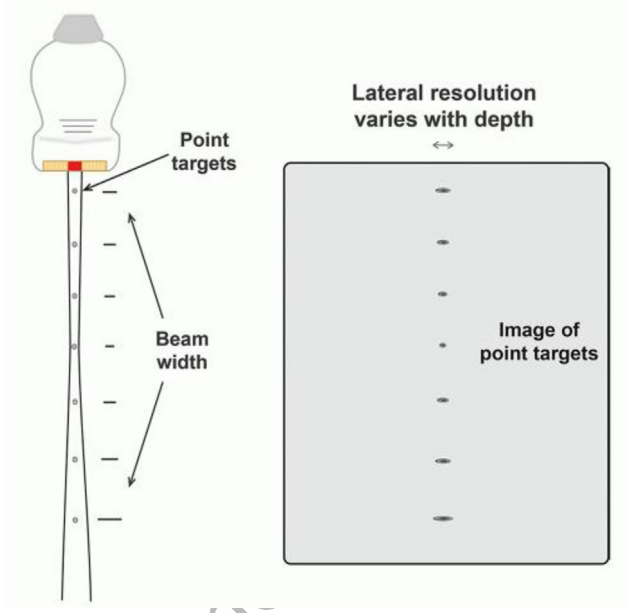
Awad C, Sebik S, Brea C, Prats M, Lukens J, Fawcett A/The Ohio State University, Columbus, Ohio

Study Objectives: Ultrasound has become a cornerstone of imaging that confers quick clinical decisionmaking, but obtaining clear views of superficial structures in the near field remains challenging. High-frequency linear probes, used for acquiring these images, are limited in generating clear depictions of structures in the near field, as they lie superficial to their focal zones. While commercially available standoff pads and water baths have been used successfully for clearly visualizing superficial structures, they are limited in imaging crevices, tendinous and osseous structures, joints and skin folds, painful areas, and for ocular ultrasound. We hypothesized that this method of image acquisition would be non-inferior to traditional methods and potentially provide superior patient comfort and ease of image acquisition.

Methods: A team of emergency ultrasound fellows and emergency medicine residents acquired ultrasound images of the osseous and tendinous structures of the same hand, using both the traditional water bath method, and using a 300 mL IV fluid bag of normal saline which was drained of all air bubbles and 200 mL of saline, resulting in a more pliable, customized 300 mL fluid bag. Image quality was assessed on a Likert scale by blinded reviewers who are all faculty members of the ultrasound division with expert-level experience.

Results: Images have been acquired as described above and are currently in the process of blinded review. Anecdotal evidence from cases with patients demonstrates the following: patient comfort is enhanced; patient participation with the modified saline bag is preferred; the experience of image acquisition for challenging structures is easier.

Conclusions: With this study, we aim to demonstrate that image acquisition using a modified IVF fluid bag are non-inferior to traditional methods of ultrasound image acquisition; we obtained images of tendinous and osseous structures of the hand and are currently waiting for reviewer feedback. Preliminary results demonstrate that there are many advantages to this mode of image acquisition, especially for the eye and sensitive structures. Therefore, it would be reasonable to use an air-free 300 mL normal saline IV fluid bag as a clean and readily available standoff pad without compromising image quality or diagnostic accuracy.



Yes, authors have interests to disclose

Disclosure: As of 09/30/2024, Dr. Prats has reported relationships with the companies or entities listed below. If you have questions about the relationships listed below, please ask the faculty member. If you have questions about how these relationships are monitored by The Ohio State University Wexner Medical Center, please contact our Compliance Office. American College of Emergency Physicians Core Ultrasound EM:RAP, Inc. Echonous Inc

Michael Prats

Consultant/Advisor

As of 09/30/2024, Dr. Prats has reported relationships with the companies or entities listed below. If you have questions about the relationships listed below, please ask the faculty member. If you have questions about how these relationships are monitored by The Ohio State University Wexner Medical Center, please contact our Compliance Office. American College of Emergency Physicians Core Ultrasound EM:RAP, Inc. Echonous Inc

266 Relationship Between Advanced Image Ordering and Emergency Physician Risk Tolerance: A Pilot Study

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Study Objectives: Computed tomography (CT) and magnetic resonance imaging (MRI) play a critical role in emergency department (ED) patient care. The ordering rates for these costly scans are increasing, making the factors that influence the ordering decisions particularly important to determine. One factor that is certainly involved in the decision to order imaging is clinician fear of uncertainty, or conversely, risk tolerance. While measuring risk tolerance can be challenging, the Domain-Specific Risk-Taking (DOSPERT) Scale is a validated survey that has been used across many industries to assess general and domain-specific dimensions of risk tolerance. We administered this survey to emergency physicians at two large community EDs. The primary aim of this study was to explore whether there is a relationship between risk tolerance among emergency medicine attendings and CT+MRI ordering rates. Specifically, we predicted that physicians who have more tolerance for risk would order fewer scans.

Methods: Participants (n=25, 15 male) were physicians who had worked at least ten shifts at their respective EDs during a 3-month study period (fiscal quarter) and had consented to participate in the study. CT and MRI ordering rates (combined scans, per patient) were obtained. Physicians completed the survey within one month of the fiscal quarter that the image ordering results were available. Orders were associated with the physician if they were the authorizing provider. Data collected included physician self-reported sex, level of training and number of patients seen. We used two-sample t-tests (α=0.05) to compare male vs female physicians on DOSPERT scores and ordering

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rates, and one-way ANOVAs to test for differences based on training level. We used Pearson correlations to investigate the relationship between physician image ordering rate and DOSPERT scores.

Results: The mean number of patients seen per physician was 550.8 (SD 213.9, range 145-961). Mean imaging ordering rate (CT and MRI) was 0.41 orders per patient (SD 0.11). Two physicians had been in practice less than five years, 4 physicians 5-10 years, 7 physicians 10-15 years, 4 physicians 15-20 years and 8 physicians had practiced more than 20 years. There were no statistically significant differences in DOSPERT scores or CT and MRI ordering rates based on physician sex (*ps* >0.100) or years in practice (*ps* >0.100). There was no correlation between CT+MRI ordering rates and total DOSPERT scores (r=-0.145, p=0.489) or between ordering rates and any of the DOSPERT subscales (Ethics, Financial, Health and Safety, Recreational or Social, all *ps* >0.100).

Conclusion: Using the DOSPERT survey as a measure of risk tolerance, there were no statistical correlations noted between risk tolerance and advanced image ordering rates. It is possible that the DOSPERT subscales measure types of risk that are independent from medical decisionmaking. Future studies could use an alternative measure, aim to enroll a larger physician population including smaller community settings, or evaluate differences between specialties.

No, authors do not have interests to disclose

267 Impact of an Alert Review Initiative on Utilization of Interruptive Clinical Decision Support Tools

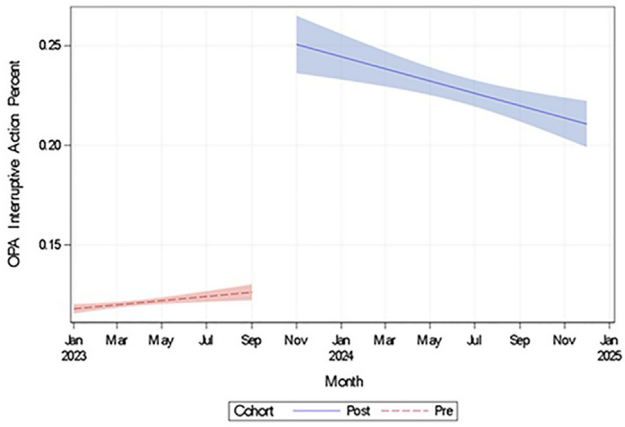
Boccio E, Weiss M, Diallo A, Katz R, Murphy M, Goldman J/Memorial Healthcare System, Pembroke Pines, Florida

Study Objectives: Electronic health records (EHRs) with integrated clinical decisionsupport(CDS) tools can assist clinicians with complex medical decisionmaking processes. However, interruptive alerts may disrupt workflow leading to inefficiency and provider dissatisfaction. The primary objective was to assess the impact of an Alert Review Initiative intended to increase the percentage of interruptive CDS tools with a corresponding provider action taken.

Methods: A healthcare system-wide multi-disciplinary governance consisting of physicians, nurses, pharmacists, and informatics analysts was formed to review the frequency and outcome of all interruptive alerts and to make recommendations regarding a comprehensive CDS overhaul. A quasi-experimental study involving the retrospective review of a consecutive sample of administrative records was performed. All interruptive alerts firing across the healthcare system during a 24-month period were reviewed. The Alert Review Initiative was implemented in October 2023. Alerts which fired during the 9-month period prior (January 2023 – September 2023) were assigned to the pre-intervention cohort while those which fired during the 14-month period following (November 2023 – December 2024) were assigned to the post-intervention cohort. The primary outcome was provider engagement as measured by the percentage of alerts for which a corresponding action was performed. Univariate analysis of the mean percent action taken between the pre- and post-intervention cohorts was performed using a student's t-test. Additionally, a single-group interrupted time series analysis was performed to compare level and slope changes of the linear regression curves modeling percent action taken and time before and after implementation of the Alert Review Initiative. All statistical analyses were performed using SAS Studio v3.81 (SAS Institute Inc, Cary, NC), and the level of significance was set at 0.05.

Results: A total of 7,103,134 and 6,178,508 interruptive alerts were included in the pre- and post-intervention cohorts, respectively. The mean percent action taken in the pre- and post-intervention cohorts were 12.2% (95% CI: 11.9-12.5%) and 23.1% (95% CI: 22.0-24.1%), respectively, and this difference was statistically significant (p <0.001). The beta coefficients of the pre- and post-intervention linear regression models were β_0=0.117 and β_1=0.0010 and β_0=-0.003 and β_1=0.254, respectively. There was a 9.9% increase in percent action taken immediately following the intervention, and this change was statistically significant (p <0.001). The change in slope between the pre- and post-intervention linear regression models was statistically significant (p=0.003).

Conclusion: A multidisciplinary governance structure using data to reduce and streamline CDS tools in the EHR increased the percentage of interruptive alerts with a corresponding provider action taken. Further research investigating the impact on clinical efficiency, provider satisfaction, and patient-centered outcomes is warranted.



No, authors do not have interests to disclose

268 Translating Digital Support Tools From Academic to Community Hospital Systems

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Study Objectives: Academic medical center emergency departments (EDs) have increasingly adopted digital tools to enhance clinical decisionmaking by providing easier access to guidelines. One such tool is E*Drive: a homegrown digital information hub grounded in a trainee-focused team with attending physician and ED leadership oversight. While E*Drive has shown promise in improving guideline utilization andsupportingworkflows at an academic center in San Francisco, the adaptability of tools like E*Drive to community EDs remains uncertain, as these settings often face unique challenges such as limited resources, fewer staff, and different workflows. This study evaluates the feasibility of implementing E*Drive in a community ED by utilizing a scribe-physician team in the absence of trainees.

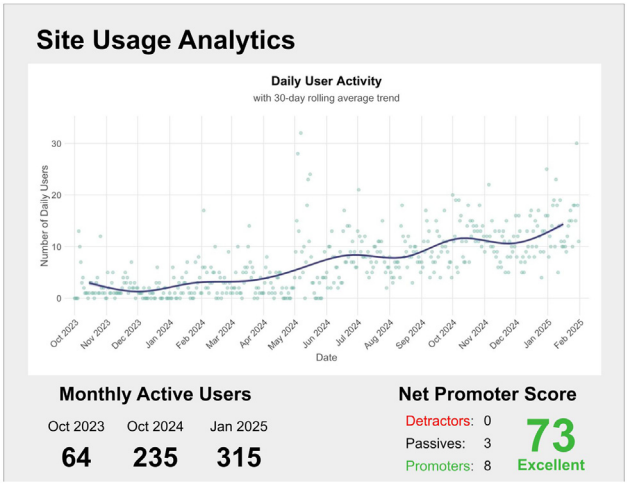
Methods: The E*Drive platform (www.MercedEDrive.com) was introduced in a high-volume community ED in Merced, CA. E*Drive utilizes collaborative guideline development, where a team of scribes works closely with physician leadership to convert lengthy guidelines into single-page, easy-to-read flowcharts before uploading them to an open-access online information hub for clinicians to access while on shift. Clinicians were asked to complete anonymous surveys before and after the implementation of the platform to assess their perceptions of ease of access to guidelines and the platform's utility. A total of 32 clinicians, including physicians and advanced practice providers, were invited to participate. Of these, 10 clinicians completed pre-surveys (31% response rate), and 11 completed post-surveys (34% response rate). Surveys utilized a 5-point Likert scale to assess the platform's ease of use and usefulness. Mann-Whitney U tests were used to determine statistical significance between pre- and post-implementation responses. To track platform engagement, Google Analytics was used to monitor monthly active users, page views, and user interactions.

Results: Following the implementation of E*Drive, clinicians reported significantly improved access to clinical guidelines. The average ease-of-access score increased from 3.30 (SD = 1.57) pre-implementation to 4.72 (SD = 0.47) post-implementation, a statistically significant improvement (p = 0.019, Mann-Whitney U). This finding suggests that E*Drive can effectively enhance guideline accessibility in the community ED setting. Adoption of the platform has grown over time, with monthly users increasing from 64 in October 2023 to 315 in January 2025, demonstrating growing engagement. Clinicians report that accessing the tool is useful in helping them complete their jobs more efficiently (M = 4.64 on 1-5 scale, SD = 0.67), and that the platform is easy to access and use (M = 4.91 on 1-5 scale, SD = 0.30). Overall satisfaction with E*Drive was high, as reflected by an "Excellent" Net Promoter Score (NPS) of 73, demonstrating strong clinician approval of the tool.

Conclusion: This work demonstrates that E*Drive, a digital information hub initially developed for an academic medical center, can be successfully adapted for use in a community ED. The collaboration between scribes and physician leadership was crucial to efficiently convert lengthy guidelines into streamlined flowcharts and

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maintain the online platform. With E*Drive's implementation, clinicians reported significantly improved access to clinical guidelines, greater efficiency in completing their tasks, and high satisfaction with the platform. The increase in usage over time suggests that the platform is becoming integral to clinical workflows in the community ED. Future studies are needed to assess the long-term sustainability and broader adoption of such platforms across community EDs. Ultimately, the success of E*Drive in a community setting could help improve access to evidence-based guidelines and enhance clinical decisionmaking in real-time.



No, authors do not have interests to disclose

269 Use of Coronary Computed Tomography Angiography to Reduce Length of Stay in Patients With Moderate Risk Chest Pain

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Introduction: For emergency department (ED) patients with acute chest pain where acute coronary syndrome (ACS) is a concern, stress testing is often used to stratify the risk of major adverse cardiac events (MACE), though its sensitivity is suboptimal at 60-90%. CCTA provides superior sensitivity of 94–99% by detecting non-obstructive coronary artery disease (CAD) and high-risk plaque features. While CCTA has been demonstrated to be safe and efficacious for chest pain risk stratification, its effect on ED LOS remains unclear, particularly in intermediate-risk patients for whom the test is recommended by the American Heart Association. Many previous studies on this also predate high-sensitivity troponin and HEART score pathways currently used to risk stratify patients. Given the current ED boarding crisis, a reevaluation of CCTA's potential operational impact is timely.

Study Objective: This study evaluated the impact of coronary CT angiography (CCTA) vs stress testing on ED length of stay (LOS) of chest pain patients.

Methods: A CCTA protocol was implemented at an academic ED (annual volume ~65K) in September 2022 as an alternative to stress testing. CCTA was available weekdays from 8 AM-2 PM. Stress tests continued to be ordered as well. CCTA patients presenting after 2 PM and all stress test patients were generally admitted to the ED observation unit for next-day testing. A single-center retrospective chart review was conducted to compare ED LOS between patients who received a CCTA vs stress testing. Patients were identified through an electronic medical record (EMR) query system that generated all ED ordered stress tests and CCTA's. All patients 18 years or older presenting to the ED with chest pain between September 2022 to August 2024 were screened for inclusion. Patients were excluded from analysis if they were not eligible to receive a CCTA test per institutional protocol (eg, age ≥65, history of prior significant CAD, EGFR <30, or BMI >45). Demographic and clinical characteristics were compared between the test type groups using Wilcoxon rank sum test for continuous and Pearson's chi-squared test for categorical measures. The primary outcome was ED LOS from time bedded to dispositioned and was analyzed using a linear regression model adjusting for HEART score, age, race, sex and BMI. To evaluate if the difference in ED LOS differed by time of day the CCTA order was placed (for patients presenting within a window to potentially have a CCTA performed and read same-day), an interaction term was included in the model. Rates of nondiagnostic tests were also evaluated as a measure of operational efficiency.

Results: Of 331 ED chest pain patient encounters screened, 168 were excluded for CCTA ineligibility. 163 patients were included (median age 54 [IQR 48-59], 56% Black, and 60% male). 109 (67%) received a CCTA test and 54 (33%) received a stress test. When comparing demographic variables, the groups did not vary in terms of age, race, or sex, but patients receiving the stress test were more likely to be diabetic (44% vs 25%, p=0.01). Patients in both groups were stratified by their ED providers as having a moderate risk of MACE based on HEART score (mean ± SD: CCTA 4±1 vs stress test 4±1, p=0.6). In the multivariable model, only CCTA was associated with lower ED LOS (mean difference -6.5 hours, 95% CI -13.0 to -0.2, p=0.045). For patients receiving CCTA, there was a significant interaction between ED LOS and the time of day the order was placed (p=0.044). For tests ordered before 12 PM, LOS was reduced by 16.0 hours (95% CI: -23.0 to -9.0; p <0.001) and after 12 PM, by 6.5 hours (95% CI: -13 to -0.20, p=0.047). This is likely explained by same-day discharge occurring in 24% of CCTA patients vs 0% of stress test patients. Regarding operational efficiency, 15% of completed CCTAs were nondiagnostic (high calcium score or motion artifact) vs 9% of stress tests.

Conclusion: CCTA was associated with shorter ED length of stay than stress testing, particularly when patients presented during hours when radiology was available to read the study, often enabling same-day discharge.

No, authors do not have interests to disclose

270 Leveraging Aggregated Computed Tomography Indications to Reduce Utilization in a Quaternary Hospital

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Study Objectives: The utilization of computed tomography (CT) scans within emergency departments (EDs) has increased nationwide, resulting in delays in throughput as well as unnecessary exposure to radiation. This quality improvement (QI) initiative aggregated provider-entered indications for CT scans ordered in the ED and inpatient units during the first three quarters of 2024, to identify opportunities to reduce unnecessary imaging.

Methods: A retrospective analysis was conducted on all abdomen and pelvis CT scans ordered in the ED and inpatient units at a quaternary hospital from January 1 to September 30, 2024, excluding arterial phase contrast-enhanced studies. Data were extracted from provider orders and categorized into diagnostic groups determined by ED attendings. A Python algorithm was developed to systematically categorize CT indications from the indication field using predefined keywords in 69 categories. A given indication field may contain keywords from multiple indication categories. The algorithm was tested on a 20–scan sample to validate its performance before being applied to the full dataset. An iterative process, including a review of a 2023 dataset containing 14,802 CT scans, refined keyword lists to capture indications more accurately, accounting for typographical errors and abbreviations. To ensure the accuracy of categorization, uncategorized indications were manually reviewed, and further refinements were made to enhance keyword specificity. The final dataset was compiled into a report that summarized physician-specific ordering patterns and totals for all the physicians who had ordered a CT during our study period. The report also included CT scans ordered by each physician and the indications assigned by the algorithm, allowing for further review of the algorithm's effectiveness, as well as more targeted QI. Gastrointestinal (GI) bleed was preselected for focused review by an interdisciplinary physician panel, tasked with CT stewardship, as CT's clinical utility for GI bleed is often limited.

Results: The dataset comprised 11,584 CT scans with a total of 21,219 indications found by the algorithm. Abdominal pain was the most frequent indication. GI bleed was identified in 5.0% of CT scans, and 6 providers were identified as outliers, having ordered CT scans for GI bleed at disproportionately high rates. The **Table** provides a sample of common CT indications and their distribution.

Conclusion: Abdominal pain being the most frequent indication was unsurprising but deemed too vague to use for targeted utilization reduction efforts. However, the identification of lower yield indications, specifically GI bleed, allowed for a structured approach to reducing CT utilization through targeted physician education.

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Establishing a benchmark of 5.0% for GI bleed enables ongoing assessment of intervention effectiveness, with a reduction goal of 2% by 1 year. High utilizers of GI bleed-related CT scans were personally coached about the utility of acute CT scans for GI bleed. Of note, all the outlier physicians were in generalist fields, rather than gastroenterology or surgery. We are similarly well-positioned to measure the impact of reduction efforts on these individual physicians. Future studies will assess the impact of these interventions and explore additional indications where imaging reduction strategies may be applicable. This initiative represents a crucial step toward optimizing resource utilization and improving patient care efficiency at not only our hospital, but potentially across other high-level centers nationally.

Table 1: Distribution of Abdominal/Pelvic CT Scan Indications

Category	Total CTs	Percentage of Total CTs
Abdominal Pain	4,673	40.3%
Appendicitis	679	5.9%
Atypical Indication for Abdominal Imaging	125	1.1%
Cancer	596	5.2%
GI Bleed	574	5.0%
Infectious Process	1,243	10.7%
Kidney Stone	811	7.0%
Nausea/Vomiting	1,013	8.7%
Trauma	1,468	12.7%

No, authors do not have interests to disclose

271 Optimizing Emergency Department Computed Tomography Scan Turnaround Times: A Process Improvement Initiative

Cherry J, Davis B, Jones J/Intermountain Health, Murray, Utah

Study Objectives: Emergency departments (EDs) with high patient volumes require efficient imaging workflows to ensure timely diagnosis and treatment. At Intermountain Medical Center, the ED treats over 90,000 visits annually, requiring more than 61,000 computed tomography (CT) scans. Communication barriers and inconsistent role expectations led to inefficiencies, contributing to prolonged CT scan turnaround times and decreased caregiver engagement. We formed a multidisciplinary team to address these challenges, aiming to improve workflow efficiency, enhance collaboration, and reduce scan turnaround times. We evaluated the impact of this process improvement on time to CT scan and imaging results.

Methods: We implemented a structured quality improvement initiative using an A3 problem-solving framework. A multidisciplinary team, including ED and imaging department leaders, conducted process mapping and observational assessments to identify key bottlenecks. A rapid process improvement workshop with frontline staff led to the standardization of CT facilitator and ED expediter roles, establishment of a real-time escalation pathway, and introduction of structured shift huddles to align priorities. Accountability measures ensured adherence to new workflow protocols. We collected data on time to CT and time to results of CT over the 18-month quality improvement period.

Results: Over the 18-month quality improvement period, we noted significant improvement in both time to CT scan initiation as well as to time to results of the CT scan. Average ED CT scan turnaround times decreased from 89.5 minutes to 75.7 minutes, while order-to-start times improved from 55.9 minutes to 44.5 minutes. Qualitative feedback from staff indicated improved interdisciplinary collaboration, enhanced accountability, and a more streamlined process for escalating and resolving issues in real-time.

Conclusion: In our experience, a structured, team-based approach to process improvement significantly enhanced ED imaging efficiency. Standardizing roles, fostering real-time communication, and establishing clear escalation pathways led to measurable reductions in CT scan turnaround times and improved caregiver engagement. Our experience may provide a framework for similar interventions in other EDs.

No, authors do not have interests to disclose

272 Trends in Lumbar Puncture Performed by Emergency Medicine Providers: A 2013–2023 Retrospective Study

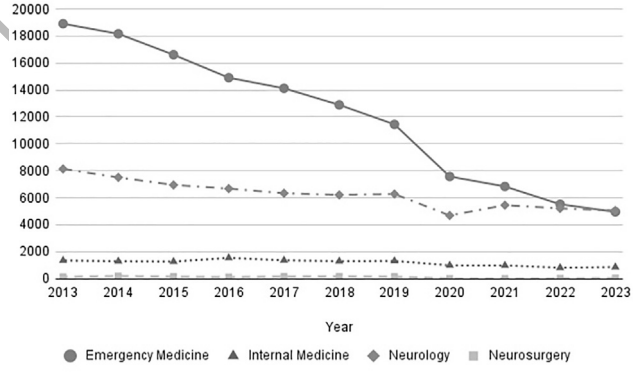
Harikrishna A, Johnson C, Libov J, Pourmand A, Hussain A/The George Washington University School of Medicine and Health Sciences, Washington, District of Columbia

Study Objective: Lumbar puncture (LP) is a critical procedural skill recognized by the Emergency Medicine (EM) Review Committee as essential for the independent practice of EM. This study evaluates trends in LP performance by EM providers and compares them to other specialties.

Methods: A retrospective analysis was conducted to evaluate LP rates across four medical specialties—EmergencyMedicine, Internal Medicine, Neurology, and Neurosurgery—between 2013and2023. Data were extracted from Medicare Physician Supplier Procedure Summary and analyzed using descriptive statistics, comparative tests, and correlation analysis. Trends over time were visualized and Pearson correlation coefficients and regression analyses were performed to assess associations between LP rates across specialties.

Results: A total of 11 years of data were analyzed. Descriptive statistics revealed a consistent decline in LP rates across all specialties, with Emergency Medicine exhibiting the largest absolute decrease. ANOVA testing demonstrated a statistically significant difference in LP rates among specialties ($p < 0.001$). Emergency Medicine had a mean LP rate of 11,997.7 (SD = 5,093.5), ranging from 18,922 to 4,950. Correlation analysis showed strong positive associations between Emergency Medicine and Neurology ($r = 0.95$), as well as between Internal Medicine and Neurosurgery ($r = 0.82$). Visualization of trends confirmed that Emergency Medicine and Neurology had the highest LP rates, while Neurosurgery had the lowest but with noticeable fluctuations. The findings suggest a systemic reduction in LP utilization across all specialties over the last decade.

Conclusion: Lumbar puncture rates among Emergency Medicine providers have declined, leading the ACGME to lower the required LPs from 15 to 10. Future research should investigate the causes and impact on training and patient care.



No, authors do not have interests to disclose

273 Educational Factors and Prescribing Patterns Among Emergency Medicine Providers in an Academic Health System

Kim JG, Koziatek C, Chan L, Offenbacher J, Fetterolf S, Bayer D, Sagalowsky S, Boatright D, Genes N/NYU Grossman School of Medicine, New York, New York

Study Objectives: Little is studied about provider educational characteristics in emergency medicine (EM) and how they socialize variable practice patterns observed in clinical encounters. This study examines how provider role, specialty and location of training, years of experience, and clinical team composition influence medication ordering for the most common chief complaints in an academic health system.

Methods: A retrospective study on 17,295 encounters for the top 15 chief complaints (pain [abdominal, chest, flank, leg, and neck], cough, fever, shortness of

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breath, falls, allergic reactions, and dizziness) from January 1 – September 6, 2024 across four emergency departments (EDs) within a regional academic health system. Provider educational factors included years in practice, provider type (MD or APP), specialty (EM or EM/Pediatrics), prior in-system training, and whether the prescribing and documenting providers differed. The outcome of interest was medication order [CK3] variation by provider based on chief complaint and ICD-10 diagnosis. To account for medical knowledge and clinical uncertainty heterogeneity, the Wennberg Practice Style Theory and validated coefficient of variation (CoV) was used to measure ordering variability. The CoV calculates the percent variation in ordering per provider. Descriptive statistics (odds ratios, t-tests) were used for educational characteristics. Multivariable linear regression predicted mean (and 95% CI) effect sizes and to control for multiple characteristics, with statistical significance set at $p < .05$.

Results: Among 196 EM providers completing formal training with mean (SD) 9 (±8.3) years, the mean (SD) CoV for prescribing patterns was 56.1% (±21.6) analyzed by chief complaints and 59.1% (±36.9) by diagnoses.11.7% of providers were trained in the same academic health system, 29.6% were APPs, and 9.2% had pediatric training. Descriptive analyses found prescribing variation differences: 1) Chief complaints: Higher variation was associated with fewer years in practice ($p = .01$), prior training within the same health system ($p = .03$), and pediatric training ($p < .001$), while lower variation was observed when multiple providers were involved ($p < .001$) and between APPs and MDs ($p = .01$); 2) Diagnoses: Higher variation was also found for fewer years in practice ($p = .01$), training within the same health system ($p = .05$), and pediatric training ($p < .001$).Table 1reports results after adjusting for multiple characteristics with higher prescribing variability among providers with fewer years in practice, prior training within the same health system, APPs, and those with pediatric training. Prescribing variation decreased when multiple providers were involved.

Conclusion: Prescribing variation was associated with educational characteristics, increasing among those with fewer years in practice, prior in-system training, or differing specialties, and decreasing with multiple providers present in the encounter. Longer observation periods adjusting for additional factors could better clarify the impact of training and interprofessional presence on medication ordering within academic EM settings.

Table 1. Multivariable Associations between Educational characteristics and prescribing variation (Coefficient of Variation, CoV)

Educational Characteristic	Direction of Variation	Chief Complaint-Based CoV (CoV Change, 95% CI, p-value)	Diagnosis-Based CoV (CoV Change, 95% CI, p-value)
Fewer years in practice	Higher variation	+0.1% (0.1–0.3%, p < 0.001)	+0.2% (0.1–0.3%, p < 0.001)
Training within same health system	Not significant	-0.1% (-0.1– -1.6%, p < 0.89)	1.0% (-1.5– 3.5%, p < 0.42)
Pediatric specialty training	Higher variation	+24.0% (22.5–25.6%, p < 0.001)	+20.7% (18.6–23.0%, p < 0.001)
Advanced practice provider (APP)	Higher variation	+5.6% (4.1–7.0%, p < 0.001)	+4.1% (1.9–2.3%, p < 0.001)
Multiple providers in same encounter	Lower variation	–3.7% (–5.1 to –0.22%, p < 0.001)	–3.7% (–5.1 to –0.22%, p < 0.001)

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No, authors do not have interests to disclose

274 Enhancing Clinical Decisionmaking Through Outdoor Experiential Learning: A Novel Approach

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Study Objectives: This study aims to evaluate whether outdoor experiential learning is an effective method for teaching clinical decisionmaking. We hypothesize that incorporating outdoor experiential learning into medical education will enhance student awareness of decisionmaking processes and increase student confidence in recognizing decisionmaking biases.

Methods: As part of a multidisciplinary effort to improve emergency medicine (EM) residents' understanding of decisionmaking biases, we developed a novel outdoor experiential workshop. All EM residents at our institution were invited to participate. Before the workshop, participants completed a pre-course survey and selected one of three outdoor experiences: advanced backcountry skiing, beginner backcountry skiing, or a backcountry rescue/snowshoeing activity. Based on their selections, residents were paired with trained backcountry guides who led them through their chosen experiences. Throughout the activity, content experts facilitated discussions on backcountry and clinical decisionmaking, providing real-time guidance on decisionmaking biases as they arose. After completing the workshop, residents completed a post-course survey assessing their experience using three components: (1) a Likert-scale evaluation of decisionmaking processes, (2) a Likert-scale assessment of overall workshop experience, and (3) a qualitative questionnaire exploring key takeaways. This survey design allowed for assessment of both participant experience and changes in decisionmaking awareness and bias recognition. The results of the pre-course and post-course surveys were then analyzed using a one-tailed two-sample unequal variance t-test. The workshop experience evaluation was assumed to be normally distributed and reported as a mean and standard deviation.

Results: Of the 36 eligible residents, 32 (89%) completed the pre-course survey, and 20 (62.5%) completed the post-course survey. Workshop experience was rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Participants reported high overall enjoyment (4.91 +/- 0.30), increased awareness of decisionmaking biases (4.52 +/- 0.60), greater awareness of their decisionmaking processes (4.48 +/- 0.60), and perceived educational value (4.67 +/- 0.48). Pre- and post-course survey responses demonstrated statistically significant changes in responses following the completion of the workshop. Participants reported increased recognition of the parallels between clinical and non-clinical decisionmaking, with a mean score increasing from 3.53 to 4.38 (difference, 0.85, P=0.001). In addition, participants reported greater cognition around decisionmaking biases, with a mean score increasing from 4.37 to 4.71 (difference, 0.35, P=0.02) as well as improved understanding of decisionmaking biases, with a mean score increasing from 4.27 to 4.57 (difference, 0.30, P=0.03). Thematic analysis of qualitative responses identified key takeaways, including increased awareness of cognitive biases, application to clinical medicine, teamwork and collaboration, hands-on learning, and big-picture thinking.

Conclusion: Our findings suggest that outdoor experiential learning is a feasible, novel, and highly appreciated approach to teaching clinical decisionmaking. Participants demonstrated increased recognition and cognition around decisionmaking biases, improved understanding of decisionmaking biases, and overall enjoyment of this educational method.

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	Pre-Survey (n=30) average response on a 5-point Likert Scale where 1=strongly disagree, 5=strongly agree	Post- Survey (n=20) average response on a 5-point Likert Scale where 1=strongly disagree, 5=strongly agree	Change in score following the workshop	P-values
I am aware of my decision-making process.	4.267	4.524	+0.257	0.095
I think about where my decision might be biased.	**4.367**	**4.714**	**+0.347**	**0.021**
My emotional state may influence my	**4.233**	**4.667**	**+0.434**	**0.038**
decision-making process.				
I make good decisions.	4.200	4.381	+0.181	0.147
The decisions I make are biased.	**3.667**	**4.190**	**+0.523**	**0.044**
The way that I make clinical decisions is similar to the way that I make other decisions in my life.	**3.533**	**4.381**	**+0.848**	**0.001**
I understand the role of feedback and the way it impacts my decision-making process.	4.633	4.810	+0.177	0.135
I understand decision-making biases.	**4.267**	**4.571**	**+0.304**	**0.032**
I feel comfortable talking about decision-making biases.	4.533	4.762	+0.229	0.076
I can discuss the decision-making biases that influenced a decision that I have made in the past.	4.367	4.667	+0.300	0.052
I can discuss the decision-making biases that may be influencing a	**4.200**	**4.524**	**+0.324**	**0.048**
decision as I am making the decision.				
I believe that I need further training with decision-making biases.	3.900	4.238	+0.338	0.115

Table 2: Comparison of Pre & Post Workshop Decision Making Assessment

No, authors do not have interests to disclose

275 Pericardiocentesis Training: Spaced Repetition and Simulation With Cost-Effective Model for Emergency Medicine Resident

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Study Objectives: Pericardiocentesis is a life-saving procedure that is necessary for emergency physicians (EP) to perform when indicated. It is considered a high acuity low occurrence (HALO) procedure which means that it is essential for all EPs to be competent in performing despite not practicing it with frequency. This study aims to address this gap by evaluating a brief educational intervention (BEI) designed to improve Emergency Medicine (EM) residents' knowledge, skills, and confidence in performing pericardiocentesis in the Emergency Department (ED) setting. This study aimed to assess the effectiveness of a BEI in improving the performance of pericardiocentesis. Our educational objectives were to educate EM residents about pericardiocentesis, including its uses, demonstrate the procedure, and provide residents the opportunity to perform a pericardiocentesis in a cost-effective, high fidelity model during a simulation session.

Methods: A two-part BEI was created to teach pericardiocentesis to EM residents. Session 1 consisted of a pre-test followed by a brief lecture that discussed the procedure. One week later, Session 2 consisted of a 30 minute simulation in which EM residents worked through a case whose diagnosis was a cardiac tamponade and performed a pericardiocentesis on a cost-effective, high fidelity model. This was followed by a debrief and post-test to assess knowledge. All EM residents that participated were asked to complete an anonymous feedback questionnaire about the BEI, in which we used a 5-point Likert scale (5=strongly agree).

Results: This BEI was open to all EM residents (3-year program with total of 18 residents) at a Level 1 trauma center in the Southeast US. Fifteen residents completed the BEI. Pre-test results showed that 2/15 (14%) of residents scored >70%. Post-test results showed an increase to 14/15 (93%). We used a paired sample t-test to determine if the difference between pre-and post-test scores was significant. The improvement was statistically significant ($t = 7.549$, $p < 0.00001$). Table 1shows average score of pre and post test. After the BEI, all residents reported feeling confident and prepared to perform a pericardiocentesis. Additionally, they felt more comfortable performing pericardiocentesis and believed the procedure was important to their education. Overall, the intervention effectively improved knowledge and resident comfort with performing pericardiocentesis.

Conclusion: A brief, simulation-based educational intervention using spaced repetition and a cost-effective model significantly improved EM residents' knowledge and self-reported confidence in performing pericardiocentesis. This approach offers a practical, scalable solution for training residents in HALO procedures and may be easily replicated across other residency programs.

Table 1:

(*n=15*)	Pre-Test	Post-Test	p-value
Average Test Score (*6 question test*)	52%	88%	<0.00001
# of residents passing (>70%)	2	14	

Yes, authors have interests to disclose
Disclosure: MERCK, Pfizer
Carmen Martinez Martinez
Stockholder
MERCK, Pfizer

276 Provider Education on Contraception Counseling and Initiation from the Emergency Department

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Study Objectives: High quality family planning services have become difficult to access, prompting many patients to utilize the emergency department (ED). ED providers often lack training on contraceptive options and counseling. The primary objective of this pilot study was to assess if participation in a single-session training

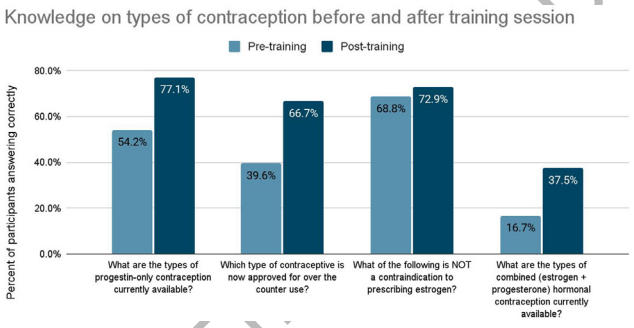
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improves provider comfort and knowledge with patient-centered contraception counseling and initiation of oral contraception pills (OCPs) in the ED.

Methods: Over a three month period, we held a total of seven 45-minute single-session trainings on contraception education for providers who work in the adult and/or pediatric ED of an urban tertiary care hospital. This included emergency medicine (EM) attendings, residents, fellows, mid-level providers, as well as general pediatric (PED) and family medicine (FM) residents who spend ≥1 month of the academic year in the adult and/or pediatric ED. Training sessions were held during previously scheduled didactic conferences and faculty meetings. The training focused on how to identify eligible patients for contraception counseling and prescriptions, counseling resources, safety of and process for prescribing OCPs, and linkage to outpatient care. We conducted a pre/post-training survey study of providers who attended the training and consented to study participation. Participants were asked to complete anonymous pre/post-training surveys that assessed comfort and knowledge with patient-centered contraception counseling and initiation of OCPs in the ED. The surveys were administered immediately before and after the training. Comfort was assessed using a Likert scale (1=uncomfortable to 6=extremely comfortable). Knowledge was assessed with a four-question assessment that was then scored from 0 to 4. A Wilcoxon rank-sum test was used to analyze pre/post-training surveys in provider comfort and knowledge.

Results: 48 providers completed both pre/post-training surveys. Of these, 36 (75%) were trainees and the remaining were attendings (22.9%) and a mid-level provider (0.02%). EM was the most highly represented specialty (54.2%), followed by FM (18.8%), PED (14.6%), and pediatric EM (12.5%). Following training completion, providers reported improved comfort with contraception counseling ($z=-5.05$, $p < 0.001$), and with prescribing OCPs in the ED ($z=-5.27$, $p <0.001$). The median reported comfort rating for both counseling and prescribing increased from 3 to 5 between the surveys. Providers also demonstrated improved knowledge on types of available contraception ($z=-4.54$, $p <0.001$). On the pre-survey 10.4% of patients answered all four knowledge questions correctly compared to 20.8% on the post-survey (Figure 1). The median reported knowledge score increased from 2 correct questions to 3 between the surveys. 42 (87.5%) agreed/strongly agreed that the knowledge they gained during the training will be helpful in their clinical practice and 44 (91.7%) felt it would improve patient outcomes.

Conclusion: Our training improved ED provider comfort and knowledge with patient-centered contraception counseling and initiation of OCPs in the ED. This pilot study suggests it is feasible to educate ED providers on contraception through a single-session training. Future research will expand the training to multiple sites across the health system, as well as evaluate if such an intervention can lead to increased OCP prescriptions and referrals for family planning from the ED.



No, authors do not have interests to disclose

277 GO SPLINT EM: Gamified Orthopedic Simulated Procedural Learning INTervention for EM Residents

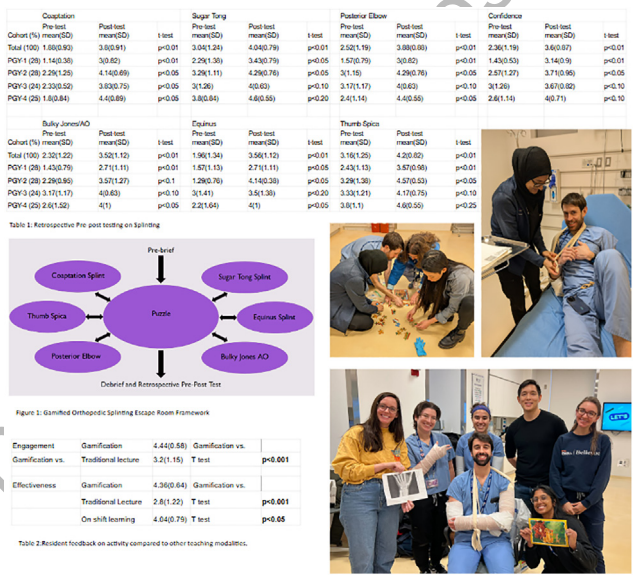
Hon K/New York University, New York, New York

Study Objective: Gamification is increasingly used in medical education to enhance procedural training and learner engagement. We implemented a gamified orthopedic escape room to evaluate its impact on emergency medicine residents' splinting knowledge, skills, and learning preferences.

Methods: Thirty-two residents participated in a 2-hour orthopedic escape room. Residents were divided into four balanced groups (PGY-1 to PGY-4) and completed six stations requiring fracture identification and splint application. The faculty provided guided feedback. A retrospective pre-post test Likert survey (1- Strongly Disagree to 5-Strongly Agree) assessed confidence, proficiency, and learning preferences. Responses were analyzed using paired t-tests to determine significance. Responses were also broken down by resident level to evaluate for within-level characteristics.

Results: Twenty-five residents (78.13%) completed the survey. Statistically significant improvements in confidence and proficiency were observed across all splints ($p < 0.01$), with the most pronounced gains among junior residents. Coaptation splint confidence increased from 1.88 to 3.80 ($p < 0.01$). Residents rated gamification as more engaging (4.44/5) and effective (4.36/5) than traditional lecture ($p < 0.001$).

Conclusion: The gamified escape room improved residents' confidence and procedural competence, particularly benefiting junior learners. Residents favored the interactive, collaborative format over traditional methods. Gamified escape rooms offer an effective, engaging alternative for orthopedic procedural training. Broader implementation and long-term impact assessments are warranted.



No, authors do not have interests to disclose

278 Designing for the Unpredictable: Assessing Emergency Preparedness Using Simulation Event Modeling

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Study Objectives: Adaptability and flexibility are hallmarks of emergency medicine clinical practice. The physical built environment must also flex to support the hospital and its community as much as emergency department (ED) operations. As part of a recent ED addition and renovation, an urban Level 1 trauma center envisioned a unique space which could rapidly convert and add 50% more clinical capacity on demand within 30 minutes. As it is a one-of-a-kind space nationally, the institution subsequently sought to study the impact of this unique space, the Emergency Preparedness and Response Center (EPRC).

Methods: To understand the impact on operations, staff alignment, and patient experience, a team of design researchers implemented discrete event simulation (DES) modeling using FlexSim software to analyze three unique scenarios of sudden ED patient volume increases: a flu surge, a COVID-like pandemic, and a mass casualty incident. Objective outcome data was captured for these scenarios simulated with and without the EPRC activated. Outcomes measured included patient waiting time, room utilization and length of stay. The following assumptions were built into each scenario input:

Flu Surge: This scenario assumes a 30% volume increase applied to baseline patient volume, a similar arrival pattern to day-to-day arrivals established with baseline patient data, and patient distribution in the main ED and EPRC, organized by acuity (with least critical acuities in the EPRC).

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Mass Casualty Incident: This scenario assumes a 10% volume increase occurring within a 15-minute window during peak volume time applied to the baseline patient volume, with patient distribution in the main ED and EPRC organized by acuity (with least critical acuities in the EPRC).

Pandemic: This scenario assumes a 39% volume increase for patients triaged as Emergency Severity Index (ESI) 1 and 2, and a 12% volume increase for ESI 3, 4 and 5 applied to the baseline patient volume; a similar arrival pattern to day-to-day arrivals established with baseline patient data; and a patient distribution in the main ED and EPRC organized first by chief complaint (pandemic-related vs non-pandemic-related), then by acuity.

Results: The following is a summary of results measuring the impact of activating the EPRC on patient wait times (in minutes), room utilization, and average length of stay (in hours) in each of the three scenarios.

Flu Surge: Without the EPRC activated, patient wait times were at 236.2 minutes. Room utilization was at 73.3%. Average length of stay was 10.3 hours. With the EPRC activated, patient wait times were 155.7 minutes. Room utilization was at 52.7%. The average length of stay was 8 hours. This results in a 34% decrease in patient wait times, a 28% decrease in room utilization, and a 23% decrease in average length of stay.

Mass Casualty Incident: Without the EPRC activated, patient wait times were 48 minutes. Room utilization was at 63.8%. Average length of stay was 6.5 hours. With the EPRC activated, patient wait times were 25 minutes. Room utilization was at 44.9%. The average length of stay was 5.8 hours. This results in a 46% decrease in patient wait times, a 30% decrease in room utilization, and a 10% decrease in average length of stay.

Pandemic: Without the EPRC activated, patient wait times were at 291.7 minutes. Room utilization was at 64%. Average length of stay was 10.6 hours. With the EPRC activated, patient wait times were at 272.4 minutes. Room utilization was at 52.1%. The average length of stay was 10.4 hours. This results in a 7% decrease in patient wait times, a 18% decrease in room utilization, and a 2% decrease in average length of stay.

Conclusion: DES modeling allows health systems to assess performance of novel spaces and optimize activation strategies. Simulation can predict measurable outcomes for critical situations and provide confidence in the health system's ability to manage them effectively. Facilities like the EPRC represent a game-changing innovation in emergency medicine and provide a blueprint for resilience in the face of the unexpected.

Yes, authors have interests to disclose

Disclosure: CannonDesign

Ellen Leise, Jun Jia, Brian Silva, Benjamin Bassin

Consultant/Advisor

CannonDesign

279 Women Fare Better Than Men After Cardiac Arrest Secondary to Pulseless Electrical Activity

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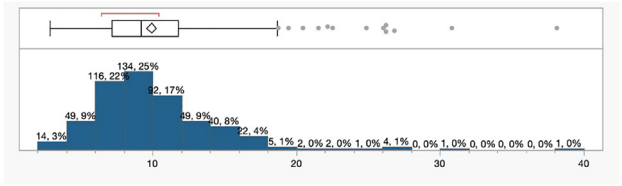
Study Objectives: 1) To determine whether there is a sex difference in survival after cardiac arrest due to pulseless electrical activity (PEA). 2) To determine whether cardiac arrest interventions occurred with the same frequency between men and women.

Methods: This was an IRB approved prospective observational cohort study of pre-hospital adult cardiac arrest patients who sustained pulseless electrical activity (PEA). All adult patients in PEA who sustained a cardiac arrest from any cause for whom EMS system was activated were included in the cohort. Data were entered onto an Utstein style data abstraction tool. Abstractors were blinded to outcome of interest. Statistical analyses were performed using JMP 18.0 for the Mac.

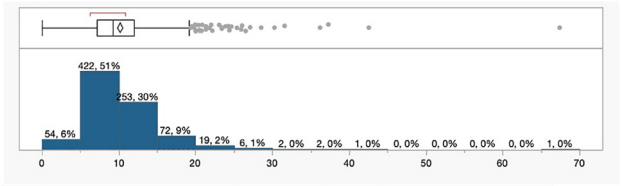
Results: A total of 1364 patients sustained cardiac arrest during the study period, of which 250 were for PEA arrest. 68% were witnessed. 49% of the cohort was female. The median age was 70 years, with an interquartile range of 59 to 80. The age range was 21-101 years. Overall women fared better than men, with 36% of women achieving ROSC compared to only 22% of men (p=0.0078). The frequency of interventions did not differ significantly between men and women. The median EMS time to scene arrival (figure 1) from time of onset of arrest was also not significantly different in men and women (9.18 vs 9.29 minutes). Multivariate logistic regression modeling demonstrated sex, hypothermia care in the field, epinephrine administration and total number of medications given to be statistically significant (**Table**).

Conclusion: Female gender is favorably associated with ROSC, with women being almost 2 times more likely to have ROSC after PEA.

Time from EMS dispatch call to arrival on scene in Women



Time from EMS dispatch call to arrival on scene in Men



	P- value	Relative Risk (RR)
Female sex	0.0239	1.99
Number of meds	<0.0008	n/a
Epinephrine administration	<0.0001	8.83
Hypothermia care in the field	0.0241	2.01
Age	NS	n/a
Time from arrest to EMS arrival	NS	n/a

No, authors do not have interests to disclose

280 Disaster Core Competencies: A Re-Evaluation for A New Decade

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Study Objectives: Core competencies provide the fundamental basis of collective learning and ensure consistent application of knowledge into professional practice. Over a decade ago, the American Medical Association convened an inaugural expert stakeholder group to develop the initial consensus of core competencies for disaster medicine and public health preparedness. Following this work, a multi-disciplinary organizational effort led to the creation of Core Competencies for Disaster Medicine and Public Health, which was published in the journal Disaster Medicine and Public Health Preparedness in 2012. Its target audience included all licensed health professionals who may be reasonably expected to play a role in a disaster or public health emergency, in addition to others who, by job position and experience, would be expected to have an equivalent base knowledge in disaster medicine and public health. Since its release, the core competencies have been foundational for learning curricula among domestic and international response organizations, including the Medical Reserve Corps. It has also informed more specialized competency sets in disaster nursing, mental health, and pediatrics. However, over the years, the field of disaster response has matured, and collective experiences, such as the COVID-19 pandemic response, have altered our understanding of what is truly "core" to being an effective responder. This study serves to evaluate and update the core competencies for Disaster Medicine and Public Health.

Methods: This study is a mixed-methods design. The National Center for Disaster Medicine and Public Health (NCDMPH) convened subject matter experts to provide qualitative feedback regarding the current set of disaster core competencies. Later, quantitative data were gathered from a larger group of experts regarding modifications and/or additions to the core competencies.

Results: Key themes emerged from the expert working group: equity, communication, emergency management, and legal principles. These themes and discussions will inform the development of updated competencies.

Conclusions: This research will enable the development and dissemination of an updated set of disaster core competencies that can be used by agencies, organizations, and academic institutions when developing and/or renovating their curricula.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

281 Expanding Stroke Screening for EMS Patients With Altered Mental Status: A Predictive Model Analysis

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Introduction: Stroke is a time-sensitive emergency where early recognition and treatment significantly impact patient outcomes. Emergency Medical Services (EMS) play a crucial role in the early identification of stroke, as EMS providers are often the first to evaluate patients with neurological symptoms. EMS further determines hospital destination based on the patient's impression, local protocols, and capability of that receiving facility to manage strokes. Prior studies have shown that altered mental status is one of the most common reasons emergency medical providers fail to identify acute ischemic strokes. The utility of performing stroke scales in all patients with altered mental status, a broad clinical presentation, remains unclear.

Study Objective: This study aims to assess the utility of stroke screening in EMS patients presenting with altered mental status by developing a predictive model based on stroke scale assessments and associated clinical factors.

Methods: The National Emergency Medical Services Information System (NEMSIS) 2022 dataset was analyzed, focusing on cases where altered mental status (International Classification of Diseases 10 code R41.82) was the primary or secondary symptom. Runs where a stroke scale was performed were analyzed using logistic regression models incorporating demographic factors, vital signs, response acuity, protocols, and symptoms. Two models, one for "Positive" stroke scales and another for "Positive/Non-conclusive" stroke scales, were applied to AMS cases without stroke scale recordings to predict outcomes.

Results: Altered mental status (AMS) accounted for 10% of all cases resulting in primary or secondary impression of stroke. Out of 1,973,095 emergency medical runs with AMS, 407,556 (20.7%) had a stroke scale performed, with 19.1% yielding positive and 21.2% non-conclusive results. Predictors of a positive stroke scale included speech disturbances (odds ratio 5.58), other neurological symptoms (odds ratio 6.25), stroke or transient ischemic attack protocol activation (odds ratio 7.04), stroke symptoms (odds ratio 13.26), and hemiplegia (odds ratio 14.67). The predictive models estimated a 13.5% (confidence interval 6.4-20.5%) probability of a positive stroke scale and a 21.3% (confidence interval 14.8-31.3%) probability of a positive or non-conclusive result among altered mental status patients who were not screened.

Discussion: These findings suggest that a significant proportion of strokes may go unrecognized in patients with altered mental status if stroke scales are not routinely applied. Strong predictors such as hemiplegia and speech disturbances reinforce the importance of screening, but even patients without clear neurological deficits may warrant stroke scale assessment. Implementing routine stroke scale use in patients with AMS may improve early stroke recognition, prehospital triage, and patient outcomes.

Conclusion: Expanding the use of stroke scales in patients with AMS could enhance stroke detection in the prehospital setting. However, limitations such as potential documentation bias and lack of hospital-confirmed diagnoses must be considered. Additionally, the reason providers closed to perform a stroke scale in the field are not documented, and could present a significant hidden variable. Future research should integrate hospital outcome data and evaluate standardized stroke screening protocols across emergency medical systems to optimize stroke detection and triage efficiency.

No, authors do not have interests to disclose

282 A Prehospital Geriatric Trauma Alert to Improve Evaluation of Traumatic Brain Injuries

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Study Objective: Traumatic Brain Injury (TBI) is a leading cause of morbidity and mortality in the emergency department, with early recognition and intervention being critical to saving lives. Geriatric patients, particularly those on antiplatelet or anticoagulant therapy, are at a higher risk for adverse outcomes and may not exhibit the same symptoms as younger individuals. Current Florida state trauma guidelines do not sufficiently identify these high-risk older patients, potentially delaying diagnosis and definitive care. To address this gap, the Orange County Emergency Medical Services (EMS) system implemented a geriatric trauma alert called Trauma Grey. The Trauma Grey protocol targets patients aged 65 or older and those on antiplatelets or anticoagulants who have sustained a significant head impact. The protocol mandates transport to a state-approved trauma center, where a dedicated internal process ensures immediate offload and assessment by an emergency physician. This study aims to evaluate the efficacy of the Trauma Grey protocol in improving outcomes for these high-risk patients.

Methods: This is a retrospective chart review using prehospital data from the Orange County EMS system and hospital records from the trauma registry of our local Level 1 trauma center. The study included patients aged 65 or older, or those on antiplatelet or anticoagulant therapy, who sustained a head injury and were transported by the Orange County EMS system. We compared data from one year before implementation and one year after implementation of the Trauma Grey protocol (February 1, 2022 – February 1, 2024). Key outcomes were time-to-provider, time-to-CT, and time-to-admission. Additional measures included admission rates, ICU admission rates, and in-hospital mortality. To evaluate under-triage, we identified patients meeting Trauma Grey criteria but were initially transported to a community hospital by EMS, and subsequently required transfer to the trauma center due to significant injuries necessitating care by a trauma or neurosurgeon. Statistical analysis was conducted using Student's t-test for continuous variables and two-population proportion testing for categorical variables.

Results: A total of 2,594 patients were analyzed, with 1,285 patients in the pre-implementation group and 1,309 patients post-implementation. Statistically significant decreases were observed in time-to-provider, time-to-CT, and time-to-admission (**Table**). Although there was a reduction in time-to-ICU admission, this change did not reach statistical significance. No differences were found in emergency department admission rates. While there was a decrease in mortality following the implementation of the Trauma Grey protocol, this reduction was not statistically significant. Pre-implementation, 35 patients required transfer from outside facilities, compared to only 13 post-implementation. Of these 35 patients, 3 died in the hospital. In contrast, none of the 13 patients transferred post-implementation died in the hospital.

Conclusion: The implementation of the Trauma Grey protocol led to significant reductions in time-to-provider, time-to-CT, and time-to-admission for high-risk geriatric patients. While there was no statistically significant reduction for in-hospital mortality, the number of patients with significant injuries requiring transfer from outside hospitals for evaluation by trauma or neurosurgery decreased, and none of these patients died post-implementation. These findings suggest that the Trauma Grey protocol may provide a unique opportunity to enhance patient care for this vulnerable population, particularly in managing serious, rapidly evolving conditions such as traumatic brain injury.

Table 1	Pre-Trauma Grey	ost-Trauma Gre	P Value
Time to Provider (min)	30	9	<.001
Time To CT (min)	123	28	<.001
Time To Admit (min)	1057	640	<.001
Time to ICU (min)	692	573	0.323
In Hospital Mortality	0.78%	0.69%	0.61
ED Admission Rate	43.00%	44.00%	0.89
ED Discharge Home Rate	55.00%	55.00%	0.96

No, authors do not have interests to disclose

283 Pre-hospital Paramedic Point-of-Care Ultrasound Utilization Based on Distance to Hospital

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Study Objectives: Thurston County,WAhas roughly 300,000 residents served by seven 911-responding advanced lifesupport(ALS) units. Three of these are in the "core," less than 5km from the nearest of two hospitals. Two ALS units are suburban, located less than 12km from a hospital. Two other units are rural, located more than 12km from a hospital (27km and 40km respectively). Thurston County emergency medical services (EMS) system completed point-of-care ultrasound (POCUS) training for 911-responding paramedics in 2024. Cursory data review demonstrated that medic units with lower call volumes were disproportionately utilizing POCUS. Thus, we hypothesized that distance to hospital, would correlate with frequency of pre-hospital paramedic POCUS usage.

Methods: Data from each ALS unit including distance of the station to the nearest hospital, number of calls issued for each unit, and number of encounters in which POCUS was utilized was compiled. Data collection began after completion of paramedic POCUS training. A new metric termed the "POCUS Power Score" was created by dividing the percentage of each ALS unit's POCUS utilization by the percentage of responses of that unit. For example, the rural-most unit responded to 7% of ALS responses in the county but accounted for 16% of POCUS utilization. Thus, the POCUS power score is 16%/7% = 2.29. After data acquisition, a T-test was preformed to evaluate for correlation and significance.

Results: ALS response rate, POCUS utilization, distance to the closest hospital, distance to Providence St. Peters hospital (St. Petes), and the POCUS Power Score are

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displayed by unit based on distance to the nearest hospital in the Figure. The Pearson correlation value between the distance of the EMS station to the nearest hospital and POCUS Power Score was 0.648 with a p-value of 0.061.

Conclusion: Ultimately, we were unable to identify a statistically significant correlation between distance to hospital and POCUS utilization. However, there are multiple limitations of this small study. Due to current limitations of the database and time constraints we were unable to exclude patients with out-of-hospital cardiac arrest (OHCA) who are subsequently transported- such patients typically undergo POCUS on scene prior to transportation. Given the currently small sample data, there was also variability created by individual paramedics, some showing enthusiastic utilization and others demonstrating hesitancy. Therefore, this preliminary study highlights the need for further investigation. Future studies excluding the unique patient population of OHCA may demonstrate a statistically significant correlation between distance and POCUS utilization. Furthermore, we studied distance to hospital as a stand-in measurement for transport time. Studies specifically addressing transport time may yield different results. These findings would have large clinical and administrative/financial relevance as otherEMSsystems seekfundingand training to empower their paramedics with POCUS.

Figure 1: EMS station distance to nearest hospital and the corresponding POCUS Power Score

	Distance of Station to Closest Hospital (km)	Distance of Station to St. Petes (km)	POCUS Utilization (%)	Response Rate (%)	POCUS Power Score
ALS3	0.6	0.6	8	17	0.47
ALS6	1.5	8.1	6	17	0.35
ALS2	2.5	2.5	14	20	0.70
ALS5	6.7	6.7	11	16	0.69
ALS4	7.5	7.5	30	13	2.31
ALS7	16.8	16.8	16	7	2.29
ALS1	25.3	25.3	16	10	1.60

No, authors do not have interests to disclose

284EMF Rates and Impact of Race and Ethnicity Discordance in a Large National Database

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Study Objectives: Race and ethnicity data play a critical role in the assessment of and addressing health care disparities. Despite the importance of patient race and ethnicity in administrative data and its use in the identification of health inequities, there are increasing concerns around the accuracy of these data. For example, when compared to self-report, administrative Medicare enrollment data accurately identified only 36% of Hispanic patients, 43% of American Indian/Alaska Native patients, and 63% of Asian American/Pacific Islander patients. Such inaccuracies lead to missed detection of disparities, misdirection of interventions, and, ultimately, may contribute to increased disease burden in these communities. In the emergency department (ED), repeat visits introduce additional complexity into such analyses, as they may lead to increased variability in race and ethnicity documentation that is difficult to adjudicate retrospectively. However, little data exists on the potential magnitude and impact of within-patient variability in race and ethnicity in national administrative databases. Our objective was to evaluate the magnitude of racial discordance in state revisit data available through the Healthcare Cost and Utilization Project (HCUP).

Methods: We conducted a retrospective cohort study examining repeated measures in the form of ED visits for an individual patient over time utilizing HCUP's State ED Databases (SEDD) and State Inpatient Databases (SID). We included the fifteen states that report both race and ethnicity data and revisit data in the year 2019 (AK, AR, CA, CO, FL, GA, IA, IN, MA, MD, MO, NY, UT, VT, WI). Our primary outcome of interest was measured discordance with race and ethnicity documentation over one year. The observed variability in race and ethnicity documentation was then used to create simulated error margins to evaluate the potential impact on disease estimates. This was done by completing a series of permutations of race and ethnicity documentation and recalculating stratified estimates of common ED conditions (eg, trauma, myocardial infarction) derived from the SEDD/SID.

Results: There were a total of 26,442,904 patients identified in our combined database. Of these, 9,442,001 patients had more than 1 visit and were included. Five percent (n=433,816) of patients had a different race or ethnicity documented on a subsequent visit. Patients who had discordant documentation were more likely to have been documented as Hispanic or 'other' on the first visit when compared who those who did not have discordant documentation (27% vs 16%; 23% vs 5%, respectively). When considering other associated variables, privately insured patients were less likely to have discordant documentation (relative to all other insurance types: Public, Self-pay, other). Also, those visiting more than 1 different hospital were 15.7 times more likely to have a different race or ethnicity documented when compared to those who only visited the same hospital. When examining how variation impacts estimates, trauma estimates increased by 1.9% for both patients documented as Hispanic (14.5% vs 16.4%) and those documented as other (4.6% to 6.5%). Myocardial infarction estimates increased by a similar margin.

Conclusions: Analysis of HCUP's SEDD and SID revealed discordant race or ethnicity documentation in 5% of patients who had more than 1 ED visit. Further, discordant documentation was disproportionately observed in patients documented as Hispanic or 'other' on their first visit. When examining estimates of trauma and myocardial infarction, discordant documentation impacts approximately 10-11% of cases and can impact disease estimates. These results reveal both the magnitude of the potential variation in race or ethnicity documentation in commonly used administrative data, and how this may impact disease estimates derived from these data.

No, authors do not have interests to disclose

285 Enhancing Operational Efficiency and Staff Well-Being Through the Pebbles Project

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Study Objectives: Operational efficiency is a key driver of professional fulfillment, as highlighted in the Stanford Model of Professional Fulfillment. Streamlining daily workflows reduces staff frustration, enhances efficiency, and increases staff's sense of control over their work environment. This lowers stress and burnout, ultimately improving job satisfaction. To address these challenges, the American College of Emergency Physicians (ACEP) Wellness Section launched the Pebbles Project, which targets small but recurring workplace issues that can be resolved within three months. These "pebbles" include minor disruptions, such as a broken otoscope, lack of paper for discharge instructions, or a missing Wood's lamp. Motivated by the success of similar programs, our local hospital adopted the Pebbles Project to enhance operational efficiency and bettersupportstaff. The goal was to demonstrate that small, targeted changes can significantly improve staff well-being and workflow.

Methods: The Pebbles Project was introduced to our emergency department in November 2024 through staff meeting presentations and email communications. A QR code labeled "Pebbles" was placed on each computer, allowing staff (providers, nurses, and ancillary) to report their work area, occupation, and specific frustrations. Submissions were sent to a Microsoft Teams chat, enabling senior leadership to address them in real time. Every two weeks, senior leadership reviewed and categorized the reported pebbles. A monthly stoplight report was shared with staff, providing updates on resolved and pending issues.

Results: A pre-survey was sent to all staff (~150), with 108 responses received. It included questions on job satisfaction, leadership'ssupportfor well-being, and overall well-being on a scale of 1 to 10 (1 = absolute distress, 10 = absolute well-being). Results showed that 49% of staff were satisfied with their roles, and 41% agreed that leadership prioritized staff well-being. About one-third rated their well-being between 1 and 5, while two-thirds rated it between 6 and 10. Three months after implementation, a post-survey with 97 responses showed notable improvements. 75% of respondents agreed that the Pebbles Project enhanced job satisfaction, and 70% agreed that leadership prioritized staff well-being. Additionally, 72% reported that the project positively impacted their personal well-being, and 94% recognized wellness as a tool for driving process change and program development. Satisfaction with roles increased from 49% to 75%, and perceptions of leadershipsupportrose from 41% to 70%. During the three-month period, a total of 397 pebbles were submitted. Among the 131 provider (Physician + APP) pebbles, 5 were red (boulders) indicating larger enterprise issues, 2 are pending completion, 4 remain unaddressed, and 120 were resolved. Of the 266 nursing and ancillary staff pebbles, 11 were red, 21 are pending completion, 6 remain unaddressed, and 228 were resolved. This reflects significant progress in resolving operational challenges and improving workflow efficiency.

Conclusion: The Pebbles Project has improved staff well-being by addressing small but impactful operational frustrations. This initiative created a more organized and supportive work environment, boosting job satisfaction and staff engagement. By valuing staff input and resolving daily challenges, the project strengthened team cohesion and

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enhanced operational efficiency. It demonstrates that even minor adjustments can have a meaningful impact on staff well-being and departmental performance.

No, authors do not have interests to disclose

286 Validation of the Caregiver-Reported Outcome Measure for Emergency Care Transitions (COMET) Tool

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Study Objectives: Care transitions after emergency department (ED) visits are challenging for persons living with cognitive impairment (PLWCI) and their care partners. Existing measures fail to capture care partners' unique needs and experiences, despite their critical role in managing follow-up care and navigating outpatient services. This study aimed to develop and validate the COMET (Caregiver-reported Outcome Measure for Emergency care Transitions) tool to assess care partner experiences during ED discharge care transitions.

Methods: Care partners of PLWCI discharged from four EDs were enrolled between February 2022 and April 2024 in a multiphase process: qualitative interviews, item generation, member checking, cognitive debriefing, Technical Expert Panel review, and psychometric evaluation and validation. PLWCI were identified by an existing electronic health record diagnosis of dementia or during in-ED cognitive screening using the AD8 tool (score of $\geq$2). We employed descriptive statistics, item analysis, inter-item correlation, and factor analyses to assess the tool's validity and reliability.

Results: Across all phases, we enrolled 191 care partners. The final 16-item COMET tool included items that addressed understanding of discharge instructions, caregiver burden, and positive aspects of caregiving as relevant to acute care transitions. The tool demonstrated feasibility with a mean (SD) completion time of 5.87 (4.64) minutes and was able to be administered electronically or via telephone. The tool additionally demonstrated excellent internal consistency (Cronbach's alpha = 0.8885, McDonald's omega = 0.9983) and good test-retest reliability (r = 0.8508). Exploratory factor analysissupporteda robust factor structure, and significant correlations between the COMET tool with the Care Transitions Measure-3, a general measure of hospital discharge quality of care,supportits concurrent validity.

Conclusions: The COMET tool is a feasible, reliable, and valid instrument for assessing care partner experiences during ED care transitions. It holds promise for use in observational and interventional studies and could inform efforts to improve ED discharge processes and care quality for PLWCI and their care partners.

No, authors do not have interests to disclose

287 From Noise to Clarity in Emergency Department Predictions: Diffusion Models for Unprecedented Prognostic Accuracy

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Introduction: Imagine if the architecture behind artificial intelligence (AI) models capable of creating photorealistic images and artistic visions could transform clinical outcome prediction, exceeding all current machine learning standards. Diffusion models are advanced generative algorithms that add noise to data in a forward diffusion process and then learn to reverse that degradation in a reverse diffusion phase. This enables them to capture intricate patterns in complex data distributions, allowing the generation of realistic images and videos from random noise. Traditional machine learning models in healthcare, often oversimplify patient trajectories into a single snapshot: a static probability of clinical deterioration. Emerging diffusion models offer a solution by using two fundamental properties. Forward diffusion is the progressive noise injection that mirrors real-world uncertainty in physiological signals, and reverse learning is the model's ability to denoise and reconstruct likely future states from noisy data.

Study Objectives: 1. Develop a novel hybrid diffusion model that leverages time-series clinical data to generate accurate, probabilistic predictions of patient trajectories in emergency department settings. 2. Assess the model's efficacy in early sepsis detection by combining temporal feature extraction with diffusion-based trajectory refinement across multiple comprehensive healthcare datasets. 3. Compare the performance of the proposed diffusion-based approach against current state-of-the-art machine learning algorithms for clinical prediction tasks using established metrics.

Methods: A multi-stage methodology was used with the Medical Information Mart for Intensive Care III (MIMIC-III), Medical Information Mart for Intensive Care IV (MIMIC-IV), eICU Collaborative Research Database (eICU), and High Time Resolution Intensive Care Unit Dataset (HiRID) datasets, each providing time-series data of vital signs, labs, and treatments from emergency department (ED) patients admitted to the intensive care unit (ICU) for validating early sepsis detection performance. A hybrid architecture combined temporal convolutional networks and an informer module for local and sparse feature extraction. Probabilistic trajectory refinement was performed using the TimeDiff diffusion module, trained on reverse denoising processes. Model performance was evaluated with root mean squared error (RMSE).

Results: The hybrid diffusion model showed exceptional performance in predicting clinical trajectories and detecting early sepsis, significantly outperforming current state-of-the-art machine learning algorithms. The model achieved an average RMSE of 0.08 and MAE of 0.05 across all predicted vital signs and lab values, indicating high pointwise accuracy in trajectory forecasting. DTW analysis showed a mean alignment error of 0.12, demonstrating the model's ability to capture temporal trends in patient data accurately. For early sepsis detection, the model achieved an AUC-ROC of 0.98, with a sensitivity of 0.95 and specificity of 0.96. The Brier score was 0.02, indicating well-calibrated probability estimates. These results underscore the model's ability to capture complex temporal dependencies.

Conclusion: The study results provide evidence that diffusion-based models represent a paradigm shift in clinical predictive analytics, moving beyond the static risk scores of traditional algorithms to dynamic, individualized patient trajectories. The presented hybrid model accurately predicts the future course of critical physiological parameters and provides a measure of uncertainty around these predictions, a feature with profound implications for clinical decisionmaking. This model's ability to achieve high levels of accuracy, sensitivity, and specificity in early sepsis detection, combined with its capacity to delineate nuanced patient trajectories, heralds a new era in personalized, proactive care. By modeling the process of deterioration rather than just predicting the outcome, this approach allows for a deeper understanding of the complex interplay of factors that contribute to rapid clinical decline.

No, authors do not have interests to disclose

288 Atrial Fibrillation in Rural Uganda: A Retrospective Analysis of Patients Presenting to Triage

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Study Objectives: The 2010 Global Burden of Disease study identifies atrial fibrillation as the fastest-growing cardiovascular disease in Sub-Saharan Africa (SSA). However, data on the prevalence of atrial fibrillation and atrial flutter (A-Fib) in SSA remains limited. Existing literature suggests that patients in low- and middle-income countries (LMICs) experience worse outcomes from these arrhythmias compared to those in high-income countries. This study aimed to (1) determine the prevalence of A-Fib among patients presenting to hospital triage at a rural hospital in Masindi, Uganda, and (2) assess the feasibility of using the KardiaMobile® 6-lead electrocardiogram (EKG) for arrhythmia screening. Given its cost advantage over a traditional 12-lead EKG, this device has the potential to significantly improve access to diagnostic tools in resource-limited settings.

Methods: This is a retrospective review of a 6-lead EKG database collected between September 2022 to March 2023 at Masindi Kitara Hospital (MKH) in Uganda. A 6-lead EKG was obtained from patients using a KardiaMobile®, a small FDA-approved device that records a 30-second EKG using signals from the patient's left and right index fingers and lower extremity. This database was created for quality improvement to bring EKG capacity to MKH. Demographic data and 6-leads were collected by a Ugandan assistant from willing adults (>18 years) at hospital triage during daytime business hours as a convenience sample. EKGs were uploaded to a cloud database for review. All EKGs were interpreted by board-certified or board-eligible emergency physicians (EP) for presence or absence of A-Fib. Ethics board exemption wasgranted.

Results: Out of the total 1,243 patient database encounters, 42 were excluded due to significant artifact or missing EKG tracings resulting in 1201 EKGs included in the final analysis. The mean age of the study population was 40.2 years ($\pm$16.6 standard deviation), with an average heart rate of 86 beats per minute ranging from 36 to 178 beats per minute. Sixty percent (728) were female and 40% (473) were male. The KardiaMobile interpretation algorithm flagged 23 EKGs (1.9%) as potential tracings of A-Fib. Upon EP review, A-fib was confirmed in 7 patients (30% flagged by device algorithm). Upon review of the entire database, all EP confirmed cases of A-Fib had already been flagged by the KardiaMobile as "potential A-Fib" resulting in a sensitivity of 100% and negative predictive value of 100%. KardiaMobile® specificity was 99% and positive predictive value was 30%. After EP review of all 6-lead EKGs, the prevalence of A-Fib in our study population was found to be 0.58%.

Conclusion: In this review, the KardiaMobile® 6-lead EKG identified every case of atrial fibrillation with a remarkable sensitivity of 100%, underscoring its potential as a

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highly effective screening tool. Given the urgent need for affordable diagnostics to enhance cardiovascular care in low-resource settings, our findings suggest that KardiaMobile could serve as a valuable solution for A-fib screening, helping to prevent serious complications such as stroke, heart failure, and cardiovascular death. Additionally, this study contributes to the limited literature on the epidemiology of A-fib in Uganda, where only one smaller study has been conducted. While this hospital-based cohort may represent a sicker population, the observed prevalence of 0.58% aligns with the sparse data from sub-Saharan Africa, which consistently reports A-fib prevalence below 1%.



No, authors do not have interests to disclose

289 Machine Learning-Based Prediction of Medical Admissions in Geriatric Behavioral Health Emergency Department Patients

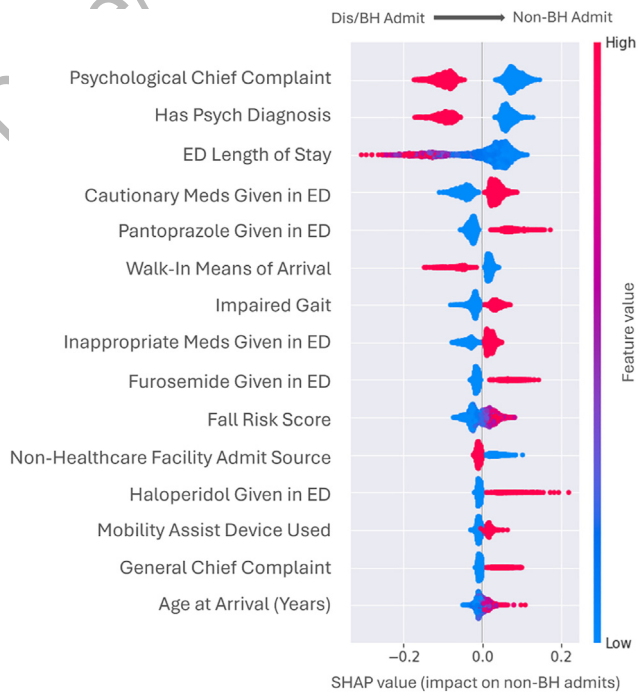
Graham D, Stanich J, Sebald K, Campbell R, Mullan A, Jones D/Mayo Clinic Rochester, Rochester, Minnesota

Study Objectives: Boarding of behavioral health (BH) patients in the emergency departments (EDs) continues to rise, driven by a growing mismatch between the demand for psychiatric services and the availability of inpatient BH beds. At the same time, ED visits for BH concerns are increasing among older adults, a population characterized by greater medical complexity, frailty, and an elevated risk of clinical decompensation during prolonged ED stays. These trends highlight the importance of timely and accurate disposition decisions. This study aimed to develop a machine learning (ML) model to perform binary classification of geriatric BH patients presenting to the ED, predicting the likelihood of admission to a non-BH medical service versus BH admission or discharge. This couldsupportEDproviders in prioritizing care, improving workflow efficiency, and optimizing outcomes for this high-risk population.

Methods: A retrospective cohort study was conducted using electronic health record data from the Mayo Clinic Hospital ED, Saint Marys Campus, Rochester, Minnesota. Saint Marys ED is an academic ED with approximately 77,000 annual patient visits. ED visit dates were between January 1, 2019, and December 31, 2024. The cohort included BH patients aged 65 years and older, excluding those who declined research authorization. BH status was defined by the presence of a BH consult, placement on a BH hold, admission to inpatient BH services, or BH boarder designation. The primary outcome was admission to a non-BH inpatient service. Predictor variables included initial ED vital signs, demographic and visit characteristics, dementia-related and fall risk indicators, administration of any potentially inappropriate or cautionary medications listed on the Beers Criteria, documented social determinants of health (SDOH), and primary diagnosis. Variables with 50% or more missing data were removed. The remaining missing values were imputed as 'unknown' for categorical fields or with k-nearest neighbors for continuous variables. To address class imbalance, Synthetic Minority Over-sampling Technique for Nominal and Continuous data (SMOTE-NC) was applied. A Random Forest classification model was developed using the dataset.

Results: A total of 2,985 patients met the inclusion criteria, including 1,953 (65.4%) patients admitted to non-BH services. The median age was 74 years old, 50.5% of the cohort were female, and 93.7% were white. The Random Forest model achieved an overall accuracy of 74.5% with an Area Under the Curve (AUC) of 0.714. The model received an accuracy of 80.0% for predicting admits to non-BH while predicting BH admissions or discharges yielded an accuracy of 63.6%. The 5 most predictive features included a psychological chief complaint, having a psychological diagnosis, ED length of stay, cautionary meds (according to the Beers criteria) given in the ED, and furosemide (diuretic medication) given in the ED.

Conclusion: Machine learning models show promise in identifying older adult BH patients at risk for medical (non-BH) admission following ED presentation. Key predictive features identified in this analysis may inform clinical decisionmaking andsupportmore efficient triage and disposition planning. Future applications may include real-time clinical decisionsupportto aid in early intervention and resource allocation within the EDsetting.



No, authors do not have interests to disclose

290 Artificial Intelligence is Capable of Accurately Detecting OMI in the Emergency Department

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Study Objectives: The STEMI/NSTEMI paradigm has long been accepted as the strongest indicator of acute coronary occlusion. However, 25-30% of NSTEMIs have

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unrecognized acute total occlusion; conversely, 15-35% of STEMIs are found to be false positives with no culprit lesion. There has been a shift towards a replacement paradigm, known as occlusion myocardial infarction (OMI), that includes ST-elevation in the criteria, among other ECG findings, to determine the need for reperfusion. A novel AI has since been developed presumed to improve the detection of OMI compared to using STEMI criteria alone.

Methods: We conducted a retrospective chart review to evaluate an AI ECG model's ability to detect OMI in high-risk acute coronary syndrome patients presenting to an urban, academic, tertiary care ED. The study period was from 11/24/23 to 7/24/24. Patients were classified as Heart Alert (HA)—patients who did not meet STEMI criteria—or STEMI activations (patients who met STEMI criteria). OMI was defined as either: 1) acute culprit lesion with TIMI 0-2 flow and confirmed OMI on catheterization, or 2) presumed OMI with significant cardiac outcomes, including a) non-occlusive culprit lesion with a High Sensitivity Troponin I (hsTnI) >1000, b) no angiography but elevated hsTnI and new wall motion abnormality on echocardiography, or c) STEMI-positive ECG with death before catheterization. We collected demographic and clinical data. Data analysis was performed using descriptive analytics.

Results: From the current dataset, 160 patients with apparent ACS were included. Of these 160 patients, 94 ultimately had OMI, of which 30 were Heart Alert patients and 64 were STEMI activations. The sensitivity of the AI tool in detecting OMI in the HA and STEMI activation groups was 73% (22/30) and 84% (54/64), respectively. The combined sensitivity of both the HA and STEMI activation groups was 81% (76/94). Between the HA and STEMI activation data, there were 18 false negatives (8 HA, 10 STEMI) where the AI tool incorrectly missed an OMI. The specificity of the AI tool in the combined HA and STEMI activation group was 70%.

Conclusion: In this small cohort of high-risk ACS patients presenting to the ED, the AI was able to detect 81% of OMIs based on initial ECG. Future prospective studies are necessary to confirm these results. Furthermore, comparative studies of AI vs human interpretation may be meaningful in delineating the clinical impact of this novel tool.

Yes, authors have interests to disclose

Disclosure: Powerful Medical

Alexander Bracey

Other

Powerful Medical

291 CliniKiosk: An Innovative Technology to Expand Health Care Access

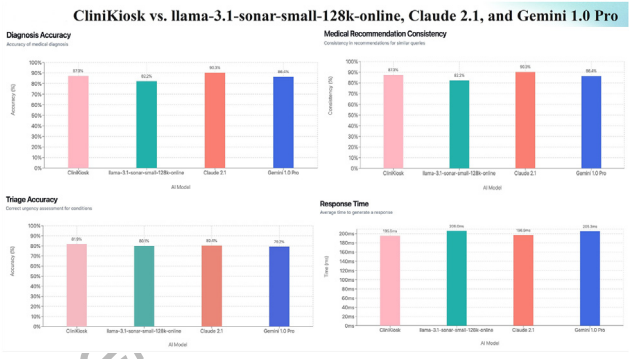
Sinha E, Ainapurapu B, Adhikari E/Basis Oro Valley High School, Oro Valley, Arizona

Study Objectives: Healthcare access is facing mounting challenges due to long wait times, provider shortages, an aging population, and widespread rural hospital closures. Current digital health tools fall short in addressing these gaps, often lacking personalization, multilingualsupport, real-time adaptability, and they do notsupportdiagnostic testing or medication dispensing. This study introduces CliniKiosk, an artificial intelligence (AI)-powered virtual health kiosk designed for real-time patient assessment, with the potential to scale to include diagnostic testing and basic medication dispensing directly at the kiosk. The objective of this study is to evaluate the feasibility of developing a multilingual, customizable healthcare kiosk platform using machine learning and GPT-based conversational AI to accurately assess symptoms and provide personalized, evidence-based health guidance.

Methods: CliniKiosk was developed through a multi-phase process combining full-stack implementation, advanced AI integration, and performance testing. The platform was built using JavaScript and TypeScript within the Vite.js framework, styled with Tailwind CSS and shadcn-ui components. Supabase enabled secure authentication, while SendGridsupportedcustom email verification. The AI engine used GPT-4o-mini with OpenAI Whisper for speech-to-text, and multilingual functionality was implemented via i18n. PubMed data was integrated through Supabase Edge Functions for evidence-based responses, and mem0 enabled personalized, memory-aware interactions. A Google Places API key allowed for location-based recommendations. The platform was deployed via Netlify after domain setup on GoDaddy. For model evaluation, a clinician-validated dataset of 500 simulated patient case scenarios was constructed, reflecting a wide range of medical conditions, risk factors, acuity levels and demographic diversity. CliniKiosk was compared against llama-3.1-sonar-small-128k-online, Claude 2.1, and Gemini 1.0 Pro.

Results: CliniKiosk demonstrated comparable performance to leading AI models, with no statistically significant differences in diagnosis accuracy, triage accuracy, or medical recommendation consistency among CliniKiosk, llama-3.1, Claude 2.1, and Gemini 1.0 Pro ($p > 0.05$;Figure 1). However, response times differed significantly across models ($p < 0.001$), with CliniKiosk delivering the fastest average response. Claude 2.1 had the lowest error rate at 9.7%, followed closely by CliniKiosk at 12.7%, while Gemini 1.0 Pro and llama-3.1 showed higher error rates at 13.6% and 17.8%, respectively ($p < 0.01$). Diagnostic accuracy did not significantly differ across patient presentation types—chronic, acute, or emergency ($p > 0.05$), nor across demographic groups by age or gender. CliniKiosk uniquely retained prior user interactions, enabling personalized and context-aware responses. Over repeated sessions, user engagement and trust increased, reflecting the impact of longitudinal tracking. Furthermore, CliniKiosk demonstrated emotional adaptability, evolving from neutral to empathetic tones and consistently responding to negative emotional cues with increased reassurance and empathy.

Conclusions: CliniKiosk offers a well-balanced, personalized, and efficient AI-driven health assessment solution, performing competitively alongside leading AI models. Our next step is to integrate the software platform into a physical kiosk system for real-world deployment.



No, authors do not have interests to disclose

292 Are Multi-Day Outpatient Emergency Department Treatments Feasible? Remdesivir for COVID-19

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Study Objectives: A landmark trial indicated that intravenous remdesivir was superior to placebo in decreasing recovery time for hospitalized adults with lower respiratory tract infection due to COVID-19, and another trial subsequently indicated its utility for preventing progression to severe disease among outpatients. Remdesivir is given over the course of a three day period, with the first dose of 200 mg given intravenously on day one, with two subsequent doses of 100 mg each on days two and three. As such, the feasibility of administering IV remdesivir to outpatients presents numerous challenges. In our regional hospital network, we adopted a system-wide program to provide a 3-day treatment course for remdesivir to be administered through the emergency department (ED) as an outpatient. To our knowledge, there is limited evidence describing multi-day outpatient ED-based treatment regimens, and even less so in regards to a pandemic response. In this study, we report compliance with planned return visits for a 3-day treatment course of remdesivir for outpatients with COVID-19 in order to explore feasibility for such a program. We secondarily sought to report treatment-related adverse reactions.

Methods: This was a multi-center retrospective observational study evaluating patients who received remdesivir for treatment of COVID-19 in the ED. The study period was November 1, 2022 to February 1, 2023. The decision to administer remdesivir was at the discretion of the treating emergency physician; there were no clinical protocols indicating specific inclusion criteria, however, departmental advisories suggested clinicians utilize remdesivir for adult patients who had at least one risk factor for disease progression. To be eligible for the ED-based administration program, the intended disposition for the patient had to be discharge to home/self care (ie treat and release). If the patient reported that they were unwilling or unable to return on subsequent days, they were not offered the first dose. The primary outcome for this study was compliance with the 3-day remdesivir course of treatment. This was defined as return to the ED on successive days after their initial dose of remdesivir, for a total of 3 doses.

Results: 1,008 patients were included in the final cohort. The mean age of the patients was 69.5 (range 18-104), with 576 (57.2%) female. The median days of illness was 2 (range 1-7). Of the 1,008 patients who received remdesivir in the ED intended

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for outpatient management, there were 155 patients admitted during the three-day treatment regimen. Among the 853 patients not admitted to the hospital during treatment, overall compliance with the three-day treatment regimen was 779 (779/853, 91.3%, 95% CI 0.89-0.93). There were 807 patients (807/853, 94.6%, 95% CI 92.9-96.0) who received two doses, but did not return for the third. There were no incidences of anaphylaxis, and minor reactions such as local injection site pain (4, 0.4%), hives/pruritus (5, 0.5%), and nausea/vomiting (22, 2.2%) were uncommon. An increase in AST/ALT was identified in 9 (0.9%), and an increase in serum creatinine was identified in 8 (0.8%). There were 13 (1.3%) admissions to an intensive care unit, and the overall mortality in the cohort was 3 (0.3%).

Conclusion: Though initially used predominantly for inpatients, randomized trials suggested a potential benefit for remdesivir in outpatients as well. Our regional hospital network established an ED-based outpatient mechanism to receive a 3-day course of remdesivir, that did not require admission to the hospital. We demonstrated a high rate of compliance with planned return visits in this patient population. Our results indicate that this may be a feasible treatment strategy for remdesivir, or for other multi-day treatments that would benefit outpatients.

No, authors do not have interests to disclose

293 Post Emergency Department Home Visits: Perspectives of Health Care Personnel From the SCOUTS Program

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Study Objectives: Older adults discharged from the emergency department (ED) often have unmet needs. PostEDhome visits can address these needs andsupportcare coordination for older adults. TheUS Department of Veterans Affairs(VA)SupportingCommunity, Outpatient, Urgent Care, and Telehealth Services (SCOUTS) program was designed to address this gap in care but lacked evidence regarding acceptability from the organizational perspective. This qualitative study explored the perspectives of Intermediate Care Technicians (ICTs) regarding their experiences with the SCOUTS program.

Methods: ICTs are former military medics who conduct SCOUTS home visits and act as telepresenters assisting video visits with ED providers. We conducted semi-structured interviews with a convenience sample of ICTs at six program sites across five states to obtain multiple organizational perspectives. ICTs were eligible if they had completed a least one home visit. Interviews were audio-recorded with permission, transcribed, and analyzed using a mixed inductive-deductive approach guided by the Practical, Robust Implementation and Sustainability Model (PRISM).

Results: We conducted a total of 13 interviews. Key themes emerging from interviews included: 1) home visits provide an opportunity to identify and intervene on needs of Veterans and caregivers that might be missed otherwise; 2) need for education to increase awareness of the SCOUTS program and specifically the role of the ICT among VA staff and Veterans; 3) coordinating video visits with clinicians and Veterans during home visits improve care; 4) high job satisfaction, particularly in relation to connecting with Veterans and caregivers and perceived impact in terms of making improvements in care and quality of life.

Conclusion: Post ED home visits by ED-based intermediate care technicians are an acceptable model of care for older adults. Home visits provide a unique opportunity to identify and address the care needs of older Veterans that reportedly enhanced job satisfaction, quality of post ED care for older Veterans, and quality of life for these patients and their caregivers. Education regarding the program's goals and staffing model is needed tosupportuptake by patients and providers. Leveraging telehealth is a feasible and acceptable way to connect patients and providers, creating opportunities to improve access to care and, therefore, continuity of care following an ED visit.

No, authors do not have interests to disclose

294 Nationwide Survey of Emergency Department Palliative Care in Asian Culture

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Study Objective: Emergency physicians encounter patients with end-stage diseases from diverse ethnic and cultural backgrounds, requiring tailored management approaches. However, current evidence on palliative care practices and related training in emergency department (ED) settings, particularly within Asian cultures, remains limited. This study aimed to evaluate the current clinical practice and education of palliative care in East Asian EDs through a nationwide survey.

Methods: This nationwide, anonymous, questionnaire-based descriptive study was conducted in Taiwan in January 2025. Emergency physicians in active clinical practice, excluding those in administrative positions, were included. The survey assessed four key domains: (1) the perceived importance of specific competencies in hospice and palliative care (HPC), (2) HPC training in the ED setting, (3) the effectiveness of various educational methods, and (4) barriers to implementing HPC. Descriptive analyses were conducted for each domain, with Likert scale responses summarized as means and standard deviations. A p-value < 0.05 was considered statistically significant.

Results: Of the 87 responses, a total of 85 valid responses from emergency physicians across five different regions in Taiwan were collected. The results showed that 74.1% of emergency physicians manage more than 10 HPC cases per month, and 82.4% reported that they often or very frequently have to initiate end-of-life (EOL) care discussions with patients' families. Additionally, 63.5% indicated that they engage in "do-not-resuscitation" discussions more than five times per month. Most emergency physicians considered the inclusion of HPC competency training in residency programs to be highly important (median: 8; interquartile range: 6.5–10, on a scale of 1–10). Despite the crucial role of HPC in daily practice, only 23.5% of physicians have received formal HPC training, and 84.7% reported being unfamiliar with the HPC training system. From the perspective of emergency physicians, the four most effective methods for developing HPC competency are hospice and palliative medicine (HPM) rotations, mentoring from HPM faculty, bedside teaching, and case-based teaching, respectively. While emergency physicians recognize the importance of most HPC-related skill sets in daily clinical practice, significant mismatches exist between the perceived importance and the actual skill level across multiple skill sets. The most pronounced gaps were found in the management of the dying child ($p < 0.001$), followed by ethical and legal issues ($p < 0.001$), pain and non-pain symptom management ($p < 0.001$), and the communication during resuscitation with family presence ($p < 0.001$). Based on our survey, the primary barriers to training emergency physicians in HPM competency appear to be a lack of faculty interest in HPM and insufficient HPM experience and expertise among faculty.

Conclusion: Most emergency physicians acknowledged the importance of HPC competency. However, significant gaps were observed between the perceived importance and their proficiency in key palliative care skills. Moving forward, integrating comprehensive HPC training into ED residency programs is essential to enhancing the quality of palliative care in ED settings, particularly within East Asian cultural contexts.

No, authors do not have interests to disclose

295 Who Gets Funded? Emergency Medicine Underrepresented in NIH-Funded Sepsis Research

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Study Objectives: Sepsis accounts for approximately 20% of global all-cause mortality. Understanding the distribution of sepsis researchfundingis essential for ensuring resources are optimally distributed and for ensuring research is informed by clinicians who have robust clinical experience in managing this condition. In this study, we aimed to describe trends inNational Institutes of Health(NIH)-fundedsepsis research and hypothesized that emergency medicine (EM) researchers would be underrepresented amongst NIH-fundedsepsis researchers.

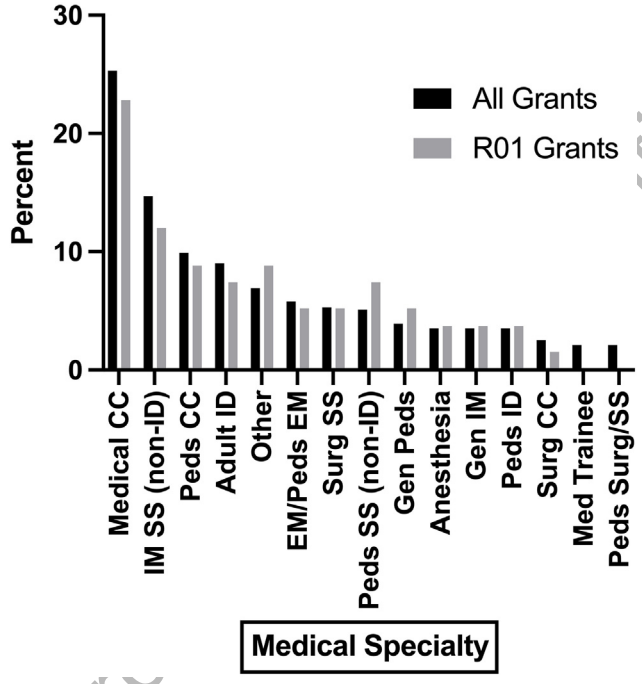
Methods: We searched studies indexed in NIH RePORTER between October 1, 2018, and September 30, 2023 (NIH Fiscal Years [FY]: 2019-2023). Search terms included "sepsis", "septicemia", "severe sepsis", and "septic shock". We collected data on number of unique projects, number of unique principal investigators (PI),PIinstitution,fundinginstitute andfundingmechanism. Three authors (J.C.M., J.P.L., and J.F.) conducted an internet search of each PI, and collected data on educational background, (ie, MD, PhD), clinical specialty and research setting (ie, academic, industry). Data were summarized with descriptive statistics using Stata/SE 17.0 (StataCorp LLC, College Station, TX).

Results: There were 1,309 unique projects from 1,061 unique researchers. The National Institutes of Allergy and Infectious Diseases,National Institute of General Medical Sciencesand National Heart Lung and Brain Institute, accounted for over two-thirds of all sepsisfunding. The most commongrantmechanisms were: RO1 (37%, n=485), R21 (11%, n=150), R35 (6%, n=75) and various K-awards(9%, n=116). The most common educational background among researchers was PhD-only (47%, n=503), followed by MD/DO-only (24%, n=254) and MD/PhD (14%, n=144). Among researchers with medical degrees (MD/DO) who practiced clinically, 38%

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(164/435) practiced critical care (multiple specialties), 12% (54/435) practiced infectious diseases (ID; adult/pediatrics), 6% (25/435) practiced emergency medicine (EM, adult/pediatrics) and 3% (15/435) practiced general internal medicine (IM) (Figure 1). Most R01grantswereawardedto PhD-only researchers (54%, 203/485). Of R01grantsawardedto physicians who practiced clinically, most wereawardedto those with critical care training (33%, 45/136).

Conclusion: Emergency physicians were underrepresented among residency-trained PIs. Lebold et al recently published an article highlighting the need for development of a more robust EM investigator pipeline. EM must develop research leaders within important research foci, such as sepsis. A study assessing overallNIHfundingtrends between 2011 and 2020, found thatEMaccounted for just 0.7% of totalNIHfunding, compared to those with internal medicine backgrounds 39.2% (included generalIM,IMsubspecialties and IM-trained critical care). In our study, among NIH-fundedsepsis researchers with clinical training, just 6% practicedEM, compared to 12% who practiced ID and 38% who practiced adult critical care. This suggests thatEMNIHsepsisfundingwas better compared to overallEMNIHresearchfunding. However, when considering that approximately 90% of sepsis cases are community-acquired and are managed initially in the emergency department, emergency physicians still remain underrepresented in NIH-fundedsepsis research, relative to their clinical experience in managing sepsis. This study has limitations. Our search terms were broad but may not capture projects that studied sepsis indirectly. Data related to PI educational/training background was collected from public internet domains, which may be incomplete or out of date. We only included NIH-fundedprojects, so we cannot comment onfundingtrends from other federal agencies. While emergency physicians care for a substantial proportion of sepsis patients, PIs from these specialties are underrepresented among NIH-fundedsepsis researchers. To better leverage the expertise of specialties who routinely care for sepsis,EMdepartments should prioritize investment in the development of federallyfundedsepsis researchers.



Yes, authors have interests to disclose

Disclosure: A.M. is co-founder of aUCSDstart-up, Healcisio Inc., which is focused on commercialization of advanced analytical decisionsupporttools and formed in compliance with UCSD conflict of interest policies.

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Other

A.M. is co-founder of aUCSDstart-up, Healcisio Inc., which is focused on commercialization of advanced analytical decisionsupporttools and formed in compliance with UCSD conflict of interest policies.

Disclosure: S.N. is co-founder of aUCSDstart-up, Healcisio Inc., which is focused on commercialization of advanced analytical decisionsupporttools and formed in compliance with UCSD conflict of interest policies.

Shamim Nemati

Other

S.N. is co-founder of aUCSDstart-up, Healcisio Inc., which is focused on commercialization of advanced analytical decisionsupporttools and formed in compliance with UCSD conflict of interest policies.

296 Impact of Clinical Pharmacy Specialist-Led Stewardship Program on Antibiotic Appropriateness

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Study Objectives: Although timely administration of antimicrobials can be lifesaving, unwarranted or inappropriate prescribing can lead to adverse drug effects, treatment failure, and antimicrobial resistance. The primary objective was to evaluate the effectiveness of a clinical pharmacy specialist-led antimicrobial stewardship program (ASP) in improving the appropriateness of emergency physician antibiotic prescribing patterns in the emergency department (ED).

Methods: A quasi-experimental study involving the retrospective review of electronic health records was performed. Patients who received a single empiric dose of antibiotics for a suspected infection during their ED length of stay and were subsequently admitted to the hospital were included. Patients were excluded if they were ≥90 years of age, transferred from another facility, received antibiotics prior to ED arrival, or received antibiotics for surgical prophylaxis. Order sets which included recommendations regarding first-line antibiotic coverage based on the suspected source of infection, patient allergies, patient microbial risk assessment, and local resistance patterns based on antibiograms were approved and went live in the electronic health record in May 2023. Cases presenting during the 3-month period following implementation of the ASP (May 2023 – July 2023) were categorized in the post-intervention cohort while those presenting during the same 3-month period in the preceding calendar year (May 2022 – July 2022) were categorized in the pre-intervention cohort. The primary outcome was antibiotic prescribing appropriateness as defined by agreement between the recommended first-line agent and the initial antibiotic order placed by the emergency physician. Events classified as inappropriate were further categorized based on unnecessary *Pseudomonas aeruginosa* coverage, unnecessary methicillin-resistant *Staphylococcus aureus* (MRSA) coverage, and lack of multi-drug-resistant organism (MDRO) coverage. Pre- and post-ASP antibiotic prescribing appropriateness were compared using chi-squared tests. All statistical analysis was performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at 0.05.

Results: A total of 324 patients satisfied eligibility criteria and were evenly distributed between pre- and post-ASP cohorts. Appropriate antibiotic prescribing was observed in 83 (51.2%) and 90 (55.6%) patient encounters in the pre- and post-ASP cohorts, respectively, and this difference was not statistically significant (p=0.44). Within the events classified as inappropriate, there were no statistically significant differences in unnecessary pseudomonal coverage (35% versus 35%, p=0.96), unnecessary MRSA coverage (15% versus 11%, p=0.36), and lack of MDRO coverage (9% versus 16%, p=0.14) between pre- and post-ASP cohorts, respectively.

Conclusion: The integration of clinical pharmacy specialist-led ASPs in the ED setting is feasible. Further research investigating barriers to emergency physician adoption of evidence-based antibiotic prescribing guidelines and effective strategies for uptake is warranted.

No, authors do not have interests to disclose

297 Predictive Modeling of Hospital Course for Emergency Department Patients With Skin and Soft Tissue Infections

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Study Objectives: Skin and soft tissue infections (SSTIs) drive over 6 million emergency department (ED) visits annually and patients are often hospitalized. In the absence of sepsis, hospitalization is primarily driven by a gestalt assessment of comorbidities, vital signs, and subjective visual evaluation of the infected tissue. This approach risks over-triaging those who could be reasonably managed with outpatient

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therapy. With hospital bed space becoming increasingly scarce and costly, optimizing its use is critical. This study aims to improve ED risk stratification of SSTI by characterizing outcomes of hospitalized subjects with SSTIs and examining associations between subject clinical features and a brief and benign hospital course.

Methods: This observational study retrospectively assembled a cohort of all adults admitted from any of 10 EDs in a single regional health system in West Michigan with a diagnosis of SSTI. We summarized subjects' demographics and clinical features and used multiple logistic regression modeling to identify factors independently associated with a benign hospital course (survival to hospital discharge, hospital length of stay < 48 hours, absence of ICU care, and discharge disposition to home). Covariates with significant bivariate associations with benign hospital stays were included in the multivariable model with backwards elimination based on a p-value exceeding 0.05 and age forced into the model. Candidate variables of interest included subject age, sex, race/ethnicity, insurance type, comorbidities, vital signs, laboratory values, location of SSTI, antecedent (< 48 hours) healthcare encounter for SSTI, and ED incision & drainage (I&D).

Results: Of 5,605 ED SSTI subjects, 962 (17.1%) were hospitalized, including 866 (90.2%) to inpatient status and 96 (10%) to observation status. Most patients were from urban locations (69.9%). Median hospital length of stay was 3 days (25th quartile 1.9, 75th 4.9 days). Very few experienced ICU admission (2.5%) or death (0.5%). Ultimately, 268 (27.9%) met our definition of a benign hospital course. In multivariable analysis, head/neck location of SSTI (OR 3.23; 95% CI 2.00-5.20), ED I&D (OR 2.88; 95% CI 1.43-5.78), <2 SIRS criteria (OR 2.16; 95% CI 1.43-3.28), non-diabetics (OR 1.93; 95% CI: 1.36-2.74), and prior visit for SSTI within 48 hours (OR 1.74; 95% CI 1.24-2.44) were independently associated with higher likelihood of a benign hospital course.

Conclusion: More than one-quarter of ED subjects hospitalized for SSTIs had brief, uncomplicated hospitalizations. Characteristics such as absence of diabetes or sepsis as well as performance of an ED I&D were independently associated with greater odds of uncomplicated hospitalization. Further study is needed to determine if such patients could be safely managed in alternative settings.

No, authors do not have interests to disclose

298 Does Viral Infection Reduce the Risk of Group A Streptococcus Pharyngitis in Adults?

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Study Objectives: Group A Streptococcus (GAS) pharyngitis is a common diagnosis in adults and can lead to complications if untreated. Limited studies have examined the association between GAS pharyngitis and viral co-infection using laboratory-confirmed viral testing rather than clinical features. From the literature, the estimated risk of GAS pharyngitis in adults with one viral symptom is 13–18%. This study aimed to evaluate the risk of GAS pharyngitis in adults with concurrent respiratory viral infections, including respiratory syncytial virus (RSV), influenza, and COVID-19, over the past 15 years. A subgroup analysis assessed the risk of GAS pharyngitis in patients with COVID-19 during the past five years.

Methods: This retrospective, propensity-matched study utilized the TriNetX database, which includes 113 million de-identified records from 67 U.S. healthcare organizations. Adults with fever and sore throat from 2010 to 2025 were identified. Cohort 1 consisted of patients with a confirmed respiratory viral infection (RSV, influenza, or COVID), while Cohort 2 included those without a detected respiratory virus. The primary outcome was a GAS-positive test within one week of viral testing. A subgroup analysis was conducted for patients with COVID-19 during the past five years.

Results: Among 38,695 adults with fever and sore throat, 2,771 (Cohort 1) had a confirmed respiratory viral infection, while 35,924 (Cohort 2) did not. Patients with a respiratory viral infection were significantly less likely to test positive for GAS pharyngitis than those without a viral infection (17% vs 39%, RR=0.44, 95% CI 0.39–0.48, p <0.001), indicating a 51% lower likelihood of GAS detection. In the subgroup analysis, patients with COVID-19 over the past five years were 55% less likely to test positive for GAS compared to those without COVID-19 (17% vs 39%, RR=0.45, 95% CI 0.39–0.51, p <0.001).

Conclusion: Adults with fever and sore throat with concurrent respiratory viral infections had a significantly lower likelihood of GAS pharyngitis compared to those without viral infections, though the observed rates were higher than previously reported. These findings highlight the importance of strep and viral testing in the diagnostic evaluation of adult pharyngitis and may have implications for clinical decisionmaking regarding antibiotic stewardship.

No, authors do not have interests to disclose

299 Host-Protein Test in Routine Emergency Department Practice: Impact on Antibiotic Prescription, Admission, and Emergency Department Return

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Study Objectives: Differentiating between bacterial and viral infections remains a challenge in emergency department (ED) settings, leading to sub-optimal patient management. MeMed BV® (MMBV) is an FDA-cleared host-protein test that generates a score distinguishing bacterial (or bacterial co-infection) from viral (or other non-bacterial) infections, with a sensitivity and specificity of over 90%. This study assesses MMBV's integration into routine care across two time periods by comparing rates of antibiotic prescribing, hospital admission and return visits.

Methods: A pragmatic real-world study was conducted at Maimonides Medical Center's emergency department. Adult patients were included if they had a fever within the past week, a symptom consistent with acute infection and had both a blood culture and MMBV test ordered at the clinician's discretion. Data were analyzed for two time periods: March–December 2022 (Period 1) and March–December 2023 (Period 2). Clinicians were educated that MMBV scores <35 indicate a viral (or other non-bacterial) infection, 35≤scores≤65 are considered equivocal, and scores >65 indicate a bacterial infection (or co-infection). Adherence to MMBV was defined as avoiding antibiotic prescription for patients with a viral MMBV score and prescribing antibiotics for those with a bacterial MMBV score. Rates of adherence, antibiotic prescription, hospital admission and return ED visits within 7 days were compared across the two time periods and per MMBV result.

Results: A total of 540 adult patients were included in the comparative analysis (302 in Period 1 and 238 in Period 2). Demographics and clinical characteristics were comparable between the two periods. Adherence to MMBV improved from 73.3% in Period 1 to 87.4% in Period 2 (p = 0.0002). There were no significant changes overall in rates of antibiotic prescription (90.4% in Period 1 vs 89.5% in Period 2; p=0.773), hospital admission (86.4% vs 84.9%; p=0.622), or ED return visits within 7 days (8.6% vs 8.8%; p=0.99). Among patients with viral MMBV results (n=74 period 1, n=37 period 2), adherence to MMBV test results increased (18.9% vs 43.2%; p=0.0068), and both antibiotic prescription rates (81.1% vs 56.8%; p=0.011) and hospital admission rates (78.4% vs 56.8%; p=0.026) decreased. There were no significant changes in ED return visits within 7 days (4.1% vs 8.1%; p=0.398). Among patients with bacterial MMBV results (n=196 period 1, n=170 period 2), adherence was high across both periods (93.9% vs 97.1%; p=0.213). There were no significant changes in rates of antibiotic prescription (93.9% vs 97.1%; p=0.213), hospital admission (89.8% vs 91.8%; p=0.590) or ED return visits within 7 days (10.2% vs 7.6%; p=0.466).

Conclusion: MMBV adherence is associated with optimized antibiotic and disposition decisionmaking without compromising patient outcomes.

Yes, authors have interests to disclose

Disclosure: MeMed, Tirat Carmel, Israel

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300 Prevalence and Screening Outcomes in a Psychiatric Emergency Department for HCV, HBV, and HIV

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Study Objectives: Despite wide availability of hepatitis C (HCV), hepatitis B (HBV), and human immunodeficiency virus (HIV) treatment, significant barriers still exist in screening and continuity of care for these disease states. The UK Emergency Psychiatric Assessment, Treatment, and Healing (EmPATH) emergency department (ED) is an alternative to a traditional ED providing a calming environment for patients presenting with psychiatric distress. Prior literature has observed increased prevalence of HCV, HIV, and HBV in individuals with serious mental illness, with estimates of a 3- to 11-fold increase in HCV risk relative to reference populations. Subsequently, psychiatric EDs are

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likely to serve a patient population at high risk for these disease states, making routine screening crucial. This study is one of the first to screen and evaluate the prevalence of HCV, HIV, and HBV in a psychiatric ED patient population.

Methods: This retrospective, observational study examined the prevalence of HBV, HCV, and HIV in patients who presented to the UK EmPATH ED. A non-targeted screening protocol for HBV, HCV, and HIV was implemented to screen all patients undergoing laboratory studies who had no documented negative result for these diagnoses in the year preceding their encounter. Additionally, screenings are not performed in patients who decline consent or at provider discretion. All patients who presented to UK EmPATH post-implementation (1/13/2025 – 3/25/2025) were included in the study analysis. Demographic data and laboratory results were collected from the electronic medical record. Significant differences in demographic attributes between patients with HCV antibody (HCV Ab) positivity as compared to negative or unscreened patients were assessed with the Mann Whitney U test for continuous variables, and the Pearson's chi square or Fischer's exact test as appropriate for categorical variables. The number and percentage of patients screened and testing positive for HBV, HCV, and HIV are reported in aggregate, with positive patients further classified as either previously diagnosed or newly identified at the encounter.

Results: 760 patients were seen in the ED and 294 (38.7%) were screened for HCV. 86 (29.3%) patients were HCV Ab positive, of which 49 (57%) were HCV RNA positive, the majority of which (n=44, 87.8%) were previously diagnosed. 316 (41.6%) were screened for HIV, with 7 (2.4%) testing positive for HIV, 2 (28.6%) being new diagnoses. 313 (41.2%) were screened for HBV and 4 (1.3%) tested positive for HBV, all as previous diagnoses. The median age of HCV Ab positive patients was higher compared to negative or unscreened patients (40 vs 35 years, p=0.0002) and HCV Ab positive patients more frequently had a Medicaid payor (n=25, 29.1% vs n=110, 16.3%).

Conclusion: Observed HBV, HCV, and HIV positivity rates were high in a psychiatric ED, justifying non-targeted or universal screening programs in this setting. Further, most diagnoses were known prior to admission, suggesting difficulty with linking this patient population to treatment. Treatment programs focusing on effective coordination of post-discharge care are needed.

Table 1. Demographics by HCV Antibody Positivity

Attribute		HCV Antibody Positive (n = 86)	HCV Antibody Negative or Unscreened (n = 674)	p-value
Age				
	Mean (SD)	42.4 (12.1)	37.6 (15.5)	
	Median (IQR)	40 (14)	35 (22)	0.0002*
	Range	20 - 82	18 - 93	
Sex				
	Female	34 (44.2%)	336 (49.9%)	0.3223
	Male	48 (55.8%)	338 (50.1%)	
Gender				
	Female	37 (43%)	329 (48.8%)	0.5755
	Male	49 (57%)	329 (48.8%)	
	Non-Binary	0	7 (1%)	
	Transgender Female	0	8 (1.2%)	
	Transgender Male	0	1 (0.2%)	
Race				
	American Indian or Alaskan Native	0	2 (0.3%)	0.1185
	Asian	0	5 (0.7%)	
	Black or African American	5 (5.8%)	108 (16%)	
	Native Hawaiian or Other	0	1 (0.2%)	
	Other/Unknown	1 (1.2%)	13 (1.9%)	
	White	80 (93%)	545 (80.9%)	
Ethnicity				
	Hispanic, Latino/a or Spanish origin	1 (1.2%)	23 (3.4%)	0.7198
	Not Hispanic, Latino/a or Spanish origin	83 (96.5%)	636 (94.4%)	
	Unknown	2 (2.3%)	15 (2.2%)	
Payor				
	Commercial	2 (2.3%)	40 (5.9%)	0.0272
	Medicaid	25 (29.1%)	110 (16.3%)	
	Medicare	6 (7%)	46 (6.8%)	
	Self-Pay/Other	53 (61.6%)	478 (70.9%)	

HCV = hepatitis C virus; IQR = interquartile range; SD = standard deviation. Continuous variables assessed for significant differences with the Mann Whitney U test, while categorical variables assessed using Pearson's chi square or Fischer's exact test as appropriate.

Table 2. Results of non-targeted screening

Attribute	Patients (n = 760)
HCV	
Screened for HCV	294 (38.68%)
HCV Ab Positive (% of screened)	86 (29.3%)
HCV RNA Positivity (% HCV Ab positive)	49 (57%)
HCV RNA Positive Pre-Encounter (% HCV RNA positive)	43 (87.8%)
New HCV RNA Positive at Encounter (% HCV RNA positive)	6 (12.2%)
HIV	
Screened for HIV	316 (41.6%)
HIV Positive (% screened)	7 (2.4%)
HIV Positive Pre-Encounter (% positive)	5 (71.4%)
New HIV Positive at Encounter (% positive)	2 (28.6%)
HBV	
Screened for HBV	313 (41.2%)
HBV Positive (% screened)	4 (1.3%)
HBV Positive Pre-Encounter (% positive)	4 (100%)
New HBV Positive at encounter	0

Ab = antibody; HBV = hepatitis B virus; HCV = hepatitis C virus; HIV = human immunodeficiency virus; RNA = ribonucleic acid.

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Research Forum Abstracts

301 A Content Analysis of Alcohol Consumption Trends Among Youth Using Social Media

Lindemann E, Bartkowiak C, King D, Ulrich E, Steward S, Ouellette L, Lewis B, Jones J, Dean L/Michigan State University College of Human Medicine, Grand Rapids, Michigan

Study Objectives: Social platforms, such as video-sharing websites, offer a venue for teens and young adults to openly share their experiences, ask questions, and express their thoughts about various drugs. Our objective was to characterize the content and popularity of dangerous trends involved in alcohol consumption on YouTube in 2025.

Methods: This is a retrospective content analysis study. Using YouTube's search engine, we identified videos using 48 specific terms relating to hazardous alcohol consumption. Videos were viewed between January and March 2025. Key quantitative and qualitative descriptive variables included the number of views, participants, and the technique used to consume alcohol. The content and quality of the videos were evaluated using the global quality score (GQS) and reliability score (DISCERN tool). The scientific claims made by the videos were classified as substantiated or unsubstantiated using the opinions of two toxicologists. Descriptive statistics and frequency tables were used to describe research findings. Interrater reliability was determined using the Kappa score.

Results: During the study period, 278 YouTube videos were analyzed describing 14 different methods of consuming alcohol. Some of these are harmless, others are innovative, but most are hazardous. The more dangerous practices described were alcohol inhalation, alcohol enemas, vodka eyeballing, drunkorexia, funneling, drinking hand sanitizer, marijuana moonshine, and alcohol-soaked tampons. Only 3 of these videos (1%) posted trigger warnings intended to warn users that website content is inappropriate for some users. These videos were collectively viewed 75 million times on YouTube; mean number of views per video was 269,784. The mean of the GQS values and reliability score was 2.1 $\pm$ 1.0 and 1.3 $\pm$ 1.5, respectively. These videos were marked as "liked" a total of 5 million times. In total, 722 participants or observers were identified in the videos; the majority were male (73%), Caucasian (69%), and between the ages of 21 to 25 years (49%). Ninety-one (33%) videos had informational content; however, most (71%) scientific statements contradicted the toxicology literature. Interrater reliability calculated across 30 videos was excellent (Kappa = 0.84).

Conclusions: Knowledge about what people view on social media may help healthcare practitioners better understand their patients' informational databanks, stay informed about the latest trends in alcohol abuse, and position themselves as more credible resources to their patients. Campaigns that counteract harmful trends or promote safe drinking practices could utilize the same platforms to reach their audience.

No, authors do not have interests to disclose

302 Effectiveness of an Emergency Department Pulmonary Embolism Pathway in Reducing Admissions: A Multicenter Analysis

Simon E, Baskin B, Pratt I, Krizo J, Chada H, Muir M, Mangira C, Fertel B/Cleveland Clinic, Akron, Ohio

Study Objectives: Pulmonary embolism (PE) a significant cause of morbidity and mortality, which frequently results in hospital admission. The heterogeneity of illness associated with PE can lead to clinical uncertainty and reflex admission, despite recommendations for safe discharge. We created an emergency department (ED) PE pathway in a large integrated system across practice settings (academic, community (including rural), and freestanding). The primary objective of this study was to determine if the implementation of a standardized PE treatment protocol would increase the number of discharges from the ED. A secondary objective was to determine the safety of discharging patients under this treatment protocol. Safety was assessed by evaluating return to the ED within 72 hours and hospital admission within 30 days of a patient's index visit.

Methods: This was a retrospective pre and post study of all adult patients who presented to one of 20 EDs from January 1, 2019 to June 30, 2024, with a primary diagnosis of PE. Patients were excluded if they expired in the ED or presented within the 12-month washout period. Data abstracted from the electronic medical record included demographic variables, comorbidities, ED type, and ED disposition. Categorical variables are described using frequencies and percentages and p-values obtained from Pearson Chi-square or Fisher's exact tests where appropriate. Normally distributed continuous variables are described using means and standard deviations and p-values obtained from student's t-tests. Non-normally distributed continuous variables are described using medians and interquartile range with p-values from Wilcoxon rank sum tests for two group comparisons. Multiple logistic regression was used to assess the impact of the PE pathway on admission and discharge rates, while controlling for confounders.

Results: There were 6,400 patients included in the analysis. The median age was 62 years, 51% were female and 69% were White. ED discharge rates were 48% higher post pathway as compared to pre pathway implementation, [AOR 1.48 95 % (CI: 1.24 - 1.76)]. Admission rates were 30% lower post pathway as compared to pre pathway implementation, [AOR 0.70, (95 % CI: 0.59 - 0.83)]. There was no difference in the number of repeat ED visits within 72 hours [AOR 0.73 (95% CI: 0.41 - 1.30)] p=0.28 or 30-day hospital admissions 0.76 (0.44 - 1.33) p = 0.34 between pre and post pathway implementation groups after the index ED visit.

Conclusion: The implementation of an ED based PE pathway can safely allow for the discharge of appropriate patients with pulmonary embolism across diverse facilities. We found ED discharges were 48% higher post pathway implementation without an increase in 72 hours return visits or 30-day hospital admissions after the index ED visit.

No, authors do not have interests to disclose

303 Process to Improve Door-In-Door-Out Time for STEMI Patients at a Hospital Without PCI Capability

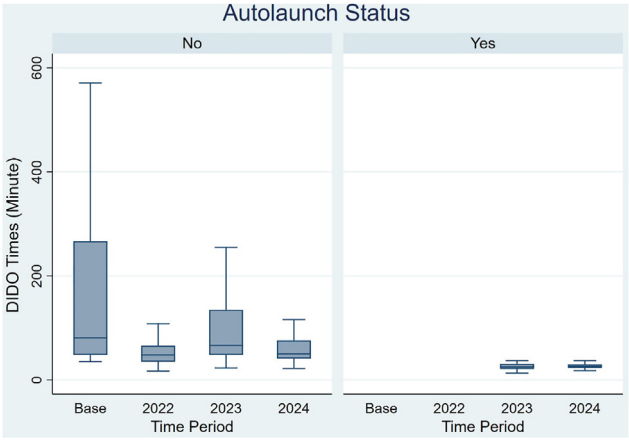
Power E, Karfunkle B, Reynolds C, Kayani W, Eapen S, Cruz M, Jurisprudencia-Ampig J, Davis A, Susik-Floyd A, Zaidi H/McGovern Medical School at the University of Texas Health Sciences Center - Houston, Houston, Texas

Study Objective: Timely transfer of ST-elevation myocardial infarction (STEMI) patients from non-percutaneous coronary intervention (PCI) hospitals to PCI-capable centers is critical for improving outcomes. The American Heart Association (AHA) recommends a door-in-door-out (DIDO) time of $\leq$30 minutes, yet national compliance remains low. At Harris Health, no STEMI patients met this benchmark prior to 2022. We implemented a quality improvement (QI) initiative, including an "Autolaunch" process, to expedite STEMI transfers.

Methods: From September 2022 to December 2022, we introduced the STEMI Autolaunch protocol for hemodynamically stable patients with unequivocal STEMI. This process included rapid emergency medical services (EMS) activation, direct catheterization lab transfer, and pre-arrival cardiologist notification. Data from 2021-2024 were analyzed using Kruskal-Wallis and Wilcoxon Rank-Sum tests to assess DIDO times pre- and post-intervention.

Results: Before the intervention, median DIDO time was 81 minutes (IQR: 48-267) with 0% compliance. Post-implementation, median DIDO decreased to 41 minutes (IQR: 26-67), with 39.5% of patients meeting the $\leq$30-minute goal. In Autolaunch cases (n=35), median DIDO was 26 minutes (IQR: 22-30.51), with 74.3% compliance.

Conclusion: The STEMI Autolaunch process significantly improved DIDO times and adherence to AHA guidelines. This protocolized approach may serve as a model for optimizing STEMI transfer efficiency and improving patient outcomes.



No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

304 Improving Pediatric Emergency Department Throughput and Provider Satisfaction With a Novel Waiting Room Workflow

Kim E, Perry R, Go J, Singh M, Straube S, Cowell C, Chen C/UCSF, San Francisco, California

Introduction: Like many emergency departments (EDs) in the U.S., San Francisco's county hospital (Zuckerberg San Francisco General Hospital, ZSFGH) is suffering from a boarding crisis and staffing challenges. At ZSFGH, pediatric patients often present with lower acuity concerns, leading to higher left without being seen rates and longer waiting times due to state-specific nursing ratio limitations, which requires patients receiving medications to be roomed. These issues prompted a quality improvement initiative to pilot a new workflow to expedite care.

Study Objectives: Our objective was to assess the impact of this pilot on throughput metrics and provider experience. Our goal for this pilot was to decrease the length of stay (LOS) by 15%, door-to-provider times (DTP) by 15%, and left-without-being-seen rates (LWBS) by 15% for all pediatric patients presenting to the ZSFGH ED.

Methods: The workflow allowed pediatric emergency physicians (PEM) to evaluate and discharge children (0-20 yrs) from the waiting room (WR) without nursingsupport. PEM could independently administer ≥1 of an approved medication (acetaminophen, ibuprofen, dexamethasone, ondansetron (ODT), albuterol MDI) from a locked cart in the process. Length of stay (LOS), door-to-provider times (DTP) and left-without-being-seen rates (LWBS) during the pilot (Sept 2023-Apr 2024) were compared to the same months in the previous season. During the pilot, the LOS of Emergency Severity Index (ESI) level 3 and 4 patients that completed the workflow were directly compared to ESI 3/4 that did not. Seven PEM and 4 nurses were interviewed after the pilot.

Results: Interviews highlighted 4 key themes: (1) Increased efficiency and flexibility, allowing providers to "get things done" faster; (2) Necessity of the workflow revealed the de-prioritization of pediatric patients and infrastructure limitations; (3) Workflow is easy to use but there are concerns about potential errors; and (4) Increased teamwork, but physician concern about taking on new responsibilities. T-tests of pre-pilot vs pilot did not show statistical difference but trends of a decrease in LWBS rates (mean -1.3%; **Figure 1**) and DTP times (mean -7.5 min; **Figure 2**) were seen. No difference was seen in overall LOS across the time periods. However during the pilot period, the average LOS of ESI 3 and 4 patients who completed the workflow (147.68 min) was significantly shorter than those who did not (235.78 min, $p = 0.0027$; **Figure 3**). Months with the highest ED volume showed the largest absolute difference. Overall, we were able to surpass our goal of decreasing the average DTP time and the LWBS rate for all pediatric patients by 15%. Although we did not meet our goal of decreasing the average LOS for all pediatric patients, we trended towards doing so.

Conclusions: A new, physician-ledWRworkflow for pediatricEDpatients that included an ability to give medications without nursingsupportimproved care efficiency and flexibility while also highlighting systemic issues. Decreased LOS during the pilot, and an overall trend of decreased DTP and LWBS when compared to the previous yearsupportimproved patient throughput, especially in months where theEDvolume was the highest. Successive PDSA cycles will focus on continued workflow refinement tosupportsustainable improvements and provider satisfaction.

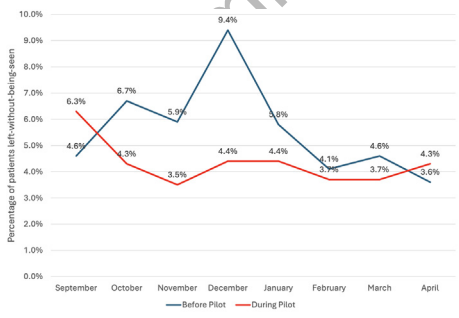


Figure 1.
Average Left-Without-Being-Seen Rates (LWBS) Before and During the Workflow Pilot

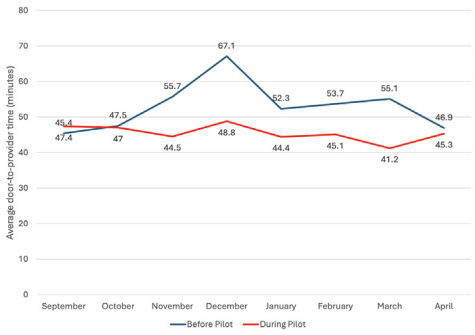


Figure 2. Average Door-to-Provider Times (DPT) Before and During the Workflow Pilot

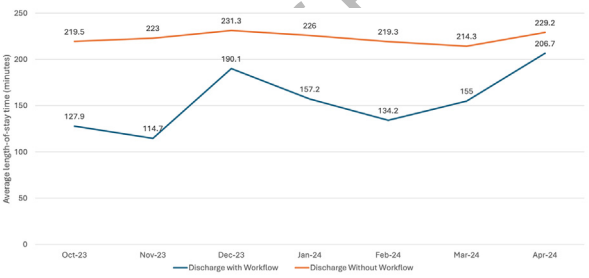


Figure 3. Average Length-of-Stay Times (LOS) During the Pilot for ESI 3 and 4 with and without Workflow

No, authors do not have interests to disclose

305 Opt-Out Human Immunodeficiency Virus Testing in Pediatric Emergencies Links Adolescents to Care

Middlebrooks L, Francois S, Cameron M, Bryant J, Wynn B, Kandaswamy S, Orenstein E, Camacho-Gonzalez A, Morris C, Griffiths M/Emory University School of Medicine, Atlanta, Georgia

Study Objective: The Centers for Disease Control and Prevention recommends human immunodeficiency virus (HIV) screening for all patients ≥13 years. Parts of the southeast have HIV positive rates at 8-times the national average. Adolescents are the least likely group to know their HIV status and have the lowest rates of linkage to care and viral suppression. A tertiary care children's hospital in the southeast implemented an opt-out HIV testing program in all three of its emergency departments (EDs) for patients ≥13 years undergoing venipuncture for any chief complaint as a first step toward universal opt-out testing. The objective is to increase testing in adolescents leading to earlier HIV diagnosis and linkage to care.

Methods: The hospital's electronic medical record system, EPIC, and its population discovery tool were used to compare HIV testing volumes of 13–24-year-olds, 20 months pre-clinical implementation (November 5, 2021–July 5, 2023) and 20 months post- clinical implementation (July 6, 2023–March 6, 2025). Data for all 3 sites was reviewed and all sites received educational promotion. Results were cross-referenced to determine newly diagnosed adolescents living with HIV (ALHIV) from known positives. The data was compared using descriptive statistics.

Results: A total of 2313 patients were tested pre-implementation, 1,680 (73%) girls and 633 (27%) boys. Nine new ALHIV were identified; 1 male co-infected with syphilis. Mean age (± standard deviation) was 17.4 ± 1.7 and the assignments at birth were 6 males and 3 females. After 20 months of implementation, a total of 4880 patients were tested: 3,209 (66%) girls and 1,671 (34%) boys. Twelve new ALHIV were identified; the mean age was 16 ± 1.7 and the assignments at birth were 9 males, 2 who were co-infected with syphilis, and 3 females. This demonstrates a positivity rate of 0.25% overall but 0.5% in boys tested (1 in 185 boys). All sites received education

for 12, 17 and 20 months. Testing increased by 170%, 92% and 105% respectively. All newly diagnosed cases were linked to care with a median of 4.5 days.

Conclusion: The southeastern region remains a hotspot for new HIV cases. Twelve cases in 20 months, which is equivalent to a positive case every 6.5 weeks, highlights the importance of universal HIV testing of adolescents and reflects a public health crisis. The new initiative more than doubled HIV screening among adolescents and will likely identify ALHIV at an earlier stage of infection, facilitating timely access to medical care. This can lead to improved clinical and immunological outcomes and a reduced risk of secondary transmission

Yes, authors have interests to disclose

Disclosure: Gilead Sciences Inc

Lauren Middlebrooks, Sandy Francois, Melissa Cameron, Jordan Bryant, Mark Griffiths

GrantSupport

Gilead Sciences Inc

Disclosure: Claudia R. Morris, MD, is the inventor or co-inventor of several UCSF-Benioff Children's Hospital Oakland patents that include nutritional supplements, and is an inventor of Emory University School of Medicine patents/patent applications for nutritional supplements for autism/apraxia, coronaviruses, and pain, is a consultant for Roche and CSL Behring, is on the Scientific Advisory Board of TRILITY, is an editor for the sickle cell disease-fever and sickle cell disease-pain web-based reference for UpToDate, and is the Founder and Executive Director for Food as Medicine Therapeutics, LLC.

Claudia R. Morris

Other

Claudia R. Morris, MD, is the inventor or co-inventor of several UCSF-Benioff Children's Hospital Oakland patents that include nutritional supplements, and is an inventor of Emory University School of Medicine patents/patent applications for nutritional supplements for autism/apraxia, coronaviruses, and pain, is a consultant for Roche and CSL Behring, is on the Scientific Advisory Board of TRILITY, is an editor for the sickle cell disease-fever and sickle cell disease-pain web-based reference for UpToDate, and is the Founder and Executive Director for Food as Medicine Therapeutics, LLC.

Disclosure: EWO is co-founder and equity holder in PhraseHealth, a clinical decisionsupportanalytics company. He receives no direct revenue. He has received salarysupportfrom theNational Library of Medicineand National Center for Advancing Translational Science for R41 and R42grantsworking with PhraseHealth.

Evan Orenstein

Other

EWO is co-founder and equity holder in PhraseHealth, a clinical decisionsupportanalytics company. He receives no direct revenue. He has received salarysupportfrom theNational Library of Medicineand National Center for Advancing Translational Science for R41 and R42grantsworking with PhraseHealth.

306 Creation of a Protocol for the Treatment of Adolescent Opioid Use Disorder in the Emergency Department

Sandelich S, Buresh C, Camenga D, Chun T, Change T/Penn State Medical Center, Hershey, Pennsylvania

Study Objectives: The increasing prevalence of opioid use disorder (OUD) and overdose in adolescents has exposed a critical gap in emergency department (ED) management protocols tailored to pediatric populations. Despite the proven efficacy of buprenorphine and the ED's role in low-barrier OUD care, adolescents are rarely initiated on evidence-based treatments. This study aimed to develop expert-informed, consensus-based best practices for the evaluation and treatment of adolescents with OUD, including opioid withdrawal, in ED settings.

Methods: A structured Nominal Group Technique (NGT) was used to convene a multidisciplinary panel of pediatric emergency physicians, toxicologists, addiction specialists, and public health experts from the Pediatric Emergency Care Applied Research Network (PECARN) OUD Interest Group. The process included: (1) problem definition; (2) silent idea generation; (3) clarification and discussion; (4) prioritization and ranking of themes based on importance and feasibility; and (5) consensus development. Thematic domains were identified to structure key recommendations, including screening and treatment initiation, linkage to care, harm reduction, providersupport, and community trust.

Results: 14 Participants identified five foundational domains critical for improving adolescent OUD care in the ED: (1) Screening and Treatment Initiation, emphasizing universal screening and real-time buprenorphine protocols with standardized education for patients and families; (2) Linkage and Transition of Care, highlighting the importance of warm handoffs, outpatient access, and integration with primary care; (3) Harm Reduction and Prevention, including widespread naloxone distribution and overdose education; (4) ProviderSupport, with a focus on addressing stigma and increasing comfort with prescribing buprenorphine; and (5) Community Engagement, acknowledging the role of geographical context, caregiver involvement, and social determinants. Participants emphasized the need for data infrastructure to assess implementation and outcomes and underscored the importance of addressing unique pediatric consent and confidentiality considerations. Consensus was achieved on 22 best practice statements to guide ED care for adolescents with OUD and opioid withdrawal.

Conclusion: This national expert consensus effort produced the first pediatric-specific ED best practice recommendations for the management of OUD and opioid withdrawal in adolescents. These recommendations offer a critical framework for addressing the unique clinical, ethical, and structural challenges of treating youth with OUD in acute care settings. Future work will focus on the development of specific protocols and pilot implementation with evaluation of the proposed practices across diverse ED environments.

No, authors do not have interests to disclose

307 Right Care, Right Patient, Right Time: Reducing Urgent Pediatric ICU Transfers of Emergency Department Admissions

Warchock R, Fahnestock A, Frazier B/Vanderbilt University Medical Center, Nashville, Tennessee

Introduction: Urgent transfers of pediatric patients from acute care units to the intensive care unit (ICU) in less than 24 hours pose potential risks to patient safety, require significant resources, and serve as a key quality indicator for pediatric emergency care. These patients are at high risk for morbidity and mortality, with previous literature finding that 33–49% require a critical intervention within one hour of ICU transfer. A portion of urgent transfers result from the natural progression of illness. Other transfers may result from emergency clinicians underestimating a child's prognostic stability or inadequate processes for reassessment during prolonged boarding. Prompt recognition of pediatric patients at risk for clinical deterioration and ensuring these patients receive the appropriate level of care is essential for delivering high-quality medical care.

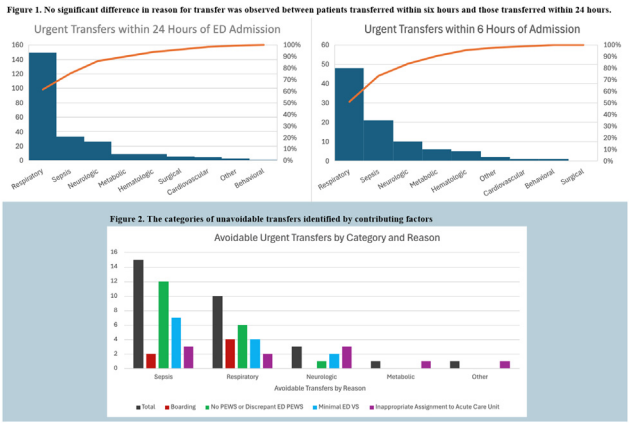
Study Objectives: We characterized early transfers from acute care units to the ICU, identified potentially avoidable transfers, and assessed the utilization impact of completing a Pediatric Early Warning Score (PEWS), a validated tool for identifying clinical deterioration, prior to emergency department (ED) admission to acute care.

Methods: We conducted a retrospective review of transfers from acute care units to the pediatric ICU within 24 hours at a single quaternary pediatric hospital between June 2022 and September 2024. Rapid response events that did not result in ICU transfer were excluded. Descriptive analyses were performed, categorizing transfer reasons by system or condition. Additional variables included the use of PEWS in the ED prior to transfer and the need for critical ICU interventions such as vasopressors, intubation, CPR, or ECMO upon ICU transfer. Transfers were classified as avoidable if the admitting acute care unit lacked the capacity to manage the patient's condition or if rapid clinical deterioration occurred within six hours of admission.

Results: Over a 27-month period, 241 patients were transferred from acute care units to the ICU within 24 hours. The most common reasons for transfer were respiratory distress (62%) and sepsis (14%), with resuscitative needs exceeding the acute care unit's capabilities. There was no significant difference in the reasons for transfer between 6 hours and 24 hours (**Figure 1**). The average time to transfer was approximately nine hours, with 39% of patients transferred within the first six hours. Avoidable transfers were identified in 12% of cases, with an average transfer time of 3 hours. Common contributing factors included lack of ED vital signs prior to transfer, elevated or undocumented PEWS scores prior to admission, and critical laboratory abnormalities (**Figure 2**). PEWS was documented in the ED in 48% of cases. Among patients with sepsis, those without a recorded PEWS in the ED were transferred nearly twice as fast as those with a documented score. No significant difference in mortality was observed between patients transferred within six hours and those transferred within 24 hours.

Conclusions: Urgent transfers from acute care units to the ICU have a large impact on patient safety, as well as hospital resources allocation, and a proportion are avoidable. A recurring theme is the need for reassessment of the patient prior to transfer, particularly when there is a lag between admission request and patient transfer to the floor. Early transfers are an important quality metric for emergency medicine to improve practices of assigning patients to the right clinical setting for continued care. Future quality improvement work will use this data to inform process improvement to reduce avoidable urgent transfer frequency.

Research Embargoed Until Date/Time of Presentation



No, authors do not have interests to disclose

308 Impact of Neighborhood Opportunity on Asthma-Related Emergency Department Visits in Children

Bains S, Wolff M, Katragadda N, Dapaah-Siakwan F/Valley Children's Hospital, Madera, California

Introduction: The Child Opportunity Index (COI) measures the quality of resources and conditions in an area that is needed for safe and healthy child development. Asthma disproportionately affects socioeconomically disadvantaged children, but little is known if COI scores affect asthma exacerbation rates.

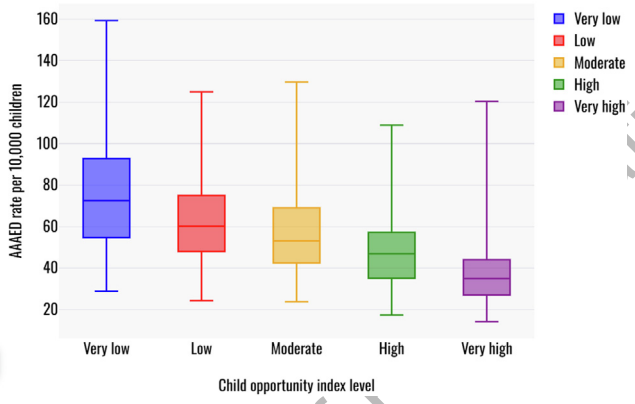
Study Objectives: We examined the association between neighborhood-level opportunity and age-adjusted asthma-related emergency department visit (AAAED) rates in children in California (CA). We hypothesized that children with asthma who live in zip codes with very low COI levels will have a higher AAAED rate compared to those in zip codes with very high COI levels.

Methods: In this retrospective cohort study, we linked the AAAED rate in children for each zip code in CA with the corresponding COI level. We included CA resident children aged 0-17 years with an asthma-related ED visit in the year 2022. We excluded children older than 17, non-California residents, and zip codes lacking linked COIs. The exposure was the zip code-level COI level (very low, low, moderate, high, very high) and the data was obtained from www.diversitydatakids.org. For each zip code, we obtained the overall COI level and the level for each of the 3 domains (social/economic, health/environmental, and educational) of the COI. The outcome was the difference in the AAAED rate between zip-codes with very low and very high COI levels. The outcome measure was the AAAED rate, expressed as per 10,000 children with 95% confidence intervals (CI). A negative impact by COI levels was characterized by a higher AAAED rate in zip codes with very low COI compared with those with very high COI and non-overlapping 95% CIs. We used negative binomial regression to estimate the rate ratio (RR) and associated CIs by comparing AAAED rates between zip codes with very low and very high COI levels; we considered RRs with 95% CIs that did not cross 1 to be statistically significant.

Results: We included 871 California zip codes in this analysis. The distribution of the zip codes per COI level was 21.6% very low, 18.5% low, 17.7% moderate, 18.3% high, and 23.8% very high. In 2022, 46,350 asthma-related emergency department visits occurred in these zip codes. Among these, the number of emergency department visits for asthma increased with decreasing COI level [(very high: 5,452 (11.8%); high: 6,176 (13.3%); moderate: 7,363 (15.9%), low: 11,036 (23.8%), and very low: 16,323 (35.2%)]. As shown in Figure 1, the AAAED rate decreased significantly in a stepwise manner from zip codes with very low COI (75.96, CI: 72.04-79.82) to those with very high COI (37.93, CI: 35.80-40.11). Thus, very low COI level was associated with an excess of 38.03 ED (CI: 36.2 - 39.7) visits compared to very high COI level. Compared to zip codes with very high COI levels, those with very low COI levels were associated with an increased AAAED rate (RR 3.29; CI: 2.67 – 4.03). The trend was similar for the education (RR 1.78; CI: 1.23-2.58) and socioeconomic domains (RR 1.87; CI: 1.23-2.84) but not the health and environment domain (RR 0.89; CI: 0.63-1.28) of the COI.

Conclusion: Zip codes with very low COI levels have a higher AAAED visit rate compared to those with very high COI levels. Increased resource allocation and policies targeted at improving the education and socioeconomic profile of counties with very low COI levels can potentially decrease asthma-related ED visits.

Figure 1. Effect of zipcode-level child oportunity index on asthma-related emergency department visits in children in California



No, authors do not have interests to disclose

309 Teaching an Adapted Pediatric Advanced Life Support Course in a Low-Resource Setting

Langer S, Pearson A, Oad S, Westra C, Zvonar V, Palladino A, Avrith N, Sunderwirth R, Tuyishime E, Bowling M/Icahn School of Medicine at Mount Sinai, New York, New York

Study Objectives: The Initiative for MedicalEquityandGlobal Health(IMEGH) Pediatric Advanced LifeSupport(PALS) course was developed for low-resource settings as a more applicable, affordable, and feasible alternative to the often cost-prohibitive and logistically difficultAmerican Heart Association(AHA) course. The objective was to implement and assess the impact of the IMEGH PALS course on participants' pre- and post-course pediatric resuscitation knowledge and self-confidence scores.

Methods: This was a survey-based study of medical professionals who voluntarily enrolled in the IMEGH PALS Course at the 2024 African Conference of Emergency Medicine (AfCEM) in Gaborone, Botswana. This study received exempt status from the Institutional Review Boards of both the Icahn School of Medicine at Mount Sinai and the University of Botswana. Our day-long course included several low-fidelity simulated cases, lectures, instructional videos, and skills stations. A 10-question multiple-choice question knowledge test and a 24-question 6-point Likert scale-based self-confidence assessment were administered before and immediately after the course. The difference in mean pre- and post-course knowledge results was analyzed using the parametric paired t-test. The nonparametric Wilcoxon signed rank test with reduced sample procedure was utilized to assess differences in median self-confidence scores. Feedback was analyzed via thematic analysis. Data was analyzed using SAS OnDemand for Academics.

Results: A total of 36 participants attended the IMEGH course. 34 participants completed demographic data and both the pre- and post-course knowledge tests. 18 (53%) participants were resident physicians, 6 (18%) medical officers, 6 (18%) nurses and 4 (12%) attending physicians. 28 (82%) of attendees had never taken a PALS course previously. Mean knowledge improved significantly after course completion from 75.29% (CI 95%: 68.10%-81.68%) to 90% (CI 95%: 86.36%-93.64%). 32 participants completed both pre- and post-course self-confidence surveys.Table 1shows a statistically significant improvement in median self-confidence scores observed for all 24 domains assessed ($p < 0.05$). Participant feedback highlighted the course strengths and opportunities for improvement.

Conclusion: Despite the fact that 71% of our course participants work at referral centers, only 18%, or 6 participants had previously participated in a PALS course, highlighting the urgency for more structured training programs. Mean knowledge and self-confidence scores improved significantly after course completion. Quantitative results alsosupportedthe success of the program, emphasizing the importance of a structured approach to the care of critically ill children, specifically noting the importance of a standardized team approach and the role of pediatric focused simulation programs. Our resultssupportthe aim that PALS training, including simulation and hands-on learning, can and should be integrated into medical education in low-resource settings, and the IMEGH model offers that opportunity. Low-fidelity simulation is a more accessible option when cost prohibits high-fidelity simulation and is still an effective educational tool. Future directions include long term retention assessments and creating a train-the trainer course to promote sustainability.

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Table 1- Pre- and post-training self-confidence scores, Wilcoxon signed rank test with reduced sample procedure

	Nonreduced Sample				Reduced sample procedure*					
Rate your confidence in:	N	Pre-course Median	Post-course Median	Difference in medians	N	Pre-course Median	Post-course Median	Difference in medians	W	P value
Identifying an ill-appearing pediatric patient	32	5	6	1	20	5	6	1	105	<0.0001
Identifying abnormal vital signs for age	32	5	5.5	0	16	5	6	1	62.5	0.0003
Use of Broselow tape	32	2	5	2.5	29	2	5	3	217.5	<0.0001
Obtaining a history from a parent or caretaker	32	5	6	0.5	18	5	6	1	71.5	0.0007
Determining differential diagnosis for pediatric respiratory distress	32	5	5	1	21	4	6	1	109	<0.0001
Pediatric IV placement	32	5	6	0.5	16	5	6	1	68	<0.0001
Pediatric IO placement	32	4	5.5	1	23	4	5	2	138	<0.0001
Administration of proper fluid resuscitation	32	5	6	1	18	4	6	1	79.5	<0.0001
Starting non-invasive oxygen support for a pediatric patient	32	5	6	0	15	5	6	1	40.5	0.0184
Identifying need for an advanced airway	32	5	6	1	18	4.5	6	1	85.5	<0.0001
Pediatric intubation/ advanced airway placement	32	5	6	1	21	3	6	2	115.5	<0.0001
Calling for higher level of supportive and transition of care	32	5	6	1	18	4.5	6	1	78.5	0.0001
Infant / neonate positive pressure ventilation	32	4	5	1	22	3	5	1.5	114.5	<0.0001
Infant/ neonate IO placement	32	4	5.5	1	27	4	5	1	189	<0.0001
Infant/ neonatal intubation/advanced airway placement	32	4.5	6	1	21	4	6	2	110.5	<0.0001
Infant CPR	32	5	6	1	22	4	6	1	108.5	<0.0001
Obtaining and interpreting a pediatric EKG	32	3.5	5	1.5	27	3	5	2	183	<0.0001
Obtain and interpret blood glucose level	32	5	6	1	21	5	6	1	90	0.0001
Obtain and interpret blood tests for a pediatric patient	32	5	5.5	0.5	17	4	6	1	70.5	0.0002
Administer dextrose containing fluid to in a pediatric patient	32	5	6	1	22	4.5	6	1	111.5	<0.0001
Use of cardioversion for arrhythmia	32	2	5	2	27	2	5	3	189	<0.0001
Use of defibrillation for arrhythmia	32	2	5	2	23	2	5	3	138	<0.0001
Identification of compensated vs uncompensated shock	32	4	6	1	28	4	6	1	203	<0.0001
Use of closed-loop communication	32	4	6	2	28	4	6	2	197.5	<0.0001

Differences in pre- and post-course self-confidence scores were analyzed using Wilcoxon signed rank test (W) with reduced sample procedure such that data points where the difference between paired observations is zero were removed.

N* is reduced sample size per self-confidence domain.

No, authors do not have interests to disclose

310 Language Barriers and Pain Management for Children With Long Bone Fractures

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Study Objectives: Timely and adequate administration of analgesia for pediatric patients presenting with pain is critical. Research has shown that oligoanalgesia is associated with increased anxiety, somatic symptoms, and increased parental distress. Several studies have examined disparities in pain management of children with fractures and have identified various potential factors including race/ethnicity. The purpose of this study is to understand the association between English proficiency and analgesia among pediatric patients with long bone fractures who present to the emergency department (ED).

Methods: This was a retrospective multicenter observational investigation of children aged 18 years and younger with diagnosed long bone fractures (fracture of radius/ulna, humerus, femur, or tibia/fibula) between 2020 and 2024. The study was performed in a regional health system including six hospitals, one of which is an academic pediatric trauma center. The cohort was stratified into primary-English speaking and non-English speaking, as coded in the EMR and identified as "preferred language". If a child and parent had different primary language preferences, the parents' language was considered the primary language. We recorded the administration of all pain medication administered during the ED encounter. We also recorded the time elapsed from time of arrival to first medication administered.

Results: There were 840 children included in this study. The median age was 9 (IQR 5-13), and 546 (65%) were male. The mechanism of injury for the majority was a fall (580, 70%). The primary language was English for 657 (78%). The most common non-English language was Spanish (171/183, 94%). The mean time from arrival to medication administration was 73.4 minutes for the English-speaking group and was 80.2 minutes for the non-English speaking group (difference 6.8%, 95% CI -2 to 15 minutes). The rate of opioid administration (IV or oral) during the ED encounter for the English-speaking group was 166 (25%) and 33 (18%) for the non-English speaking group (difference 7%, 95% CI 1-13%). The rate of IV opioid administration at any point was 145 (22%) for the English-speaking group and 32 (17%) for the non-English speaking group (difference 5%, 95% CI =-11 to 17%). The rate of oral opioid administration at any point was 32 (5%) for the English-speaking group and 3 (2%) for the non-English speaking group (difference 3%, 95% CI 1-6%). The rate of discharge opioid prescriptions for the English-speaking group was 72 (11%) and 11 (6%) for the non-English speaking group (difference 5%, 95% CI 1-9%).

Conclusions: While there was no significant difference between English speaking and non-English speaking children in regards to time until pain medicine was administered, there was a modest yet significant increase in the rate of opioid analgesia, as well as for opioid discharge prescriptions. This highlights an important potential disparity in the treatment of long bone fractures among pediatric patients.

No, authors do not have interests to disclose

311 Electronic Medical Record Workplace Violence (WPV) Documentation and Automation Increases WPV Capture

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Study Objectives: Healthcare workers, particularly those in the emergency department (ED), experience high rates of workplace violence (WPV). However, WPV remains vastly underreported due to multiple barriers, including complex and time-intensive reporting systems. This study aimed to (1) determine whether implementation of an inline WPV tool in the electronic medical record (EMR) would improve capture of violent events across our health system and (2) assess whether an automated post-event email with institutional reporting instructions would lead to an increase in formal WPV report completion.

Methods: Prospective cohort study between 9/30/2024-12/30/2024 across an 18 ED, multistate Midwest Health System, including critical access (CA; n = 10), mid-size (n = 4), regional (n = 3), and an academic tertiary referral center (n = 1). During the study period, clinicians and nursing staff documented WPV incidents during patient encounters using a mandatory yes/no checkbox. If 'yes' was selected, additional flowsheet questions clarifying the type(s) of violence were encouraged, but optional. Staff indicating a violent event in the EMR received an automated follow-up email with instructions and hyperlinks for non-EMR institutional WPV reporting systems [patient & visitor conduct (PVC) and global security] as well as employee wellness resources. WPV events indicated through the EMR checkbox were compared to events reported through these non-EMR systems during the study period and the year prior (9/30/2023-12/30/2023). WPV was compared using risk differences (RD).

Results: A total of 741 violent events were identified by staff out of 90,446 patient encounters (0.82 violent events per 100 ED patient encounters overall). Among the 667 (90.0%) violent events with additional flowsheet questions completed, 547 (82.0%) involved non-physical violence, 104 (15.6%) involved physical violence, and 67 (10.0%) involved a family/visitor, with ability to select more than one option. Violent events were indicated by 425 (57.4%) nurses/clerks, followed by 316 (42.6%) of clinicians. Rates of violence differed between ED settings (0.46 violent events per 100 ED encounters in CA; 0.51 violent events per 100 ED encounters in mid-size; 0.82 per 100 ED encounters in tertiary; and 0.88 per 100 ED encounters in regional). Regional and tertiary EDs had increased WPV compared to CA and mid-size EDs (0.85 vs 0.48 events per 100 encounters, RD = 0.37, 95% CI: 0.27-0.48, $p < 0.001$). A total of 110 and 215 violent events were reported to PVC and Global Security, respectively, during the study period (0.36 reports per 100 ED encounters in 2024), compared to 124 and 146, respectively, in 2023 (0.30 reports per 100 ED encounters; RD = 0.06, 95% CI: 0.01-0.10, p = 0.033).

Conclusion: Implementing inline WPV documentation within the EMR increased capturing of violent events against healthcare staff compared to existing systems. Automated emails with reporting instructions increased compliance with institutional WPV reporting. Future investigations will focus on rates of WPV reporting now that EMR documentation is optional.

No, authors do not have interests to disclose

312 Increasing Donation Through Early Alert to LifeSource: Project IDEAL

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Study Objectives: Organ donation referral rates from emergency departments (EDs) remains low, often due to missed referral opportunities. This project aimed to increase organ donation at a single academic medical center (Mayo Clinic, Rochester) by implementing a streamlined referral process to LifeSource, the regional organ procurement organization (OPO).

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Methods: We utilized the DMAIC (Define, Measure, Analyze, Improve, Control) quality improvement framework. The intervention required ED staff to refer *all* intubated patients to LifeSource, regardless of prognosis or location of intubation. Emergency physicians and APPs initiated referrals, CTAs contacted LifeSource for referral numbers, and RNs documented referral numbers in the chart. LifeSource then assessed donor eligibility. Key performance indicators included number of referrals, number of referrals with donation potential, rate of referrals with donation potential, approach rate of potential donors, number of successful donations, and staff compliance.

Results: During the 12-month pre-implementation period in 2023, there were 21 ED referrals with zero organ donations. In the roughly 3.5 months following implementation (December 1, 2024 – March 10, 2025), five patients went on to successful organ donation following successful early referrals to LifeSource. These cases represented 100% of Mayo Clinic Rochester's donations during that time. Of all referrals, 25% were deemed to be potential donors. Due to the early alerts, 100% of potential donors were able to be approached by LifeSource. Staff compliance with the referral protocol remained high.

Conclusion: Project IDEAL demonstrates that a universal intubation-based referral trigger can dramatically increase organ donation from the ED. This low-burden intervention significantly improved referral outcomes and offers a scalable model for other institutions aiming to optimize organ donation processes.

No, authors do not have interests to disclose

313 Defining Diagnostic Excellence for the Emergency Department: Results from a Modified RAND/UCLA Panel

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Study Objectives: Our objective was to construct a definition of diagnostic excellence to guide diagnostic care, research, and quality improvement activities in the emergency department (ED) setting.

Methods: We used a modified RAND/UCLA panel method, which included three basic steps. In step 1, we identified conceptual components that could be included in a definition of diagnostic excellence. We searched peer-reviewed and gray literature using prespecified search terms to identify existing definitions of diagnostic error, diagnostic excellence, and related terms. Then, from each definition, we extracted embedded conceptual components, such as accuracy, timeliness, and patient-centeredness. Step 2 involved recruiting 11 multidisciplinary expert panelists with experience delivering care in the ED setting or providing care that interfaces with the ED. Potential panelists were nominated by specialty societies and interviewed by the research team to select a group that was diverse in professional role, clinical practice setting, geography, and personal exposure to diagnostic error. In step 3, we asked panelists to rate the conceptual components on dimensions of validity, relevance to the ED setting, and overall importance using a 1-to-9 scale (with 9 being the highest rating). The panel performed an initial round of asynchronous ratings via REDCap, met virtually to discuss defining characteristics of conceptual components and rationales for their ratings, and then performed final ratings. When a conceptual component had a median final rating of >=7 on all three dimensions, without disagreement, we selected the component for inclusion in the definition. Then, using an iterative process involving the research team and expert panelists, we assembled the selected conceptual components into a narrative definition of diagnostic excellence.

Results: We identified 431 documents through our search strategy. After full-text review, we extracted 18 conceptual components from 9 separate documents. The panel rating process led to selection of 11 conceptual components for inclusion in our new definition. See Table for a summary of rating results. Our definition is: "In the ED, diagnostic excellence is the use of optimal, evidence-based practices to attain an accurate and timely explanation about a patient's condition, based on the information available at the time, and communicate it to the patient. Diagnostic excellence is patient-centered and equitable. Diagnostic excellence includes avoidance of divergent practices. It leads to better choices in management, prevents missed opportunities, and reduces the risk of patient harm." Notably, conceptual components related to resource stewardship (cost-effectiveness, efficiency, overtesting, overtreatment) did not meet criteria for inclusion, and neither did precision, verification, or measurability.

Conclusion: Our definition of diagnostic excellence can be used to guide efforts to advance diagnostic excellence in the ED setting, including diagnostic care, research, and quality improvement activities.

Table: Conceptual Components to Be Included When Defining Diagnostic Excellence in the Emergency Department Care Setting: Final Ratings by 11 Multidisciplinary Experts

Conceptual Component	Validity, Median Rating	Relevance to ED care, Median Rating	Overall Importance, Median Rating	Criteria for Disagreement Met	Criteria for Inclusion Met
Accuracy	9	9	9	No	Yes
Precision	5	3	5	No	No
Verification	7	4	6	No	No
Timeliness	8	8	8	No	Yes
Divergent Practice	9	9	9	No	Yes
Optimal, Evidence-Based Practice	8	8	8	No	Yes
Cost-Effectiveness	5	5	6	No	No
Efficiency	3	4	3	No	No
Communication	9	9	9	No	Yes
Missed Opportunity	8	9	9	No	Yes
Information Availability	7	7	8	No	Yes
Overtesting	7	5	5	No	No
Equity	9	9	9	No	Yes
Preventable Patient Harm	9	9	9	No	Yes
Impact on Management	7	7	7	No	Yes
Overtreatment	5	5	5	No	No
Patient-Centeredness	8	8	8	No	Yes
Measurability	4	5	7	No	No

No, authors do not have interests to disclose

314 The Humanistic Charting Tool: Incorporating Person-Centered Care into the Electronic Health Record

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Study Objectives: The standardization of patient care has improved productivity and quality of care, but it challenges clinicians to strike a balance between efficiency and individualized care. The Humanistic Charting Tool (HCT) is a patient-driven questionnaire that addresses this by facilitating the integration of the patient's narrative, values, and preferences into the electronic health record (EHR). In a previous study, the feasibility of the HCT was demonstrated within the lower acuity zone of an emergency department (ED). In this subsequent study, we aim to investigate the effectiveness of the HCT in improving patient-centered care throughout the ED of the same large academic hospital.

Methods: The six-week study recruited adult patients at a large academic hospital to complete the HCT through RedCAP while waiting to see a clinician. Completed HCT surveys were uploaded to the patient's EHR and available for clinicians to access. At the end of the encounter, clinicians were asked if they used the HCT for each patient. Patients completed pre/post-surveys about their visit that were analyzed using t-tests and NPS scores.

Results: Overall, 129 patients filled out the HCT and 97 patients (75.19%) had complete pre/post-survey data. Clinicians used the HCT for 53 of these patients (54.63%), and the results demonstrated a statistically significant increase in patients feeling that their preferences were taken into account when compared to visits in which the HCT was not used ($p < 0.05$). Patients whose clinicians used the HCT reported an absolute increase in other key patient experience domains including: feeling respected, listened to, and involved in their own care. Additionally, patients whose clinicians used the HCT felt more involved in their treatment discussion (NPS 16 to 33) and rated their visit higher (NPS 2 to 19).

Conclusion: The HCT has demonstrated feasibility and effectiveness in enhancing person-centered care within the ED. With the HCT, clinicians are able to foster deeper connections with patients and improve patient experience from the very first encounter. This tool has the potential to easily allow patients to share their narrative and enrich their own healthcare experience without adding to clinician workload, which is invaluable in a high-stakes, time-sensitive environment. The results of this studysupportthe further development and integration of humanism-centered tools within existing workflows in the healthcare system.

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315 The Psychological Effects Secondary to Violence Against Healthcare Workers in Emergency Departments

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Study Objectives: Healthcare providers enter the medical field with the mission to treat and heal patients, yet they increasingly face workplace violence that jeopardizes their physical and mental well-being. The World Health Organization (WHO) estimates that 38% of healthcare workers worldwide experience physical violence in their careers. A Press Ganey report states that two nurses are assaulted every hour in the U.S. Emergency department (ED) staff are particularly vulnerable, as 50% of emergency physicians report experiencing physical assault in the past year (WHO, 2022;Press Ganey, 2022). Violence includes verbal and physical assaults, threats, sexual harassment, stalking, and bullying, often arising from patients and family members. Beyond physical harm, workplace violence has devastating long-term psychological effects. This study examines the prevalence of workplace violence in the emergency department and its psychological impact on healthcare workers.

Methods: Researchers conducted a cross-sectional study using a convenience sample of emergency department staff, including physicians, nurses, non-physician providers, and techs. Data was collected through an anonymous, self-reported survey designed to assess exposure to workplace violence—verbal, physical, and sexual—and its psychological impact. Researchers utilized The PCL-C PTSD Checklist (Weathers et al, 1994) to measure PTSD symptoms. Data collection is ongoing. Preliminary results are based on 125 participants.

Results: A preliminary analysis indicated that verbal aggression was the most reported form of violence, followed by threats, physical assaults, and sexual harassment. 29.6% (n = 37) of participants met the diagnostic threshold based on symptom endorsement in PCL-C assessment. When using a higher cut-off score ($\geq$40), 40.8% (n = 51) met this threshold, indicating a high prevalence of PTSD symptoms in this population. The most reported symptom was recurrent distressing memories (55.2%). Sexual trauma showed a moderate positive correlation with PTSD symptom endorsement (r = 0.352). Individuals meeting PTSD criteria had experienced an average of four types of workplace violence, suggesting cumulative trauma increases PTSD risk.

Conclusion: Workplace violence in emergency departments is a pervasive issue that leads to serious psychological effects for healthcare workers. Our preliminary findings show a high prevalence of PTSD symptoms, particularly among workers exposed to multiple forms of violence, with sexual trauma showing the strongest correlation to psychological distress. The presence of multiple trauma types, especially physical and sexual assault, indicates serious institutional shortcomings in violence prevention. Further investigative efforts should focus on a comprehensive policy gap analysis to identify systemic deficiencies contributing to high workplace violence incidence rates. The conflicting obligations under OSHA, CMS, and EMTALA must be examined, as hospitals must ensure workplace safety under OSHA while also meeting CMS regulations and EMTALA's mandate to provide emergency care to all patients, including those who may pose a threat to staff safety. Continued efforts in workplace violence reduction strategies are necessary for provider safety, professional longevity, and quality patient care. While our study does not examine the potential link between workplace violence and medical errors, this is an important area for future research.

No, authors do not have interests to disclose

316 Patient Narratives in the Emergency Department: Enhancing Empathy, Holistic Care, and Well-Being

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Study Objectives: Life story work, the incorporation of relevant patient information into their care, strengthens therapeutic relationships between patients, families, and the healthcare team. Healthcare workers report that patient narratives (PNs) promote dignity and positively impact their approach to patient-centered care. PNs have been used in several healthcare settings, but there is no literature regarding their use in the emergency department (ED). A patient's hospital encounter often begins in the ED, where the operational structure presents challenges to the formation of a strong patient-healthcare worker relationship. This, combined with the known disproportionate compassion fatigue and burnout experienced by ED healthcare workers, suggests that PNs may benefit the wellbeing of ED providers and nurses. Our objective was to evaluate the perceived impact of PNs on providers and nurses through a limited pilot PN program.

Methods: We performed a prospective assessment of the impact of PNs on providers and nurses in the ED. An emergency physician identified eligible patients (expected admission, clinically stable) at a large urban level 1 trauma center. If consented, participants completed a 10-minute unstructured interview with the following prompt: "Tell me something about yourself that you feel is important for your healthcare team to know that they would not find in your medical chart." Responses were developed into a narrative, and following patient approval added as a note to the medical record. The patient's primary ED clinical team were then asked to complete an anonymous survey.

Results: Twenty-six patients completed PNs. Fifty-five ED providers and nurses were approached, and 43 (78%) completed the survey. Respondents tended to be female (63%), white (90%), attending (39%) or resident (37%) physicians between 25-34 years of age (37%). The majority found the PNs a good use of their clinical time (79%), therapeutically validating (84%), and helpful in providing emergency care (72%) (Figure 1). PNs also fostered empathy (84%) and understanding of their patient's physical condition (84%) and perspectives (96%), without interrupting normal emergency care (96%) or causing emotional stress (75%).

Conclusion: PNs allow ED providers and nurses to gain a deeper understanding of their patients' lives and perspectives, strengthening patient-healthcare worker relationships. This pilot study demonstrates that there is interest in enhancing relationships with our patients in the ED. Further study should include addressing issues of resource utilization and other feasibility barriers.

Question	Strongly Agree n (%)	Agree n (%)	Neither n (%)	Disagree n (%)	Strongly Disagree n (%)
PN was a good use of my clinical time.	13 (30.2)	21 (48.8)	7 (16.3)	2 (4.7)	0 (0)
PNs help me provide better care.	7 (16.3)	24 (55.8)	8 (18.6)	4 (9.3)	0 (0)
Interview interrupted my clinical care.	1 (2.3)	0 (0)	1 (2.3)	12 (27.9)	29 (67.4)
PN program should continue.	14 (32.6)	23 (53.5)	5 (11.6)	1 (2.3)	0 (0)
Knowing more about patient made me more empathetic.	12 (27.9)	24 (55.8)	5 (11.6)	2 (4.7)	0 (0)
Knowing more about the patient made me uncomfortable.	0 (0)	0 (0)	1 (2.3)	15 (34.9)	27 (62.8)
Knowing about a patient's life is an important factor in understanding their physical complaints.	12 (27.9)	24 (55.8)	5 (11.6)	2 (4.7)	0 (0)
Patient's illnesses can be cured only by targeted treatment: emotional ties with patients do not have a significant influence in outcomes.	0 (0)	1 (2.3)	5 (11.6)	17 (39.5)	20 (46.5)
My understanding of my patients' feeling gives me a sense of validation that is therapeutic in its own right.	10 (23.3)	26 (60.5)	7 (16.3)	0 (0)	0 (0)
PNs make it possible for me to see things from my patient's perspectives.	17 (39.5)	24 (55.8)	2 (4.7)	0 (0)	0 (0)
PNs make me feel emotionally drained.	1 (2.3)	1 (2.3)	9 (20.9)	14 (32.6)	18 (41.9)

Figure 1: Respondents perception of PNs impact on care and wellbeing.

No, authors do not have interests to disclose

317 Artificial Intelligence for Ultrasound Nerve Block Training Among Emergency Medicine Clinicians

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Study Objectives: Ultrasound-guided nerve blocks (UGNBs) are increasingly used by emergency medicine providers for pain management in the emergency department (ED) setting. However, mastering the necessary sonoanatomy and procedural skills remain challenging. Artificial intelligence (AI) training tools offer a new way tosupportlearning through dynamic and real-time feedback. This study evaluates the feasibility of using an AI-enhanced ultrasound training tool to improve nerve identification skills and self-reported confidence among emergency medicine (EM) clinicians.

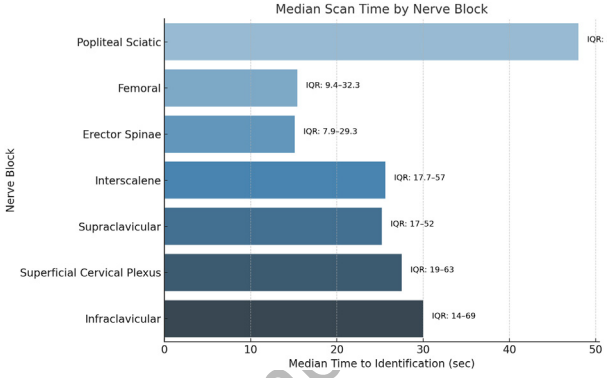
Methods: We conducted a prospective educational intervention with medical students, residents, fellows, attending physicians, and advanced practice providers. Participants were asked to use a newly developed AI ultrasound platform designed to identify nerves for seven common UGNBs. We used pre-intervention surveys to

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measure baseline confidence in nerve identification using a 5-point Likert scale. Participants then performed bedside ultrasound scans to identify target nerves for respected UGNBs using the AI software. During each scan, time to nerve identification was recorded for each attempt. A subset completed a post-survey after using the tool. Quantitative data was analyzed using descriptive statistics, Wilcoxon signed-rank test, and Kruskal-Wallis test. Qualitative responses were grouped into common themes.

Results: Sixty clinicians performed 400 AI-based scans of seven different nerve blocks. There were significant differences observed in scan times across nerve blocks ($\chi^2 = 26.82$, $p < 0.001$). Identification time was shortest for the erector spinae block (median: 15.1 seconds, IQR: 7.9–29.3), followed by the femoral nerve block (median: 15.4 seconds, IQR: 9.4–32.3). Post-hoc Dunn's test revealed that the erector spinae block took significantly less time compared to interscalene ($p = 0.031$), infraclavicular ($p = 0.013$), and popliteal sciatic ($p < 0.001$) blocks. The interscalene block appeared to be the most challenging, with a median time of 25.6 seconds (IQR: 17.7-57) and more than 10% of participants unable to find it or taking longer than 2SDs from the mean (mean: 42 seconds, SD 40.6). Prior nerve block experience showed a negative correlation with scan time for the popliteal sciatic block ($r = –0.27$, $p = 0.038$), and volume of prior general ultrasound scans performed also showed a significant negative correlation with scan time for the superficial cervical plexus ($r = –0.34$, $p = 0.01$). To date, 20 participants have completed post-intervention surveys, and across all nerve blocks, confidence in performing these procedures significantly improved after use of AI-enhanced ultrasound training tool ($p < 0.05$). In post-intervention surveys, 70% of clinicians reported the AI tool was more effective than traditional learning methods, and 80% were satisfied or very satisfied with the experience. Thematic analysis highlighted improved anatomical understanding, increased procedural confidence, and appreciation for the tool's ease of use. Post-intervention surveys identified real-time anatomical labeling as the most helpful feature among 90% of participants, although 45% of clinicians showed interest in having more detailed procedural guidance.

Conclusion: AI-enhanced ultrasound training is a feasible tool for teaching nerve block identification among EM clinicians. It improves learner's confidence across a diverse cohort of learners. Scan performance and confidence varied by nerve block, with femoral nerve block showing high baseline confidence and rapid identification times, while others required more time. These findingssupportusingAIin ultrasound education to help build procedural skills in emergency medicine.



No, authors do not have interests to disclose

318 Utilizing Artificial Intelligence to Aid the Classification of Venous Excess Ultrasound Score Images

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Study Objectives: The Venous Excess Ultrasound (VEXUS) Protocol uses point-of-care ultrasound and Pulse-waved Doppler interrogation of the hepatic, portal, and intra-renal veins to assess venous congestion, particularly in critically ill patients with heart failure. Clinical use of VExUS has increased in recent years, but accurate classification of the protocol's waveforms into the clinically relevant categories and interpretation of waveform patterns requires specific expertise. This can be challenging in busy emergency department (ED) settings, especially for providers unfamiliar with the technique and without proper training. Artificial intelligence (AI) has the potential to assist in rapid and accurate ultrasound image categorization and waveform interpretation. The primary objectives of this study were to evaluate the diagnostic performance of a machine learning (ML) image classification model in identifying VEXUS image waveform categories (ie, hepatic, portal, renal) and specific waveforms (ie, normal, mild, and severe) obtained by frontline providers and to compare its accuracy against an expert reference standard.

Methods: We retrospectively analyzed a dataset of 300 VEXUS ultrasound images. These images were obtained from patients presenting to the ED with suspected sepsis or heart failure by Emergency Medicine (EM) and Internal Medicine (IM) providers (residents, fellows, and attending physicians) who had received VEXUS training. The dataset was balanced with 100 images from each waveform category and images were cropped to best display the waveform. The reference standard classification was waveform category (hepatic, portal, renal) and type (normal, mild, severe) for each image as determined by a designated VEXUS expert (ie, experience interpreting at least a thousand VEXUS images). A ML image classification model, trained specifically on VEXUS images was utilized to classify the waveforms into renal, hepatic, and portal vein type and then sub-classify them into normal, mild, or severe categories. The diagnostic efficacy of the AI model operating with a classification confidence threshold set at 0.5 and the model was evaluated by comparing its classification against the expert reference standard, calculating sensitivity, specificity, accuracy per category, overall accuracy, and Cohen's kappa coefficient.

Results: The AI model demonstrated high performance in classifying VEXUS waveform patterns acquired by providers with varied experience levels. The overall accuracy across 300 waveforms was 97.3%, with high levels of accuracy for the evaluation of each specific vein type. For portal vein images (n=100), sensitivity/specificity were 96.7% / 95.0% for normal, 96.0% / 98.7% for mild, and 100.0% / 100.0% for severe patterns, representing an overall accuracy of 96.0%. For renal vein images (n=100), classifying normal patterns yielded 100.0% sensitivity and 96.7% specificity, with an overall accuracy of 99.0%. There was excellent agreement between the AI model's classification and the expert reference standard (Cohen's Kappa = 0.948). The model demonstrated robust performance in identifying both normal patterns and distinguishing degrees of abnormality.

Conclusions: The AI image classification model shows high diagnostic accuracy and reliability in identifying and categorizing VEXUS waveform patterns in the ED setting, which performed comparably to a highly experienced expert reader. AI image recognition and ML have the potential to serve as a valuable tool for emergency physicians and other frontline clinicians by improving the speed, consistency, and overall diagnostic accuracy of VEXUS interpretation, thereby aiding more timely and informed clinical decisionmaking and management. Furthermore, the ability of AI to recognize complex waveform morphology may offer potential in the future to reduce the reliance on simultaneous ECG gating for accurate VEXUS assessment. Our next steps should include increasing the size of the training dataset to enhance accuracy and evaluating the ability of the model to predict relevant clinical outcomes associated with venous congestion.

No, authors do not have interests to disclose

319 A Novel Ultrasound Device to Detect Distal Extremity Fractures in Emergency Department Patients

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Study Objective: Plain film radiography has long been the standard for diagnostic imaging of traumatic extremity injuries presenting to the emergency department (ED). However, this can involve significant care delays due to the need for specialized technologist personnel along with radiologist interpretation time. It also involves ionizing radiation, which may be unfavorable for certain populations such as pediatrics. The Accuro XV is a novel, automated ultrasound device to aid in assessment of ankle and wrist fracture. This device uses two probes with internal ultrasound arrays to acquire 2D B-mode and 3D annotated imaging in an automated fashion. The current objective was to assess the feasibility, impact, and accuracy of the Accuro XV device on ED patients with suspected wrist and ankle fracture.

Methods: This was a prospective study enrolling a convenience sample of ED patients with traumatic wrist or ankle fracture who were receiving x-ray imaging as part of their clinical care. Two academic tertiary care centers served as the study setting with patients ages 5 and older eligible for enrollment. Exclusion criteria included open fractures and those with significant angulation or deformity. Pain levels were assessed on a 0 to 10 Likert scale just before and during imaging acquisition. Accuro XV images were assessed for ability of fracture detection using attending radiologist x-ray interpretation as the gold standard. Descriptive statistics were performed and the Mann

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Whitney U test was used to assess the statistical significance of increase in pain during acquisition between the two imaging modalities.

Results: A total of 352 cases were enrolled, with 29% (102 cases) diagnosed with fractures. Median age was 41, with interquartile range (IQR) of 26 to 60. Twenty-one patients were less than age 18. The emergency physicians detected 95% of fractures using the Accuro XV images. Among 20 cases with indeterminate radiologist reads, the Accuro XV detected fractures in 50% (10 cases). Pain assessments showed that patients reported an average pain score of 6.74 (out of 10) immediately before x-ray and 7.09 during x-ray acquisition. Average pain was 5.32 before Accuro XV and 5.44 during Accuro XV scanning. The average increase in pain before and during imaging acquisition was 0.35 for x-ray and 0.12 for Accuro XV ($p=0.11$). Usability assessments found that the device was easy to operate, with non-physician research personnel conducting most of the image acquisitions.

Conclusion: Findings suggest the Accuro XV is a potential alternative for fracture assessment in emergency settings. The device demonstrated high diagnostic accuracy, didn't increase discomfort compared to X-ray imaging acquisition, and was effectively used by personnel with varying medical training levels.

No, authors do not have interests to disclose

320 iHEART-PE: Intelligent HEART Analysis for Pulmonary Embolism

Adhikari S, Boreshnavard P, Situ-LaCasse E, Acuna J, Demant M, Yarnish A, Yilmaz A/ University of Arizona, Tucson, Arizona

Study Objectives: Pulmonary embolism (PE) carries significant morbidity and mortality, largely due to acute right ventricular dysfunction leading to hemodynamic collapse. Mortality exceeds 50% in hemodynamically unstable patients, with up to 10% of deaths occurring within the first hour of symptom onset. As such, rapid diagnosis is essential to initiate appropriate therapy and improve outcomes. Bedside echocardiography offers a critical opportunity to detect right ventricular dysfunction early, potentially altering the clinical course and improving survival. We hypothesize that machine learning algorithms can achieve diagnostic accuracy comparable to expert physician sonographers in identifying echocardiographic signs of PE. Our objective was to develop and validate an AI-enabled software tool capable of accurately detecting PE-related echocardiographic features.

Methods: We built a foundational model utilizing three echocardiographic datasets—totaling approximately 30k echocardiogram clips. Preprocessing involved resizing and normalizing pixel intensities for compatibility with the Video Vision Transformer (Video ViT). To handle variable clip lengths, we implemented dynamic frame sampling by dividing videos into segments and randomly selecting frames within each segment to introduce variability and robustness. For shorter videos, frames were randomly selected, with occasional jitter added to improve resilience against timing variations. For Video-MAE training, we introduced a "Marching Cube" masking strategy, which prioritizes critical cardiac regions while preventing the masking of entire temporal segments, preserving motion information. The model architecture followed the vit-base-patch16-224 design, processing 224x224 images into 16x16 spatio-temporal patches. We trained the model from scratch for 200 epochs using around 28k clips, with 3k reserved for evaluation. The primary evaluation metric was the reconstruction fidelity of masked patches. We used the foundation model for classifying echocardiogram data into two classes of No PE and PE. The model was trained on roughly 1.4k samples that are equally distributed across the two classes. During training we only fine-tuned a small portion of the encoder and the rest of the model is trained fully. After training the model with the same hyper parameters used in the regression task, we tested our model on a test dataset unseen to the model during training.

Results: Our results demonstrated the foundational model's capability to accurately reconstruct key cardiac anatomical structures, including the ventricles and valves, while effectively capturing relevant background context. Quantitative analysis confirmed that Video-MAE learned meaningful representations suitable for downstream tasks. In the classification of pulmonary embolism, the model achieved a sensitivity of 91% and a specificity of 96%, with PE designated as the primary class of interest.

Conclusions: Our findings underscore the potential of Video-MAE as a powerful self-supervised backbone for echocardiographic analysis. The integration of dynamic frame sampling and Marching Cube masking strategies proved critical in boosting model performance. This approach shows strong promise insupportingclinical decisionmaking by accurately detecting echocardiographic findings of PE. Ongoing work is focused on validating the model on a larger test dataset as soon as it becomes available.

No, authors do not have interests to disclose

321 Transthoracic Echocardiography for Predicting Fluid Responsiveness: A Systematic Review

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Study Objectives: Assessing fluid responsiveness prior to administration is vital in emergency settings to optimize hemodynamic management and avoid complications such as fluid overload, which can precipitate pulmonary edema and worsen patient outcomes. This systematic review, conducted through December 2024, evaluated the utility of transthoracic echocardiography (TTE) in predicting fluid responsiveness in adult patients, focusing on its application in emergency medicine.

Methods: Databases including PubMed and Embase were searched using the terms "fluid responsiveness" and "transthoracic echocardiography," yielding an initial pool of 8464 articles. After excluding duplicates and studies employing alternative assessment methods, 26 studies encompassing 1015 patients, of whom 51.5% were fluid responsive, were included in the final analysis. Two authors independently conducted screening and data extraction to ensure methodological rigor. Subgroup analysis done based on type of methods used.

Results: TTE was utilized to measure an array of hemodynamic parameters, including changes in stroke volume (SV), cardiac output (CO), and left ventricular outflow tract velocity time integral (LVOT VTI) in response to dynamic tests such as passive leg raise (PLR)—which simulates fluid challenge by elevating the legs to increase venous return—and mini fluid challenge, involving a small bolus of 50 ml to assess response. Additional indices assessed included the ratio of early diastolic mitral inflow velocity to early diastolic mitral annular velocity (E/e'), the ratio of early to late diastolic mitral inflow velocities (E/A), left ventricular end-diastolic area index, and right ventricular dilation, while mechanically ventilated patients were evaluated using stroke volume variation (SVV), aortic peak velocity variation, and VTI variation. Quantitative findings revealed that PLR-induced changes in SV, CO, or LVOT VTI across 13 studies demonstrated a pooled sensitivity of 0.833 (95% CI: 0.789–0.869) and specificity of 0.87 (95% CI: 0.822–0.907), while mini fluid challenge-induced changes in 3 studies showed a sensitivity of 0.895 (95% CI: 0.828–0.941) and specificity of 0.903 (95% CI: 0.839–0.956), and SVV, aortic peak velocity, and VTI variation in 4 studies of ventilated patients yielded a sensitivity of 0.815 (95% CI: 0.714–0.887) and specificity of 0.903 (95% CI: 0.805–0.955). Despite these promising diagnostic accuracies, TTE measurements exhibited significant operator dependency and high inter-rater variability, raising concerns about reliability, particularly as most studies defined fluid responsiveness using a TTE-derived 15% increase in CO—a threshold whose detectability via TTE remains questionable. Of the 26 studies, only 3 employed thermodilution—the recognized gold standard, as a reference standard highlighting a need for further validation against more robust methods.

Conclusion: Clinically, TTE shows potential to guide fluid therapy, particularly in sepsis management where precise resuscitation can mitigate mortality risks associated with over-resuscitation, yet its operator-dependent nature suggests cautious use alongside clinical judgment and alternative monitoring. The review underscores the necessity for additional studies employing thermodilution to confirm TTE's efficacy, potentially refining its role in emergency protocols like the Surviving Sepsis Campaign, and emphasizes that while TTE demonstrates good sensitivity and specificity, its practical application is constrained by these challenges, necessitating further research to enhance reliability and standardize its use in critical care setting.

No, authors do not have interests to disclose

322 Effectiveness of a Do-It-Yourself Dog Bone/ Meat Model for Ultrasound-Guided Knee Arthrocentesis

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Study Objectives: Knee arthrocentesis is an infrequent, but important procedure in emergency medicine (EM). With the adoption of point-of-care ultrasound (POCUS), this procedure is now often done with ultrasound guidance. EM residents must be familiar with POCUS-guided knee arthrocentesis in the workup of arthropathies. The authors developed an easy-to-make knee arthrocentesis model and assessed EM resident procedural comfort before and after use.

Methods: This was a prospective, single-center study of EM residents at an academic, 3-year program, testing a homemade dog-bone/meat knee effusion model that could be visualized with POCUS. The model took approximately 15-20 minutes to create from items that can be obtained at a local grocery store. The cost is approximately $13. Residents were given a 5-minute presentation on the topic of knee arthrocentesis and the model. They then tried the model by performing several rounds

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of POCUS-guided knee arthrocentesis. Pre- and post-survey data on each resident's comfort in arthrocentesis was collected and compared via statistical testing. The model itself was also rated by participants using a standardized simulation scale: the Michigan Standard Simulation Experience Scale.

Results: Thirty-one residents participated in our trial. After using our model, there was significant improvement in residents' self-reported ability to both identify an effusion (pre-test 3.65, post-test 4.65, $p < 0.01$) and to perform a POCUS-guided knee arthrocentesis (pre-test 2.42, post-test 4.65, $p < 0.01$). The improvement was most notable in our PGY1 cohort, followed by the PGY2s then PGY3s. Our model also graded well on the Michigan Standard Simulation Experience Scale for fidelity (4.77/5), real-world usability (4.80/5) and as a positive training tool (4.79/5) with PGY3s grading the model higher on this scale than PGY2s and PGY1s.

Conclusions: POCUS-guided knee arthrocentesis is a procedure that EM residents must be familiar with. Our homemade dog-bone/meat model proved effective at training EM residents in this procedure. We invite other training programs to use and improve on the model that we have created.



No, authors do not have interests to disclose

323 The Halo Effect of an Emergency Department-Run Observation Unit on Hospital-Wide Throughput

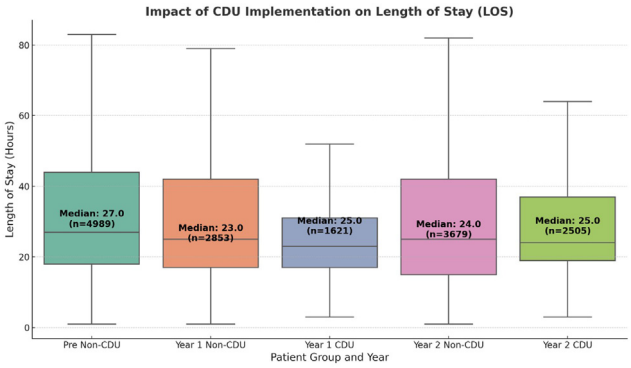
Gopalsami A, Wasserman N, Roach K, Perel M, Torbati S/Cedars-Sinai Medical Center, Los Angeles, California

Study Objectives: Observation units managed by emergency departments (EDs) have been shown to reduce inpatient hospital admissions, improve patient flow, and provide overall cost savings. However, their broader impact on non-ED observation patients remains less explored. This study evaluates the impact of an ED-managed observation unit called the Clinical Decision Unit (CDU) on length of stay (LOS), inpatient conversion rates, patient satisfaction, and readmission rates for CDU-managed patients while also assessing whether its implementation had an indirect benefit (dubbed the "halo effect") on non-CDU managed observation patients.

Methods: We conducted a three-year retrospective analysis (04/2022-03/2025) at an urban academic medical center with annual volumes of ~100,000 visits, analyzing 15,647 ED encounters admitted as observation status before and after implementing the CDU, which opened on 04/01/2023. Patients were classified into two groups: CDU-managed patients admitted in a protocol-driven observation unit and non-CDU observation patients admitted to private hospitalists with care provided at their discretion. The CDU is a 20-bed unit supervised by emergency physicians and physician assistants. Data on patient demographics, admitting diagnosis, LOS, inpatient conversion rates, patient satisfaction, and readmission rates were collected from electronic medical records. Statistical comparisons for LOS and age used Mann-Whitney U tests due to non-normal, right-skewed distributions. The Chi-square test was used for sex.

Results: The demographic analysis showed minimal differences in patient age (median age: 52 pre-CDU, 53 post-CDU; $p=0.045$) and no significant differences in sex distribution between pre- and post-CDU groups (50% male, 50% female). Post-CDU implementation, median LOS significantly decreased from 27 hours (IQR 18-44 hours, N=4,989) pre-launch to 23 hours (IQR 17-40 hours, N=1,621) for CDU-managed patients in year one ($p < 0.001$) and remained improved at 24 hours in year two (IQR 17-40 hours, N=2,505; $p < 0.001$). Non-CDU patients also showed significant improvements, with LOS decreasing from 27 hours pre-launch to 25 hours in both subsequent years (Year 1: IQR 18-42 hours, N=2,853; Year 2: N=3,679; both $p < 0.001$). Admission diagnoses accounting for 80% of all CDU cases included chest pain, urinary tract infections, pneumonia, essential hypertension, gastroenteritis, diabetes, heart failure, chronic obstructive pulmonary disease, low back pain, and abdominal pain. Among these, statistically significant LOS reductions were observed for chest pain (24.0 to 20.0 hours, $p=0.001$), urinary tract infections (30.0 to 28.0 hours, $p=0.045$), pneumonia (35.0 to 32.0 hours, $p=0.032$), and gastroenteritis (26.0 to 24.0 hours, $p=0.015$). For the remaining 20% of cases, the median LOS decreased from 27 hours pre-CDU to 24 hours post-CDU ($p < 0.001$). The CDU implementation saved approximately 1,488 bed-days over two years, potentially accommodating an additional 1,307 patients. Inpatient conversion rates were lower in CDU-managed patients (18.4%) compared to non-CDU observation patients (63.9%). The 30-day ED return rate trended lower for CDU-managed patients (9.0% vs 10.6%), with patient satisfaction ("overall rating of care") equivalently high in both groups (74% top quartile scores).

Conclusion: Establishing an ED-run observation unit significantly reduced LOS, inpatient conversion rates, and 30-day ED return rates. These benefits extended beyond CDU patients without any additional programmatic investment, suggesting a halo effect that positively influenced hospital-wide throughput for observation patients managed out of the CDU. Limitations of the study are over concerns whether the observed halo effect reflects true causation or merely a correlation along with general reproducibility of results in other settings, but these trends in data are promising and organizations should continue to invest in ED-managed observation units.



No, authors do not have interests to disclose

324 Correlation of Hospital Outcomes With Emergency Department Observation Unit Use: A Retrospective Cross-sectional Study

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Study Objective: While type 1 emergency department observation units (EDOUs) have been shown to improve patient observation outcomes, the optimal percentage

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capture of hospital observation patients in an EDOU is unknown. The study objective was to determine the correlation between the percentage of all hospital observation patients managed in an EDOU and observation outcomes (length of stay (LoS), hospital total cost, and inpatient admit rate).

Methods: This is a retrospective observational cross-sectional study across four hospitals within a large academic health system in Atlanta, Georgia between August 2019 and March 2021. Data was abstracted from hospital clinical and financial observation databases. The primary outcomes measured were the percentage of patients captured in an EDOU (%EDOU), average per-patient cost, patient LoS (observation + inpatient), observation LoS, and inpatient admission rate. Continuous outcomes were evaluated using mixed-effects gamma regressions; admissions were evaluated using mixed-effects logistic regressions. Analyses were adjusted for age, sex, triage level, and diagnosis, and ICD10 codes. We present percent-change, for continuous outcomes, and odds ratios, for binary outcomes, for each 10% change in observation capture.

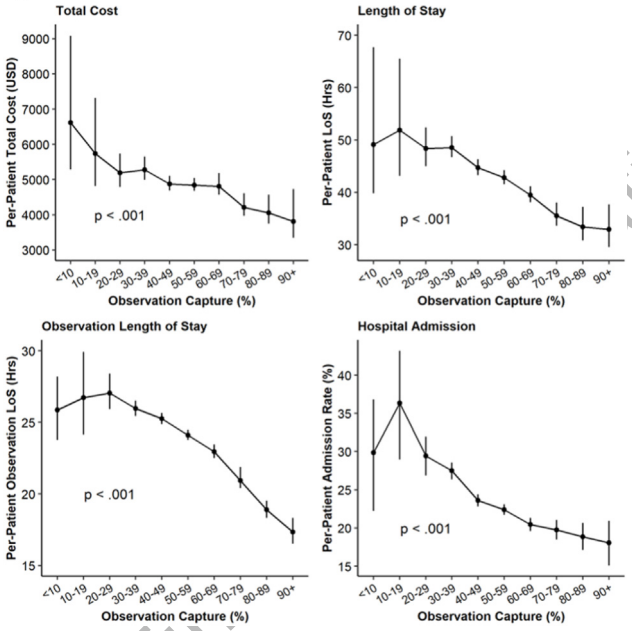
Results: Over the study period there were 46,721 observation patients. Average age 58 (42-71), 56% female. Five most common CCS conditions were chest pain (10.3%), hypertension (5.4%), fluid electrolyte disorders (3.6%), syncope (2.3%), abdominal pain (2.3%). There was an inverse correlation between %EDOU and all outcomes. Unadjusted outcomes across all hospitals found that for every 10% increase in % EDOU there was a decrease in total cost (-6.3%; -7.25 - -5.40), total LoS (-5.2%; -6.18 - -4.23), observation LoS (-6.2%; -6.92 - -5.40), and inpatient admit rate (OR = 0.92; 0.89 - 0.94). Adjusted outcomes across all hospitals found that for every 10% increase in %EDOU there was a decrease in total cost (-3.6%; -4.39 - -2.89), total LoS (-3.3%; -4.10 - -2.45), observation LoS (-5.3%; -6.09 - -4.59), and inpatient admit rate (OR = 0.93; 0.91 - 0.96). Favorable %EDOU outcomes begin to plateau at 85% EDOU capture.

Conclusion: Favorable hospital observation patient outcomes are proportional to the percentage of patients managed in an EDOU, which begins to plateau at 85%.

Table 1: Study characteristics		
Age	58	42 - 71
Sex		
Female	25932	55.5
Male	20789	44.5
Admitted	10683	22.9
LoS	23	14 - 44
Obs LoS	20	12 - 30
Total Cost	2655	1734 - 4535
Payer Type		
HMO	14247	30.5
Medicare Part B	13989	29.9
Medicare Part A	5812	12.4
Self Pay	5775	12.4
Medicaid	3857	8.3
Blue Cross PPO	1667	3.6
PPO	771	1.7
Government (misc)	378	0.8
CHAMPUS	225	0.5
10 Most Common CCS		
Non-Specific Chest Pain	4889	10.3
Hypertension w/ Complications	2584	5.4
Fluid and Electrolyte Disorders	1710	3.6
Syncope	1118	2.3
Abdominal pain and other digestive/abdomen signs and symptoms	1084	2.3
Diabetes mellitus with complication	1041	2.2
Urinary tract infections	882	1.9
Cardiac dysrhythmias	854	1.8
Coronavirus	839	1.8
Coronary atherosclerosis and other heart disease	786	1.7

Table 2: Observation Outcomes	**Unadjusted**		**Adjusted**	
	Effect	**95% CI**	**Effect**	**95% CI**
Total Cost, % Change	-6.33	-7.25 - -5.40	-3.64	-4.39 - -2.89
LoS, % Change	-5.21	-6.18 - -4.23	-3.28	-4.10 - -2.45
Obs LoS, % Change	-6.16	-6.92 - -5.40	-5.34	-6.09 - -4.59
Admission, Odds Ratio	0.92	0.89 - 0.94	0.93	0.91 - 0.96

Figure 1: Observation Outcomes



No, authors do not have interests to disclose

325 Impact of Patient-Centered Medical Home on Admission Rates Among Patients With Sickle Cell Disease

Boccio E, Ogunsile F, Weiss M, Diallo A, Katz R, Murphy M, Goldman J/Memorial Healthcare System, Pembroke Pines, Florida

Study Objectives: The most common cause of hospitalization among patients presenting to the emergency department with sickle cell disease (SCD) is pain secondary to vaso-occlusive crisis. The patient-centered medical home (PCMH) is an effective model for the organization and delivery of primary care that is comprehensive, patient-centered, well-coordinated, accessible, and evidence-based. The primary objective was to assess the impact of a PCMH on hospital admission and 30-day readmission rates among patients with SCD treated for vaso-occlusive crisis.

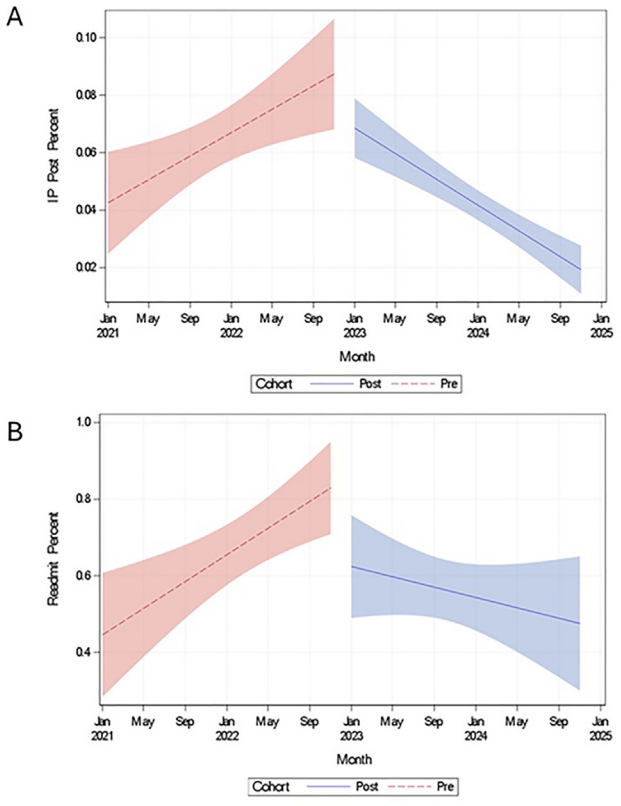
Methods: An outpatient PCMH specializing in the individualized management of acute sickle cell crisis was opened in December 2022. A quasi-experimental study involving the retrospective review of a consecutive sample of administrative records was performed. All patients with SCD presenting across the healthcare system during a 47-month period were screened. Patients presenting during the 23-month period prior to the PCMH (January 2021 – November 2022) were assigned to the pre-intervention cohort while those which presented during the 23-month period following (January 2023 – November 2024) were assigned to the post-intervention cohort. The primary outcomes were the percentage of patients admitted to the hospital within 24 hours following a visit to the PCMH and the percentage of patients readmitted to the hospital within 30 days of a previous admission. Univariate analysis of the mean hospital admission rate and 30-day hospital readmission rate between the pre- and post-intervention cohorts was performed using student's t-tests. Additionally, single-group interrupted time series analysis was performed to compare level and slope changes of the linear regression curves modeling both hospital admission rate and 30-day hospital readmission rate and time before and after implementation of the PCMH. All statistical analyses were performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at 0.05.

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Results: A total of 521 and 321 patients with SCD were included in the admission and readmission groups, respectively, and 249 (47.8%) and 172 (53.6%) of these patients were categorized into the corresponding pre-intervention cohorts, respectively. The mean hospital admission rates in the pre- and post-intervention cohorts were 6.5% (95% CI: 5.3-7.7%) and 4.4% (95% CI: 3.5-5.3%), respectively, and the difference was statistically significant (p=0.005). The mean 30-day hospital readmission rates in the pre- and post-intervention cohorts were 63.7% (95% CI: 53.5-73.9%) and 55% (95% CI: 45.9-64.1%), respectively, and the difference was not statistically significant (p=0.19). The beta coefficients of the pre- and post-intervention linear regression models for hospital admission rate were β_0=0.04 and β_1=0.002 and β_0=0.071 and β_1=-0.002, respectively, and the change in slope was statistically significant (p=0.006). There was a 1.8% decrease in hospital admission rate immediately following the intervention, and the change in level was statistically significant (p <0.001). The beta coefficients of the pre- and post-intervention linear regression models for readmission rate were β_0=0.428 and β_1=0.017 and β_0=0.631 and β_1=0.007, respectively, and the change in slope was statistically significant (p=0.001). There was a 1.8% decrease in readmission rate immediately following the intervention, and the change in level was statistically significant (p=0.003).

Conclusion: A PCMH specializing in the management of acute sickle cell crisis is feasible and resulted in a decrease in hospital admission and 30-day hospital readmission rates among treated patients. Further research investigating patient satisfaction, provider experience, and program cost-effectiveness is warranted.

Figure: Interrupted time series analysis of the impact of a patient-centered medical home on (A) hospital admission rate within 24 hours following visitation and (B) 30-day hospital readmission rate among patients treated for acute sickle cell crisis



No, authors do not have interests to disclose

326 A Description of Short-Stay Admissions from the Emergency Department Among a Managed Care Population

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Study Objectives: Emergency department (ED) boarding of admitted patients is associated with worsened patient outcomes, delays in medical care, increased ED crowding and reduced patient satisfaction. Utilization of alternatives to hospital admission such as ED observation, hospital at home/home health and the Medicare Skilled Nursing Facility 3-day waiver program, which are all value-based care programs, can help alleviate ED boarding. Identifying details associated with short-stay admissions (those in which patients are discharged within 24 hours of admission) may help optimize use of these alternatives to hospital admission. At our health system, we have a large managed care population for which these value-based initiatives are fundamental to cost-effective care. This study aimed to identify and characterize short stay admissions from the ED among managed care patients with the larger, long-term goal of optimizing ED dispositions and utilization of alternatives to admissions.

Methods: This retrospective, observational descriptive cohort study was conducted at an academic health system's two EDs over 12 months. Included were managed care commercial and Medicare patients attributed to our health system who had an ED visit that resulted in an inpatient or observation admission lasting </=24 hours. All ages were included. The following outcome data were collected: age, LACE+ score, admitting service (Hospitalist or Family Medicine vs Specialty Service), principal diagnosis, discharge destination.

Results: Over the study time period, 198 managed care patients with short-stay admissions were identified. 71.2% (n= 141) of the patients were >/= 65 years. The average LACE+ score was 64 with a median of 68. 91 patients (46%) were admitted to a Medicine service. 107 patients (54%) were admitted to a Specialty Service. The most frequent diagnoses among the Medicine admission cohort were those disease conditions or symptoms relating to infection (n=13 or 6.6%), pulmonary (n=7 or 3.5%) and gastroenterology (n=7 or 3.5%%) and among the Specialty Service admission cohort were those disease conditions or symptoms relating to cardiology (n=29 or 14.7%), neurology (n=15 or 7.6%), gynecology (n=5 or 2.5%), and Urology (n=6, 3%). The remaining admissions among both cohorts involved varied disease conditions or symptoms (n=116, 58.6%). The majority of patients (n= 167 or 84.3%) were discharged home, 19 patients (9.6%) were discharged to a SNF, rehab facility or transferred to another hospital. 12 patients (6.1%) left Against Medical Advice.

Conclusion: In this population of managed care, short-stay admission patients with a medium to high risk of readmission based on LACE+ score, approximately half the patients were admitted to a Medicine service with the most frequent admitting diagnoses related to infection. Among the patients admitted to a Specialty Service, the most frequent admitting diagnosis or symptoms related to a cardiac condition. The majority of patients were discharged to home. Understanding this population may help to focus opportunities in which alternatives to admission may be leveraged, when appropriate.

No, authors do not have interests to disclose

328 The Emergency Department Observation Unit's Effect on Inpatient Efficiency

Grace P, Toffey N, Patel A, Lemke M, Ziada M/University of Kentucky, Lexington, Kentucky

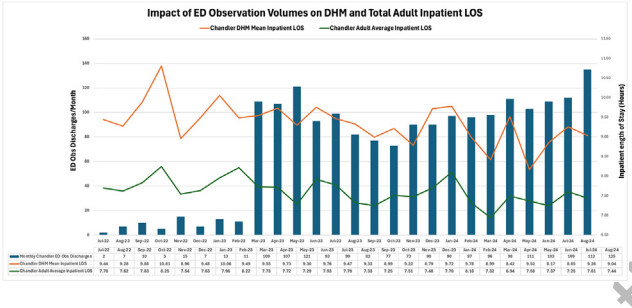
Study Objectives: The emergency department observation unit (EDOU) provides targeted care for patients that historically have prolonged emergency department (ED) courses or short inpatient lengths of stay (LOS). Whether it is for further diagnostic studies or continued treatment, EDOUs assess the need for inpatient admission or discharge. Previous implementations of EDOUs have demonstrated a reduction in LOS relative to non-ED based observation care and cost savings to hospitals. No study has yet to show the impact of EDOUs on inpatient throughput and enterprise efficiency. An EDOU at an academic medical center opened in March 2023 to address prolonged inpatient LOS and ED boarding. We hypothesize the EDOU would aid the Division of Hospital Medicine (DHM) to cohort higher acuity inpatients, lowering DHM inpatient LOS and the LOS of all inpatients.

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Methods: A retrospective, observational, cross-sectional study of EDOU, DHM, and total hospital discharges over 18 months in a three-hospital academic health system. Patients were identified using the "Place in Observation" order and limited to adult patients. Outcomes include regression analysis of the total number of discharges per month from the EDOU with the DHM inpatient LOS and the total hospital LOS.

Results: The sample consists of 1,802 EDOU discharges, 16,160 DHM inpatient discharges, and 58,146 total hospital inpatient discharges over the study period. The average DHM inpatient LOS decreased from 9.67 to 9.22 days after implementation of the EDOU. The number of discharges of EDOU patients is statistically significantly correlated with this decrease in LOS ($p = 0.043$, R-2 = 0.126). The average whole hospital inpatient LOS decreased from 6.69 to 6.33 days after opening the EDOU. The number of discharges of EDOU patients is statistically significantly correlated with this decrease in LOS over the same period ($p = 0.001$, R-2 = 0.34).

Conclusion: The EDOU demonstrates an independent variable that correlates with an improvement in DHM and total hospital inpatient LOS. These R-2 values are operationally significant given the various factors that influence inpatient LOS. The results are limited by the possibility of other independent factors that could similarly improve EDOU discharges and inpatient discharges alike. Future studies can look to quantify the financial implications of EDOU on improved inpatient LOS as a model forfinancial supportfor EDOUs.



No, authors do not have interests to disclose

329 Factors That Influence Career Choice in Emergency Medicine Residents Over Time

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Study Objectives: There are many variables which can influence post-residency career plans of trainees. It is unknown which factors are most important to emergency medicine (EM) residents and how this impacts their career plans. It is also unknown if the importance of these factors changes over time. We sought to assess whether the relative importance of these factors changes during residency and if there are any resultant associations with their post-training career choice.

Methods: We conducted a prospective cohort study of EM residents at 5 ACGME-accredited residency programs from 2020-2024. Participants completed an online survey at the onset of training and upon graduation. The surveys consisted of multiple choice and completion items and were piloted prior to use. We used univariate logistic regression to determine the association between importance of various factors (experience in medical school, family expectations, geographic location, income expectations, intellectual satisfaction, level of educational debt, major life events, future family plans, personal interests, role model or mentor influence, research experience,supportfor individual interests/career development potential, work environment, work/life balance) and their career decisions both at the beginning of residency and at graduation.

Results: 494 residents (220 from 3-year and 274 from 4-year programs) completed at least one survey. On entry to residency, higher importance placed on debt load (coefficient 0.14, p=0.001), geographic location (0.15, p=0.002), income expectations (0.22, $p < 0.001$), major life events (0.08, p=0.041), and future family plans (0.11, p=0.008) were significantly associated with plans for a non-academic career. Intellectual satisfaction was the only factor significantly associated with plans for fellowship (0.20, p=0.006). Upon graduation, higher importance placed on future family plans (0.14, p=0.005) was associated with non-academic career plan, higher importance placed on work/life balance (0.19, p=0.03) was associated with non-fellowship plans, and higher importance placed on research experience (0.11, p=0.044) was associated with an academic career plan.

Conclusion: The self-assessed relative importance of various factors is associated with post-residency career choice in EM residents. This information can inform mentorship and coaching discussions between education leaders and residents regarding career choice.

No, authors do not have interests to disclose

330 Procedural Competency in Academic Emergency Medicine Attendings: Strategies for Skill Retention

Rockwell M, Santen S, Caretta-Weyer H, Promes S, Raukar N/Mayo Clinic, Rochester, Minnesota

Study Objectives: As emergency medicine (EM) evolves, attending physicians in academic settings face mounting challenges in maintaining procedural competency, especially as their roles shift toward supervision and away from direct patient care. This study aimed to assess strategies used by academic emergency departments (EDs) to preserve procedural skills among attendings and to examine the types and frequency of procedural skill maintenance programs for core EM procedures.

Methods: This is an observational survey-based study of department chairs, vice chairs, and chair emeriti of academic emergency medicine programs who attended the 2025 Association of Academic Chairs of Emergency Medicine (AACEM) retreat. Representatives from 81 academic emergency departments were queried on their departments' procedural skill maintenance strategies for 11 different core EM procedures and resuscitation skills as defined by the ACGME. The Institutional Review Board deemed the study IRB exempt.

Results: Eighty-one academic departments were represented at the retreat, 49 (60.5%) responded to the survey. Of those that responded, 42 (85.7%) were department chairs, 5 (10.2%) were vice chairs, and 2 (4.1%) were chair emeriti. When duplicate responses from the same institution were present, we utilized the chair's response. Procedural training for faculty was offered by 87.8% of departments. Among those that offered training, 32.6% reported that participation was mandatory. The most frequent procedural trainings focused on both adult and pediatric populations, with training sessions most frequently occurring twice per year. Departments used a variety of training methods: "in-person", "hands-on", and "virtual". Overall, "hands-on" (skill practice on simulators, live patients, or peers) training was utilized most frequently (93%), either in combination with other training types or by itself. A combination of "in-person" (instructor-led classroom-based sessions), and "hands-on" training methods were used in 27 programs (62.8%), and 4 programs (9.3%) used a combination of all three training types. The most commonly offered procedural trainings were: ultrasound (POCUS) (100%), airway (intubation, cricothyrotomy, tracheostomy) (93.0%), and anesthesia procedures (sedation, regional anesthesia/nerve blocks) (88.4%). The least commonly offered trainings were: wound management (14%), and both lumbar puncture and paracentesis (27.9%). Emergency physicians must be prepared for high acuity, low occurrence (HALO) procedures such as surgical airway, critical resuscitative procedures (pericardiocentesis, thoracostomy), vaginal delivery, and lateral canthotomy. Only 12 programs (27.9%) responded that they performed training for all of the commonly recognized HALO procedures listed above. The most frequent barrier for skill maintenance was lack of time and clinical scheduling challenges due to irregular emergency physician schedules.

Conclusions: This study provides a national snapshot of procedural skill maintenance strategies within academic emergency departments. Preliminary findings suggest procedural training is inconsistently required and varies in

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intensity across institutions. With a substantial proportion of departments not mandating regular skill refreshers, concerns persist about potential procedural skill decay among faculty. These findings emphasize the need for structured, deliberate practice opportunities and competency tracking systems tosupportskill retention. Future efforts should target implementation of simulation-based training, participatory teaching models, and guidelinessupportinglifelong procedural proficiency.

No, authors do not have interests to disclose

331 Not a Disaster, Just a Monday: Teaching Emergency Department Awareness via Tabletop Triage Exercise

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Introduction: Simulation is a cornerstone of emergency medicine education, often used for case-based learning and managing critical patient encounters. Full-scale and tabletop disaster drills are conducted in hospitals to evaluate capacity, triage, and flow through the emergency department (ED). However, these are typically multi-departmental and not designed specifically for residents as the primary learners.

Study Objective: To develop an experiential, gamified learning module for senior residents that simulates the role of an overwhelmed, single-coverage attending with limited resources—supportingthe transition from resident to attending.

Methods: We created a scalable and adaptable tabletop disaster drill, the Emergency Department Flow Tabletop Triage Exercise (EDF-TTE), conducted in small teams of senior emergency medicine residents. The schematic was modeled after a real ED with 22 beds and an annual volume of approximately 35,000 visits. It included beds with varied monitoring capabilities, a waiting room, ambulance bay, triage and psychiatric rooms—easily sketched on a whiteboard. The exercise was designed to challenge participants to triage patients effectively while navigating evolving, predefined obstacles. Using a "choose-your-own-adventure" format, residents made dynamic decisions with no single correct path, emphasizing critical thinking and strategic planning. Pre- and post-exercise surveys assessed self-perceived preparedness to manage an ED independently, along with understanding of triage and patient flow.

Results: Prior to the exercise, 55.6% of residents rated their preparedness at 7/10, with the remainder spread between 3 and 8. Post-exercise, 44.4% rated themselves at 8/10 and 22.2% at 9/10, reflecting a notable improvement. When evaluating confidence in prioritizing patients in the ED, 33.3% rated themselves at 9/10 pre-exercise, while most (66.7%) fell between 5 and 8. Following the exercise, 44.4% rated themselves at 9/10 and 33.3% at 8/10, with no ratings below 6. For understanding of ED patient flow from entry to disposition, most residents initially rated themselves between 6 and 7. After the exercise, 44.4% rated themselves at 9/10 and 33.3% at 7/10, with no scores below 7—indicating improved comprehension. Regarding triage decisionmaking — determining which patients required immediate placement versus those who could wait — pre-exercise ratings clustered at 7 (55.6%) and 8 (33.3%). Post-exercise, 88.8% rated themselves at 8 or 9, with no scores below 8. These findings demonstrate consistent increases in self-reported preparedness, triage confidence, and operational understanding.

Conclusion: Senior residents reported significant gains in departmental awareness, ED flow comprehension, and readiness to manage an emergency department after participating in the EDF-TTE. The exercise revealed key areas for further development while improving confidence in critical operational skills such as patient prioritization and triage strategy. As a low-cost, reproducible, and adaptable tool, the EDF-TTE offers a safe and effective way to prepare residents—at any level—for the responsibilities of attending-level practice, especially in high-pressure or disaster scenarios. In addition to strengthening clinical decisionmaking, the EDF-TTE fosters meaningful discussions between residents and faculty on workflow, leadership, and the transition to independent practice.

No, authors do not have interests to disclose

332 Careers in Academic Medicine: A Novel Elective Series for Emergency Medicine Interns

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Introduction: Early exposure to niches in emergency medicine is crucial for cultivating interest in academic roles within EM. However, most structured opportunities are offered later in residency, at which point, residents may have pivoted away from a career in academics or may not have enough time to adequately explore their interests before pursuing fellowship or other post-residency opportunities. Introducing tailored electives during the intern year may enhance awareness of academic pathways, provide meaningful mentorship, andsupportidentity development as an academic emergency physician. Despite this potential, few programs offer structured academic electives specifically targeting interns.

Study Objective: To implement and evaluate a structured set of intern-year electives designed to promote early engagement with academic emergency medicine (EM) career pathways.

Methods: We developed 14 one-week elective experiences tailored to emergency medicine interns collectively labeled Careers in Academic Medicine (CAM). Each elective focused on an EM niche (administration, critical care, emergency medical services, global EM, innovation, medical education, pain medicine, pediatric EM, simulation, social EM, sports medicine, ultrasound, wellness, and wilderness medicine). Each elective was created by a faculty member who specializes in the niche. The content for each elective varied, but typical content would be a combination of one-on-one meetings with fellows and faculty; reading landmark or new academic papers; reviewing podcasts; joining research or administration meetings; clinical shifts; mini projects such as creating an innovation pitch; or completing online modules. Interns selected up to two CAM electives. Following completion of each elective, residents were asked to complete a brief survey assessing (1) self-reported interest in the elective's focus area before and after participation, (2) what they learned about the field, and (3) overall impression of the elective. Qualitative responses were analyzed by two independent readers to identify common themes and insights.

Results: Since the program's inception, 22 of 23 eligible interns (96%) participated in the CAM elective series. Seventeen interns selected two electives, and five selected one, resulting in 39 total electives completed. We received 35 post-elective evaluations (90% response rate). Of these, 14 (40%) reported increased interest in the elective's focus area, 20 (57%) reported no change in interest, and 1 (3%) reported decreased interest. Qualitative analysis revealed recurring themes including discovering the breadth of career opportunities within each niche, a desire to influence medicine beyond clinical care, insight into academic career pathways, and the development of relevant professional skills. All narrative feedback was positive, indicating high perceived value of the experience.

Conclusions: Introducing structured, niche-focused electives during the intern year is a feasible and well-received strategy to promote early engagement with academic emergency medicine. Many interns reported increased interest in selected topics and valued the opportunity for early career exploration. Though we offered a broad menu of electives, a smaller set of high-yield options may be sufficient to achieve similar impact. This model may serve as a scalable approach for programs aiming to foster academic identity and mentorship earlier in training.

No, authors do not have interests to disclose

333 Educational Impact of a Dedicated Emergency Medicine Teaching Attending Shift

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Study Objective: Bedside teaching, broadly defined as "teaching in the presence of a patient," is a cornerstone of clinical education with varying implementation across inpatient settings. The emergency department (ED) offers a unique environment for bedside teaching due to high patient turnover, elevated acuity, and diverse pathologies. Despite its benefits, several barriers hinder implementation of bedside teaching in the ED, including brief patient interactions, interruptions, time constraints, electronic health record (EHR) demands, and patient boarding. A

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study examining teaching practices in academic EDs indicated that attendings spend an average of 5.5 minutes per hour on explicit instruction; residents perceived only 3.1 minutes per hour of direct teaching from attendings. Increasing clinical productivity demands may further reduce teaching opportunities, with perceptions of declining bedside teaching aligning with a now six-year downward trend in American Board of Emergency Medicine exam performance. For medical students, the use of a dedicated teaching attending experience demonstrated an association with improved clinical bedside teaching evaluations and an improved rating of the quality of an EM clerkship. Our study aims to evaluate the impact of having a dedicated teaching attending on the satisfaction and perceived availability of bedside teaching among residents and attendings in an academic ED.

Methods: This study is conducted in a large, quaternary care, academic medical center with an emergency medicine (EM) residency. The ED, staffed by a minimum of three attending-led teams at all times, maintains an average attending workload of 2.7 patients per hour. The intervention is the 'teaching shift' role, which was created to increase the amount of explicit teaching time residents receive from attendings. The teaching shift was designed as a 'swing' shift with a reduced patient load to allow attendings the availability for dedicated teaching time, formal review sessions, and supervision of procedures for cases outside of their own. Residents and attendings completed pre-and post-intervention surveys assessing satisfaction and perception of bedside teaching prior to and three months after introduction of the intervention.

Results: We conducted Wilcoxon Rank Sum bivariate analyses to evaluate pre-to-post survey changes in median responses. Among residents, there were statistically significant differences in median responses to all questions, with the post-survey indicating higher satisfaction (ie, higher median scores). After the teaching shift was introduced, satisfaction significantly increased among the residents with median scores improving from 4 out of 10 to 9 out of 10 (see **Table 1a**). Among attendings, there were no significant differences in median responses (see **Table 1b**).

Conclusion: Resident satisfaction and perceived availability of bedside teaching significantly increased post-intervention. Satisfaction and perceptions among attendings did not vary significantly from pre to post intervention. Limitations include the use of a limited survey, non-matched pre- and post-survey respondents, and a higher proportion of junior residents in the post-survey, which may have skewed results. Future investigation with a larger matched sample size and over a longer duration may yield furthersupportinsights. Our findings indicate a dedicated ED teaching shift significantly improved resident satisfaction and perceived bedside teaching availability within our department. We believe that this initiative shows promise as an effective educational intervention for EM training programs.

Table 1a. Comparisons of Resident Responses Pre- and Post-Teaching Shift Intervention

Pre			Post			
How Satisfied are you with the amount of bedside teaching available to you?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	**P-Value***
4	4--6	1--9	9	8--10	5--10	<0.0001
How satisfied are you with the amount of exposure to hone procedural skills?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	
5	3--6	1--9	6	5--9	1--10	0.02
Perception of how much bedside teaching is available to you?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	
4	3--6	2--10	8	6--9	4--10	<0.0001

Table 1b. Comparisons of Attending Responses Pre- and Post-Teaching Shift Intervention

Pre			Post			
How Satisfied are you with the amount of bedside teaching available to residents?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	**P-Value***
5	4--6	2--8	6	5--10	1--10	0.08
How satisfied are you with the amount of exposure EM residents get to hone procedural skills?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	
5	4--6	2--8	5	5--8	1--10	0.2
Perception of how much bedside teaching available to residents?						
Median	**IQR**	**Range**	**Median**	**IQR**	**Range**	
6	5--7	1--8	5	5--9	1--10	0.4

**Wilcoxon Rank Sum test*

No, authors do not have interests to disclose

334 A Curriculum to Prepare Residents for Clinical and Educational Leadership in the Emergency Department

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Study Objectives: Emergency medicine residents typically assume graded supervisory roles for clinical care. We evaluated the level of confidence residents reported to assume these roles after providing a structured curriculum in clinical care leadership.

Methods: We conducted a prospective, interventional study enrolling consenting emergency medicine residents at an single, urban teaching hospital. The intervention included a series of lectures during the PGY-1 year focused on learning effort, relationships/conflict, and clinical care skill sets. A structured survey was provided at the end of academic year first quarter to PGY-2 residents who had received the curriculum during internship (intervention group, IG) and to PGY-3 residents (non-intervention group, NIG) who had not received the curriculum. The survey included basic demographic information and asked preparedness questions in binary or Likert scale about PGY-2 clinical/learning/supervisory/teaching experiences. Categorical data were analyzed by chi-square; continuous variables by t-tests. Multivariate logistic regression used to control for confounding.

Results: There were 24 participating residents, including 8 females, 7 non-white, and 12 PGY-2 who received the intervention. There were no statistical differences between the groups for % female (p=0.4), race (p=0.6), mean age (p=0.4), and leadership training (p=0.1). There was a significant difference between the two groups for prior career before medicine (67% IG vs 25% NIG; (p=0.04). With respect to confidence, IG more often agreed/strongly agreed that they felt more comfortable teaching procedures than NIG (83% vs 42%; p=0.03). There was a trend that did not reach significance for IG reporting strongly agreed/agreed that they were more comfortable with medical student teaching (83% vs 50%; p=0.08) and leading the ED clinically while teaching a new intern (75% vs 42%; p=0.09). Within multivariate

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analysis, only teaching procedures was associated with strongly agreed/agreed response for the intervention (p=0.04).

Conclusion: Within our resident group, the clinical leadership intervention was associated with higher confidence to teach procedures. Larger studies are warranted to evaluate whether other trends that were observed might reach significance.

No, authors do not have interests to disclose

335 The Impact of Prehospital Blood Transfusion on Time to Blood Administration in Urban Trauma Patients

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Study Objective: For patients with traumatic hemorrhagic shock, rapid hemorrhage control and timely blood resuscitation are critical for survival. A 2023 study by Deeb et al found that each 1-minute delay in resuscitative interventions, including prehospital blood transfusion, was associated with a 2% increase in 30-day mortality. A joint position statement from theAmerican College of Emergency Physicians(ACEP), theAmerican College of SurgeonsCommittee on Trauma (ACS-COT), and theNational Association of EMS Physicians(NAEMSP), as well as other studies,supportprehospital blood transfusion in critically ill trauma patients. Ground EMS systems across the U.S. have increasingly implemented prehospital blood programs to expedite transfusion at the point of injury. As part of a strategic planning effort to establish a prehospital blood program in Los Angeles County, this study sought to estimate a minimum potential time that could be saved through prehospital blood transfusion compared to standard transfusion of blood upon trauma center arrival in a large urban trauma system.

Methods: This retrospective analysis included EMS-treated trauma patients >14 years old who were transported between November 1, 2021 and September 30, 2023. We isolated a cohort of patients that would have met prehospital blood transfusion criteria, including systolic blood pressure (SBP) <70, witnessed traumatic arrest by emergency medical services (EMS), or SBP <90 with Heart Rate ≥110. Patients were also excluded if they were transported by air, interfacility transfers, missing vital signs or vitals were documented after hospital arrival, or calculated times were equal to zero or >60 minutes. No blood was administered during the study period; we calculated hypothetical minimum time intervals that would represent the time from injury to first blood transfusion. EMS Estimated Time to Blood was defined as time of unit dispatch to time of the first set of vital signs meeting inclusion criteria. Hospital Estimated Time to Blood was defined as time of unit dispatch to time of hospital arrival. The primary outcome was the difference between EMS Estimated Time to Blood and Hospital Estimated Time to Blood. We further stratified the analysis by mechanism of injury and witnessed traumatic arrest by EMS. We used the Wilcoxon rank sum test to evaluate for significant differences between median time intervals.

Results: Of 25,473 trauma patients, 739 met prehospital blood inclusion criteria; 604 (82%) remained after exclusions. The median age was 35 (IQR 27, 50), 77% (n=467) were male, 38% (n=228) sustained penetrating traumatic injuries, and 14% (n=85) had an EMS-witnessed traumatic arrest. The median interval time was 5 min (IQR 4, 7) for response time, 13 min (IQR 9, 18) for scene time, and 11 min (IQR 7,16) for transport time. Among all patients meeting prehospital blood criteria, the EMS Estimated Time to Blood was 14 minutes (IQR 10, 20) and the Hospital Estimated Time to Blood was 30 minutes (IQR 24, 39). The median time difference was 16 minutes (p <0.001). For patients with a penetrating mechanism, the EMS Estimated Time to Blood was 14 minutes (IQR 11, 20) and the Hospital Estimated Time to Blood was 28 minutes (IQR 23, 26) (median difference 14 minutes). For patients with a blunt mechanism, the EMS Estimated Time to Blood was 15 minutes (IQR 10, 21) and the Hospital Estimated Time to Blood was 31 minutes (IQR 25, 40) (median difference 15 minutes). For patients with an EMS-witnessed traumatic arrest, the EMS Estimated Time to Blood was 11 minutes (IQR 8, 17) and the Hospital Estimated Time to Blood was 24 minutes (IQR 20, 33) (median difference 13 minutes).

Conclusion: In a large urban trauma system, prehospital blood transfusion for patients with traumatic hemorrhagic shock could decrease the time to first blood product transfusion by approximately 14 minutes when compared to transfusion upon hospital arrival. When minutes matter, prehospital blood transfusion may reduce the interval to first blood product administration and improve morbidity and mortality for critically ill trauma patients.

No, authors do not have interests to disclose

337 The Rapid Infusion of Crystalloids for Sepsis in the Prehospital Setting: A Before-After Analysis

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Study Objectives: Although intravenous (IV) crystalloid administration is a standard component of sepsis treatment, the benefit of a more aggressive approach to early crystalloid administration is unclear. We performed a before-after analysis to determine if the prehospital administration of IV crystalloids using a hand-operated rapid infuser for patients with suspected sepsis is associated with a reduction in in-hospital mortality.

Methods: We used an existing quality assurance database and manual chart review to perform a before-after analysis of patients with suspected sepsis who were transported by a single emergency medical services (EMS) agency in Florida, USA between January 1, 2020 and December 31, 2024. In November 2023, this EMS agency began to use a hand-operated rapid infuser (the LifeFlow [410 Medical, Durham, North Carolina]) to administer IV crystalloids to patients with suspected sepsis. Prior to that, they used a pressure bag for crystalloid administration. Otherwise, their sepsis protocol did not change, and has been as follows. To be a sepsis alert, patients had to have a suspected infection plus at least two of the following: hypotension (systolic blood pressure < 100 mmHg), altered mental status, and tachypnea (RR > 22 or EtCO2 < 25 mmHg). These sepsis alert patients were to be administered boluses of IV normal saline until hospital arrival or to a maximum of 2 L. Our primary outcome was in-hospital mortality, which we defined as death in the hospital or discharge from the hospital to a hospice facility. Secondarily, we assessed the amount of fluid administered in the prehospital setting. We compared patients treated before the introduction of the rapid infuser to patients treated after using propensity score matching.

Results: Between January 1, 2020 and December 31, 2024, there were 441 sepsis alert patients transported, including 406 (92.1%) for whom receiving hospitals supplied outcome data. Of those, 310 were transported prior to the availability of the rapid infuser and 96 were transported after. Patients ranged in age from 25-100 years old, with median of 83 years (IQR: 75-89 years). Patients were transported to four different hospitals. Median time from arrival at scene to arrival at hospital was 23 minutes. The mean volume of IV crystalloid administered in the prehospital setting was 643 mL (SD 439 mL) prior to LifeFlow compared to 1047 mL (SD 624 mL) after LifeFlow implementation, a difference of 404 mL (95% CI 268 to 540 mL), p < 0.0001. Using unadjusted data, 30 (31.3%) of patients transported after implementation of LifeFlow died in the hospital or were discharged to hospice compared to 98 (31.6%) transported prior to the implementation of LifeFlow. After full propensity matching, the percentage of patients who died or were discharged to hospice was 31.2% before LifeFlow implementation compared to 30.5% after the LifeFlow implementation, a difference of 0.7% (95% CI -9.9% to 11.3%), p = 0.90.

Conclusion: In this before-after analysis from a single EMS system, the mean amount of IV crystalloid administered in the prehospital setting increased by approximately 400 mL after the incorporation of a rapid infuser into the sepsis protocol. This increase was not associated with a change in in-hospital mortality.

No, authors do not have interests to disclose

338 Assessing Blood Product Readiness for Mass Casualty Events in a Large Urban Trauma System

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Study Objectives: Mass casualty events (MCEs) are increasing in frequency and severity, with incidents such as the Las Vegas Shooting and Paris Bombing resulting in 185 and 337 casualties, respectively. A large-scale MCE in Los Angeles County, a metropolitan area with 9.7 million residents spanning over 4,000 square miles, could significantly strain the regional trauma system's blood supply. Effective MCE response requires the rapid mobilization, deployment, and restocking of blood products across a geographically diverse system. This study assessed the current MCE preparedness of regional trauma centers by evaluating on-site blood product levels and estimating institutional capacity to meet expected demand based on Association for the Advancement of Blood & Biotherapies (AABB) guidelines.

Methods: A cross-sectional needs assessment was conducted via an anonymous survey distributed in February 2025 to trauma program managers at 15 Level 1 and

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Level 2 trauma centers in Los Angeles County. The survey collected data on on-site quantities of packed red blood cells (PRBCs), fresh frozen plasma (FFP), platelets, cryoprecipitate, and whole blood (WB), as well as blood product utilization in massive transfusion protocols (MTPs). Descriptive statistical analysis was performed, reporting medians and interquartile ranges (IQRs). Institutional preparedness was evaluated using AABB-recommended blood product quantities for disaster scenarios (3 units PRBCs, 1 unit FFP, and 0.25 units of platelets per admission).

Results: Eight regional trauma centers completed the survey (Three Level 1 Trauma Centers and Five Level 2 Trama Centers). Median on-site PRBC stock was 350 units (IQR 190, 481),supportingan estimated 117 patients per institution (IQR 63, 160). Median FFP stock was 248 units (IQR 168, 328), but only 6.7% (16.5 units) was thawed and immediately available, limiting the immediate FFP capacity to 16 patients. Additional FFP required a median preparation time of 30 minutes (IQR 25, 30). Institutions maintained a median of 7 units of platelets (IQR 5, 13),supporting28 patients (IQR 19, 53). Whole blood was used in trauma care at 4 (50%) institutions, with a median of 16 units stored on-site (IQR 12, 20). Cryoprecipitate was stocked at 7 (87.5%) institutions, with a median on-site supply of 50 units (IQR 38, 94). Three centers initiated MTPs with a median of 2 units of WB, while one institution exclusively used WB in place of component therapy (range: 9–12 units per patient), translating to an average capacity of 8 patients. MTP contents varied but typically included 6 PRBCs (IQR 5,6), 6 FFP (IQR 5,6), and 1 platelet unit (IQR 1,1). This stocksupporteda median capacity of 58 MTPs for PRBCs, 45 forFFP, 3 for thawedFFP, and 10 for platelets.

Conclusion: While trauma centers maintain sufficient blood products for routine operations, their capacity for immediate large-scale MCE response may be limited, particularly due to the low availability of thawed FFP and platelets. These findings highlight the need for enhanced regional disaster preparedness, including consideration for pre-positioned blood product reserves, streamlined resupply strategies, and inter-institutional coordination to optimize rapid blood product deployment.

PRBCs Used in Prior MCEs vs Total On-site PRBC Quantity

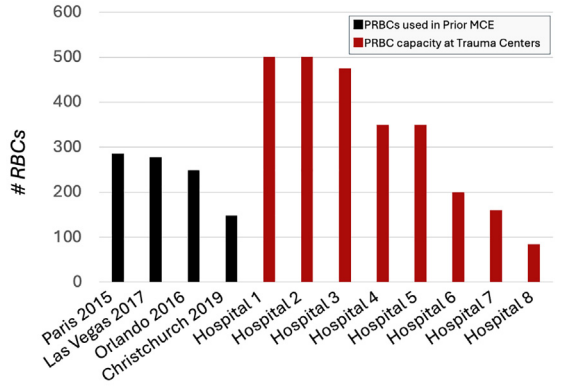


Figure 1. Shows total number of RBCs used in the first 10-26 hours during four prior Mass Casualty Events compared with the on-site quantity of PRBCs of all types at surveyed Institutions

No, authors do not have interests to disclose

339 Prehospital Sepsis Recognition and Antibiotic Administration: A Retrospective Analysis

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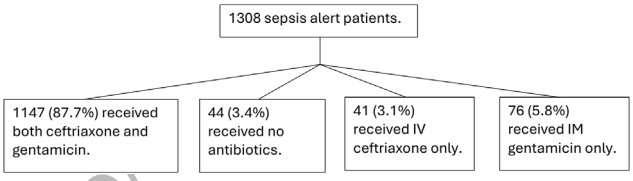
Study Objectives: Although earlier antibiotics are known to be beneficial in sepsis, very few emergency medical services (EMS) agencies have protocols for prehospital antibiotics for sepsis. Therefore, we sought to assess how well a large EMS agency that uses prehospital antibiotics for sepsis adheres to its sepsis protocol, and to determine how soon antibiotics are typically given.

Methods: We conducted a retrospective chart review of patients identified as "sepsis alerts" by EMS clinicians from a single EMS system in Florida, USA. The prehospital sepsis protocol dictated that EMS clinicians initiate a "sepsis alert" if the patient had a suspected infection and at least two of the following three criteria based on the sequential [sepsis-related] organ failure assessment (qSOFA) score: altered mental status, respiratory rate > 22 breaths per minute or end-tidal CO2 < 25 mmHg, or systolic blood pressure < 100 mmHg. Per protocol, patients meeting sepsis criteria were supposed to receive intravenous ceftriaxone and intramuscular gentamicin. We reviewed the charts of sepsis alert patients to determine demographic information, clinical characteristics, sepsis protocol compliance, and when patients received antibiotics.

Results: Between June 1, 2023 and June 30, 2024, there were 1,308 patients for whom a prehospital sepsis alert was initiated. Median age was 80.0 years (IQR: 72 to 87.5), and 48.5% had hypotension (systolic blood pressure < 100 mmHg). Of the 1,308 sepsis alert patients, review of documentation confirmed that 1,301 (99.5%) had a suspected infection with at least 2 sepsis alert criteria. In total, 1,264 (96.6%) received at least one antibiotic (either ceftriaxone or gentamicin) prior to hospital arrival. The median time from 9-1-1 call to first antibiotic administration was 26 minutes (IQR: 21 to 31 minutes). The first antibiotic was given a median of 11 minutes (IQR: 7 to 16 minutes) prior to hospital arrival.

Conclusion: EMS clinicians adhered to the sepsis protocol with a high degree of accuracy and administered antibiotics prior to hospital arrival in 97% of sepsis alert cases. Patients received their first antibiotic a median of approximately 26 minutes after 9-1-1 call and 11 minutes prior to hospital arrival.

Figure 1: Flow of patients documented as being prehospital sepsis alerts.



No, authors do not have interests to disclose

340 Impact of Prehospital Antibiotic Administration Protocol for Sepsis on EMS Scene and Transport Times

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Study Objectives: Despite the known importance of early identification and treatment, many patients with sepsis are not administered antibiotics until after they reach the emergency department (ED). Recognition of sepsis and administration of prehospital antibiotics by Emergency Medical Services (EMS) personnel may offer an opportunity to initiate patient care earlier, however, little is known regarding the feasibility of such a protocol. The primary objective was to investigate the impact of a prehospital antibiotic administration protocol for patients with sepsis on EMS crew scene and transport times.

Methods: A quasi-experimental study of a consecutive sample of patient electronic health records was performed. All ED patient encounters at a single large, public, non-profit healthcare system in the southeast United States over a 22-month period were screened. Per the new EMS protocol, patients satisfying two of three qSOFA criteria were to be given 2 grams ceftriaxone intravenously. Patients who were transported and received prehospital antibiotics by EMS during the 11-month period following implementation of the protocol (April 1, 2024 – February 28, 2025) were categorized into the post-protocol cohort. Patient encounters during the 11-month period preceding implementation of the protocol (April 1, 2023 – February 28, 2024) coded with a sepsis-related ICD-10 code and in which the patient originally arrived by ambulance served as historical controls and were categorized into the pre-protocol cohort. Patient care time, total scene time, and transport time in minutes for each individual EMS run were recorded. Run times were summarized for the pre- and post-protocol cohorts. Univariate analysis and comparison of EMS provider run times between pre- and post-protocol cohorts was performed using Wilcoxon rank-sum tests. All statistical analysis was performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at $p < 0.05$, a priori.

Results: A total of 208 (59%) and 143 (41%) patient encounters were categorized into the pre- and post-protocol cohorts, respectively. The median patient care times for the pre- and post-protocol cohorts were 17.0 min (95% CI: 16.0-18.0 min) and 22.4 min (95% CI: 20.8-23.8 min), respectively, and this difference was statistically significant ($p < .0001$). The median scene times for the pre- and post-protocol cohorts were 18.6 min (95% CI: 17.2-19.3 min) and 23.8 min (95% CI: 22.8-25.3 min), respectively, and this difference was statistically significant ($p < .0001$). The median

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transport times for the pre- and post-protocol cohorts were 6.0 min (95% CI: 5.8-6.6 min) and 6.1 min (95% CI: 5.6-6.6 min), respectively, and this difference was not statistically significant (p=0.49).

Conclusion: The implementation of an EMS prehospital antibiotic administration protocol for patients with sepsis is associated with an increase in patient care and scene times, however, transport times appear unaffected. Prehospital antibiotic administration may best be done during the transport phase so as to reduce overall time in the field and ensure expeditious EMS-ED patient handover.

No, authors do not have interests to disclose

341 Impact of a Host-Protein Test on Antibiotic Use and Healthcare Costs in LRTI: JUNO RCT Sub-Analysis

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Study Objectives: Difficulty in determining lower respiratory tract infection (LRTI) etiology can lead to mismanagement and poor clinical outcomes. MeMed BV® (MMBV) is an FDA-cleared host-protein test that differentiates bacterial from viral infection, with sensitivity and specificity of >90% and a negative predictive value of 99%. The test generates a score ranging from 0 to 100, with scores <35 indicating a viral infection and scores >65 a bacterial infection (or co-infection). Here we assess MMBV's ability to optimize antibiotic prescription and its effect on hospital costs based on the JUNO randomized controlled trial (RCT).

Methods: This is a sub-analysis of US patients enrolled in the multi-center JUNO RCT, a prespecified pilot phase of the JUPITER RCT (NCT05762302). After informed consent, adult emergency department (ED)/Urgent Care Center (UC) patients with clinical suspicion of LRTI, for whom the physician was considering antibiotic treatment, were enrolled. Inclusion criteria were fever within 7-days and 1 of cough, sputum production, dyspnea, or auscultation abnormality. Exclusions were receiving antibiotics before presentation or being immunosuppressed. Patients were randomized to standard of care (SC) or an MMBV arm where physicians received the MMBV result that was not recorded in the electronic health record. Randomized patients discharged from the ED/UC were included in this sub-analysis. We conducted a post-hoc pragmatic cost analysis from the perspective of the hospital. Thus, only the costs of negative outcomes associated with unresolved infection are evaluated, including: (1) ED/UC return visit within 7-days and (2) hospitalization resulting from a return visit. Cost data was obtained from the 2024 AHRQ HEALTHCARE COST & UTILIZATION PROJECT statistical briefs.

Results: Overall, 198 met eligibility criteria; 100 SC and 98 MMBV patients. Median (IQR; interquartile range) age was 39, (28-54) years, with 58% female. 77% were enrolled in the ED and 23% in UC. Overall, antibiotic prescription rates were 30% (95%CI: 22%-40%) and 23% (95%CI: 16%-33%) in SC vs MMBV arms, respectively. Unnecessary antibiotic prescriptions (score <35; n=134) were given more often in the SC arm, 25%, n=67 (95%CI: 16%-37%) vs 10%, n=67, (95%CI: 5%-20%) in the MMBV arm. Of patients with score >65 (n=36), antibiotics were prescribed in 37%, n=19 (95%CI: 19%-59%) vs 76%, n=17, (95%CI: 52%-91%) of SC and MMBV patients, respectively. In the SC arm, there were 7 return visits and 2 hospitalizations, with a total of 31 hospital days, for a cost of $73,327 ($733/patient) vs the MMBV arm which had 3 return visits and 0 hospitalizations for a cost of $2,649 ($27/patient). MMBV ultimately provided a $706/patient saving.

Conclusion: Availability of MMBV was associated with improved antibiotic stewardship and a projected hospital cost reduction. A larger real-world evidence analysis is warranted for validation of these preliminary findings, which along with published models,supportsthe health economic benefit of integrating host-response diagnostics atED/UCsettings.

Funding: This project has beensupportedin part with federalfundsfrom the Department of Health and Human Services; Administration for Strategic Preparedness and Response;Biomedical Advanced Research and Development Authority (BARDA), under contract number 75A50123C00041.

Yes, authors have interests to disclose

Disclosure: The JUNO trial has beensupportedin part with federalfundsfrom the Department of Health and Human Services; Administration for Strategic Preparedness and Response; Biomedical Advanced Research and Development Authority (BARDA), under contract number 75A50123C00041. In addition, MeMed is a primarysponsorof this study and DiaSorin Inc. is also asponsor.

All authors

Scientific Study/Trial

Research Embargoed Until Determination of Presentation

The JUNO trial has beensupportedin part with federalfundsfrom the Department of Health and Human Services; Administration for Strategic Preparedness and Response;Biomedical Advanced Research and Development Authority(BARDA), under contract number 75A50123C00041. In addition, MeMed is a primarysponsorof this study and DiaSorin Inc. is also asponsor.

342 Missed Opportunities for Diagnosis of Early Mpox: Retrospective Analysis During NewYork City's 2022 Outbreak

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Study Objectives: Mpox, a zoonotic Orthopoxvirus endemic to Central and West Africa, has caused an ongoing global outbreak since May 2022, predominately affecting men who have sex with men and persons living with HIV. Clinical features include a non-specific prodrome of fever, myalgia, and lymphadenopathy for 1-4 days preceding development of characteristic skin lesions, but variant presentations, including proctocolitis and few or atypical lesions, have also been reported during the current outbreak. Laboratory diagnosis of mpox relies on PCR of viral DNA from lesions, although viral DNA may be detected at other anatomic sites and in body fluids. Mpox cases could be missed on first presentation to healthcare settings due to challenges in recognizing early symptoms and exposure risk behaviors, and testing limitations. We therefore examined how frequently patients had healthcare visits in the 14 days preceding the clinical encounter when mpox was later diagnosed (index visit); how often suggestive symptoms and risk factors for mpox were recorded for these visits; and how many of these visits were to emergency departments (EDs).

Methods: We performed a retrospective review of electronic health records (EHRs) of a random sample of 166 adult patients diagnosed with mpox at a major health system in New York City (NYC) between July 2022 and March 2023. We examined healthcare visits in the 14 days preceding the index visit to determine their frequency. Data on patient demographics, clinical sites of presentation (ED, urgent care, outpatient clinic), symptoms, risk behaviors, and sexually transmitted infection (STI) testing performed were extracted and summarized for these visits. Bivariate analyses were performed to determine if patient factors and clinical site were associated with a healthcare visit preceding the index visit.

Results: Of the 166 adult patients, 94% were male, 40% were black and 32% Hispanic; their mean age was 40 years old; 69% had Medicaid; and 66% had HIV. Their demographics were similar to people diagnosed with mpox across NYC in 2022. Thirty of the 166 patients (18.1%) had a healthcare visit during which symptoms or signs of mpox were documented preceding the index visit. 67% of these visits occurred at EDs and 67% occurred within four days of the index visit. Eight patients (26.7%) had more than one visit. Of the 30 patients with a healthcare visit preceding the index visit, 86.7% had at least one mpox symptom, 70% had fever and/or rash, 30% had at least one sexual risk factor recorded, and 30% were tested for at least one STI during their visit. Symptoms reported by the 30 patients during the healthcare visits included fever (50%), lesions or rash (30%), sore throat (23%), lymphadenopathy (17%), rectal pain (17%), and myalgia (10%). One patient was tested for mpox with a negative result. The likelihood of a healthcare visit occurring prior to the clinical encounter when mpox was later diagnosed was not associated with patient age, insurance status, HIV status, or clinical site of the visit. However, women were significantly more likely to have had a prior healthcare visit ($p < 0.01$). Non-white patients were also more likely to have a had a prior visit, though the association did not reach statistical significance (p=0.07).

Conclusion: Nearly one in five patients diagnosed with mpox in a major health system in NYC during the 2022 outbreak had a healthcare visit in the preceding two weeks with common symptoms or signs of mpox. The majority of these visits were to EDs. In the setting of a future outbreak, improving recognition of prodromal and atypical symptoms and screening for risk behaviors could improve early detection and patient isolation. Routine testing by PCR of anatomic sites other than skin lesions might help improve early diagnosis and limit further spread of infection.

No, authors do not have interests to disclose

343 Mobile Phone Auscultation Analysis to Accurately Diagnose Pneumonia: A Prospective Cohort Study

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Study Objectives: Seeking to develop technology for medical countermeasures in novel infectious pandemics, thisfundedproject intended to use mobile phone

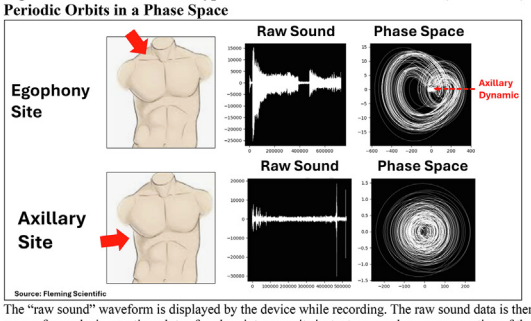
auscultation (MPA) to enable frontline detection of specific health states for situations with limited diagnostic options. The overall objective of this research was to determine if MPA could predict the diagnosis of pneumonia compared to a mix of other respiratory conditions and controls.

Methods: This prospective cohort study enrolled participants in five predetermined cohorts: influenza A, pneumonia, acute bronchitis, other respiratory illness, and controls. Potential subjects were approached in one of three emergency departments (two urban and one rural). Thirty-second MPA recordings were obtained from the anterior midaxillary fifth intercostal site during both normal and deep respiration, along with one supraclavicular egophonic recording. Recordings were obtained using unmodified mobile phones equipped with class 2 software paired and subsequently analyzed with computational nonlinear biofluid dynamics to classify organ functionality. All recordings were evaluated for Maximal Lyapunov Exponent (MLE) and Correlation Dimension (Dcorr) to confirm the presence of low dimensional chaos and applicability of time series dynamics (TSD) modeling. Train and test sets were created by 80/20 random sampling of clustered records. TSD models were initially fitted separately to the Axillary and Egophony recordings and then combined into a single "composite" model. Binary classifiers were fitted by using logistic regression. The auscultation recordings were evaluated by standard confusion matrix analysis for both the test and train sets. Demographic and clinical data were obtained from the electronic medical record and stored in Redcap, an encrypted research database.

Results: From November 21, 2023 to June 12, 2024, the team enrolled 292 total subjects with a mean age of 49 years (SD 17.3), 49.7% male sex; 67.4% white and 29.2% Black. We nearly reached predetermined targets of 65 per cohort: 64 pneumonia, 59 influenza A, 38 acute bronchitis, 69 other respiratory, and 64 controls. In binary comparison of pneumonia subjects to all other groups, those with pneumonia were older (57 years vs 47 years), more likely male (59% vs 48%), more likely white (75% vs 66%), and more likely to have a tobacco history (60% vs 68%). No completed recordings were excluded from the analysis. TSD modeling of Egophonic, Axillary, and Composite models all produced very accurate results. The models yielded one false negative and seven false positives. In train and test analyses, the axillary (sens 85%, spec 81%) and egophonic (sens 85%, spec 86%) models performed well. The composite model achieved sensitivity 91%, specificity 87%, and area under the curve of 89%.

Conclusion: Thisfundedresearch found that chaos-based, time series dynamics modeling of mobile phone auscultation data yielded excellent sensitivity, specificity, and area under the curve to delineate pneumonia from other respiratory illness and control subjects. Models based on unenhanced mobile phone auscultation could democratize the diagnosis of multiple medical conditions, particularly in the setting of medical counter measures for disease outbreaks, as intended in this study. Phase 2 will further characterize these models for deployment in larger, more diverse populations.

Figure 1: Visualization of a Typical Case Shows the Raw Sound (Waveform) and Unstable Periodic Orbits in a Phase Space



The "raw sound" waveform is displayed by the device while recording. The raw sound data is then mapped to phase spaces for analysis, creating plots of each point versus its instantaneous slope over a section of the raw sound. Despite significant differences in the appearance of the Axillary and Egophony waveforms, the phase spaces were similar in the presence of unstable periodic orbits which is a common property of chaotic systems.

Yes, authors have interests to disclose

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Martin Huecker

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344 Differentiating Bacterial Versus Viral Infections in Elderly Patients With Suspected UTI: A Pilot Study

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Study Objectives: Urinary tract infection (UTI) is common in elderly emergency department (ED) patients, and its clinical manifestations can be challenging, as many present with undifferentiated fever or mental status changes. Urine culture is the gold standard for UTI diagnosis but takes 24–72 hours to yield results. Accordingly, initiation of appropriate antibiotic treatment is commonly empiric, unnecessary, or delayed. MeMed BV® (MMBV) is an FDA-cleared host-protein test that differentiates between bacterial and viral infections, with a sensitivity and specificity above 90%. It generates a 0 to 100 score; <35 indicates a viral (or other non-bacterial) infection, 35-65 are equivocal, and >65 indicates a bacterial infection (or co-infection). Our purpose was to compare MMBV to clinical adjudication in elderly patients with suspected UTI.

Methods: We performed a retrospective, chart review study (IRB2023-00113) of patients ≥ 65 years old, with a fever within 7 days, and a urinalysis and urine culture ordered for suspected UTI. Patients on prior antibiotics or with other known bacterial sources of infection were excluded. MMBV was compared to clinical adjudication that was based on comprehensive review of all available standard of care testing.

Results: Of 20 patients meeting the inclusion criteria, median age was 80.5 years (IQR: 76.5-84.25); 70% were male. All urinalyses had >5 WBC/ml, with median WBC/ml = 299 (IQR: 89.75-561.5), and 60% were positive for nitrites. Of urine cultures, 15 had bacteriuria with 1 pathogen, 3 were reported as contaminated, and 2 had no growth. All patients received antibiotics, and 70% were hospitalized. Adjudication determined that 19/20 cases were bacterial UTIs, and 1 was a non-bacterial infection. MMBV had scores > 65 for the 19 UTIs, and <35 for the non-bacterial infection.

Conclusion: MMBV demonstrated good concordance with clinical adjudication in elderly suspected UTI patients. The MMBV test maysupportappropriate antibiotic utilization and patient management in this challenging population. Our findings need to be validated in a larger prospective study.

No, authors do not have interests to disclose

345 The Risk Between Cough and GAS Pharyngitis in Adults: A 15-Year Retrospective Analysis

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Study Objectives: Group A streptococcus (GAS) is a common bacterial cause of pharyngitis where the correct diagnosis is important. There is some evidence that the clinical symptoms of a viral infection in adults can overlap with GAS pharyngitis. It has been reported that the risk of GAS pharyngitis is low in adults with a cough (13-18%). This study aimed to evaluate the risk of GAS pharyngitis in adults presenting with fever and cough over a 15-year period.

Methods: This is a retrospective, propensity-matched study utilizing the TriNetX database which included over 113 million patients from 67 healthcare organizations in the United States. The time frame was 15 years (2010-2015). Cohort 1 included adult patients (≥18 years of age) with pharyngitis, fever, and cough, while Cohort 2 had pharyngitis, fever, and no cough. The outcome was a GAS pharyngitis positive testing within one week of fever onset. Propensity matching was performed for demographics.

Results: A total of 93,717 patients were identified, with 77,270 in Cohort 1 and 16,447 in Cohort 2 before propensity matching. After matching, there were 16,381 patients in each cohort. There was a significant risk of a patient with fever without a cough having GAS pharyngitis (28.5%) versus those with fever, cough and GAS pharyngitis (13.2%%) with a cough (RR=0.462, 95% CI 0.44-0.49, p <0.001). Patients without cough were twice as likely to test positive for GAS pharyngitis. The risk of having GAS pharyngitis with a cough was 28.5%, which is higher than what has been reported.

Conclusion: While the presence of cough remained a negative predictor of GAS pharyngitis, the observed risk was higher than prior estimates. These findings emphasize the need for careful clinical assessment in adult patients presenting with pharyngitis and cough.

No, authors do not have interests to disclose

Research Not Under Embargo Until Date/Time of Presentation

346 Returning to SCUBA Diving After COVID-19

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Study Objectives: After the COVID-19 pandemic was declared in 2020, initial evidence showed SCUBA divers would be unable to return to diving due to long term cardiopulmonary impact from the disease. In response, Divers Alert Network, a nonprofit dedicated to improving dive safety, created a 5-year longitudinal observational study called Diver Return after COVID-19 (DRACO) looking at the impact of COVID-19 on SCUBA diving. This abstract covers data learned from the first two years (2020-2022) of this project.

Methods: Using Momentive™ and RedCap™, participants enrolled in DRACO by completing an initial survey covering details of their medical history, infection, current return to diving status, and fitness to dive exam. Participants received 1-month, 3-month, 6-month, 1-year, 2-year, 3-year, 4-year, and 5-year follow-up (FU) surveys tracking updates on medical issues, return to diving, fitness to dive examinations, and vaccination results.

Results: Of the 1,283 divers initially enrolled in the study, 346 completed all surveys through the 2-year questionnaire. 973 divers (75.8%) reported a return to diving. Infection severity among participants who returned to diving varied, with 81 (8.3%) participants with an asymptomatic infection, 836 (85.9%) with a mild infection, 42 (3.3%) with a moderate infection, and 14 (1.1%) participants with a severe infection. 142 (14.6%) participants reported issues on returning to diving, the majority of which were pulmonary complications and fatigue. Out of the 776 reported Fitness to Dive examinations (FTDs) (60.5% of participants), 82 (10.6%) FTD exams were reported as failed. Of those who had not passed, 22 (26.8%) had pre-existing medical conditions and 65 (79.3%) had not returned to diving in the same questionnaire in which they reported not passing their FTD. Longitudinally, 11 participants reported a failed FTD on the initial survey and remained enrolled in the study through the 2 year questionnaire. 10 (90.9%) participants had returned to diving by the 2 year questionnaire, with the remaining participant reporting they did not plan on returning to diving again. Of those 10 participants who returned to diving, 4 (40.0%) participants reported issues while diving.

Conclusion: Multiple factors play a role in a successful return to diving after a COVID-19 infection. The impact of COVID-19, both as a disease and as a global shift impacting almost every community, will continue to be seen for years to come. Presently, divers should continue to take a cautious return to diving after a thorough evaluation by a physician trained in dive medicine and stay updated as guidelines and warnings shift domestically and internationally.

Table 1: Issues on Return to Diving

Issues while diving	Number of complaints (initial through two years)	Percentage of participants who have returned to diving (n=973)
Shortness of breath, dyspnea	55	5.6%
Coughing or wheezing	17	1.7%
Increased gas consumption	22	2.3%
Other pulmonary issues	12	1.2%
Fatigue	26	2.7%
Psychological issues	11	1.1%
Ears, Nose, Throat issues	23	2.4%
Decompression Sickness	9	0.9%
Arterial Gas Embolism	0	0.0%
Other, non-pulmonary issues	9	0.9%
Total divers reporting issues	**142**	**14.6%**

No, authors do not have interests to disclose

347 Predictors of Echocardiography Findings in Older Adults With Syncope: Validating the ROMEO Score

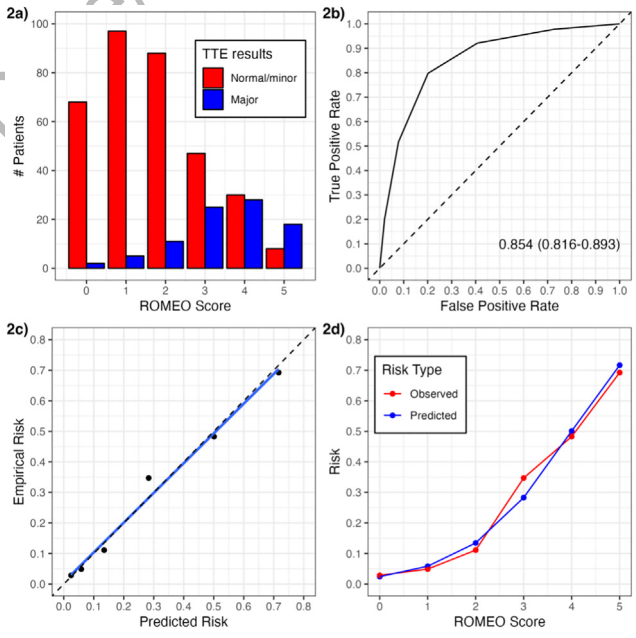
Vargas G, DeAngelis J, Winskill C, Weiss R, Sacco D, Probst M/University of Rochester, Rochester, New York

Study Objective: Syncope is a frequent cause of emergency department (ED) visits and may signal underlying structural heart disease (SHD), such as valvular pathology or ventricular dysfunction. Transthoracic echocardiography (TTE) is commonly used to assess these conditions, but routine ordering of TTE in all patients with syncope is infeasible. The ROMEO (Risk of Major Echocardiography Findings in Older Adults with Syncope) score was developed to identify patients with syncope or presyncope at very low risk of significant TTE findings. Our objective was to externally validate the ROMEO score.

Methods: This study is a secondary analysis of the PACES (Practical Approaches to Care in Emergency Syncope) prospective cohort [CW1] [MP2]. The study was conducted in six urban U.S. EDs between 2020 and 2024. Adults aged ≥40 years presenting with syncope or presyncope who had a TTE within 30 days were included. Patients with a serious diagnoses found in the ED, or clear alternative causes were excluded. ROMEO predictors include a history of heart failure, coronary artery disease, abnormal ECG, elevated high-sensitivity troponin T (>19 pg/mL), [CW3] [MP4] and elevated NT-proBNP (>125 pg/mL). We collected TTE results, calculated performance characteristics, and validated the previously derived ROMEO score. Bayesian logistic regression was used to calculate unadjusted and adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Results: Among 6,338 screened patients, 427 were included in the analysis. Of these, 20.8% (n=89) had significant echocardiographic findings. The most common findings were ejection fraction <45% (12%) and regional wall motion abnormalities (5.9%). The ROMEO score demonstrated excellent discrimination with an Area Under the Curve (AUC) of 0.85, a sensitivity of 97.8% (95% CI 94.7-100%), and a negative predictive value of 97.1% for significant findings on TTE [CW5] [MP6]. Heart failure (aOR 3.84, 95% CI 2.10-6.52), CAD (aOR 2.13, 95% CI 1.20-3.53), and abnormal ECG (aOR 3.04, 95% CI 1.33-6.25) were significantly associated with major TTE findings [CW7] [MP8]. Patients with a ROMEO score of zero had a 2.9% rate of major findings.

Conclusions: The ROMEO score, which incorporates five simple clinical variables, demonstrates excellent predictive performance, and can help clinicians identify patients who are unlikely to benefit from TTE evaluation. Integrating the ROMEO score into the ED clinical workflow could optimize resource use and improve care for patients with syncope or presyncope.



No, authors do not have interests to disclose

348 Ultrasound Evaluation in Pulmonary Embolism: Point-of-Care Versus Consultative Echocardiography

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Study Objectives: Assessment of right ventricular dysfunction (RVD) is crucial for the risk-stratification of emergency department (ED) patients with acute pulmonary embolism (PE). This study evaluated the inter-rater reliability of emergency physician-interpreted point-of-care ultrasound (POCUS) compared to cardiologist-interpreted

Research Presentation Until Full Publication/Time of Presentation

consultative echocardiography for the presence or absence of RVD in patients diagnosed with acute PE.

Methods: We developed a retrospective cohort of adult patients (age >18 years) who presented to a large, academic medical center ED between 11/1/2017 and 10/31/2024. Patients were identified using a published, regular expression algorithm which scans impressions of computed tomography reports to identify PE+ patients. POCUS data were collected on QPath (Telexy), an ultrasound middleware program, and compared to consultative ultrasound reports as a gold standard. Patients were included if they received both: 1) RVD assessment on POCUS performed in the ED and reviewed by an emergency attending, and 2) a cardiologist interpretation of RVD on consultative echocardiogram. Emergency physician interpretation for the presence or absence of RVD on POCUS was defined as visual right ventricular enlargement of equal or greater size compared to the left ventricle, decreased RV systolic function based on tricuspid annular plane systolic excursion, or both. Cardiologist interpretation of RVD on consultative ultrasound was categorized as absent, mild, or moderate to severe RVD when using this verbiage to describe the presence of RV dilation, reduced RV systolic function, or both. We report agreement as inter-rater reliability coefficients (kappa) stratified by both severity of RVD and residency training level.

Results: There were 199 patients included in the study. Median age was 58 years (IQR 43-71). Patients were 51.3% female, 70.0% White, and 25.1% Black. There was 81.9% agreement (kappa=0.64, 95% CI, 0.53-0.74) between POCUS and consultative echocardiography. In patients with moderate or severe RVD on consultative ultrasound (N=68), agreement was higher at 86.3% (kappa=0.72, 95% CI, 0.61-0.83). POCUS was more likely to result in false positive RVD assessments (N=16) than false negative (N=8). Inter-rater reliability between POCUS and consultative ultrasound was highest in first year residents and declined through training (PGY-1, k=0.84, 95% CI 0.63-1.00); PGY-2, k=0.69, 95% CI 0.45-0.94; PGY-3, k=0.62, (95% CI 0.38-0.88).

Conclusion: There is substantial agreement in the diagnosis of RVD on POCUS when compared to consultative echocardiography in patients with acute PE. Agreement between imaging modalities declines over residency training suggesting longitudinal practice refreshers may be beneficial.

Yes, authors have interests to disclose
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Jordan Rupp, MD, FPD-AEMUS
Consultant/Advisor
VisualDx
Disclosure: Grifols, Diagnostica Stago, Siemens Healthineers
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Grifols, Diagnostica Stago, Siemens Healthineers
Disclosure: Siemens Healthineers and BMS/Pfizer
Christopher Kabrhel: Consulting for Siemens Healthineers and BMS/Pfizer
Consultant/Advisor
Siemens Healthineers and BMS/Pfizer
Disclosure: Insera Therapeutics
Christopher Kabrhel: Equity in Insera Therapeutics
Stockholder
Insera Therapeutics
Disclosure: NIH/NHLBI
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349 The Role of Racial Bias in the Utilization of Bedside Ultrasound in the Emergency Department

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Study Objectives: Point-of-care ultrasound (POCUS) is an essential tool for emergency physicians, helping to reduce morbidity and mortality, time to disposition, and patient exposure to ionizing radiation. There is evidence that racial bias exists in the utilization of other imaging modalities used to evaluate emergency department (ED) patients, however, no studies that have explored potential bias in the employment of POCUS in the ED. The goal of this study was to determine the influence of race on the likelihood of utilization of POCUS on patients in the ED.

Methods: All patients who presented to the ED between January 2019 and December 2023 with the eventual diagnoses of threatened abortion, lower extremity edema, or cutaneous abscess were identified using ICD-10 codes. We reviewed the electronic medical records of each patient, and all encounters with a presentation warranting bedside ultrasound were included. Patient demographics, whether the patient underwent a POCUS, additional imaging, and other salient information regarding the ED visit were recorded. Statistical methods employed were Chi-squared tests and logistic regression models with significance at $p < 0.005$.

Results: A total of 1,428 patient encounters met study inclusion criteria: 521 threatened abortion, 473 cutaneous abscess, and 434 lower extremity edema. The average patient age was 41.9 years (SD 17.4) and 66% were female. Fifty five percent were African American, 39% were Caucasian, and 6% were other races. Overall, POCUS was performed on 721 patients (51%), with specific breakdowns of 47%, 54%, and 64% in African Americans, Caucasians, and other races, respectively. In general, African Americans were less likely to receive POCUS compared to Caucasians ($\chi2=6.7215$, p=0.0095). POCUS was performed in 93% of patients with threatened abortion, 36% with cutaneous abscess, and 17% with lower extremity edema diagnoses. After adjusting for BMI and insurance status, Caucasian patients were found to receive significantly more POCUS compared to African American patients (OR=1.40, 95%CI:[1.10,1.78]). Additional imaging was obtained in 31% of patient encounters, with 11% receiving a computed tomography scan, 1% magnetic resonance imaging, and 19% a formal ultrasound.

Conclusion: African American patients were significantly less likely to have a POCUS obtained in the ED.

No, authors do not have interests to disclose

350 Transesophageal Lung Ultrasound in Circulatory Shock

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Study Objectives: Transesophageal echocardiography (TEE) is an emerging modality used for hemodynamic assessment in intubated, critically ill patients. Transesophageal lung ultrasound (TELUS) views can be incorporated into the TEE exam to characterize pulmonary findings that may be useful in diagnosis and management. While TEE is well-established for cardiac evaluation, the role of TELUS in resuscitative care for patients with circulatory shock is not well understood. This study examines the operational factors, exam findings, and diagnostic utility associated with TELUS exams performed during resuscitative TEE in patients with circulatory shock.

Methods: This registry-based observational study analyzed prospectively collected data from the multi-institutional Resuscitative Transesophageal Echocardiography Collaborative Registry (rTEECoRe). Only those exams performed for hemodynamic monitoring and evaluation of undifferentiated shock were included. Demographics, clinical history, operator characteristics, and management changes were compared between groups that received TELUS and those that did not. Continuous variables were analyzed using Mann-Whitney U tests, and categorical variables with chi-square tests.

Results: A total of 379 TEE studies were included in the analysis, of which 96 (25%) included evaluation of the lungs with TELUS. There was no significant difference between TELUS and non-TELUS cohorts regarding age, sex, BMI, race distribution, and comorbidities. Emergency physicians performed ten TELUS studies (10%) and 86 (90%) were performed by critical care physicians. Most exams were conducted by attending physicians (66, 69%), while the remainder were performed by fellows (27, 28%) and residents (3, 3%). The procedure duration for the TELUS group was longer (21.5 min, IQR 20-35) when compared to the non-TELUS group (19 min, IQR 12-29; $p < 0.0001$). TELUS exam findings included A-lines (11, 11%), B-lines (61, 64%), pleural effusions (37, 39%), lung consolidation (4, 4%) and pneumothorax (3, 3%). Operators in the TELUS exam group reported an increased likelihood of establishing the etiology of shock and hemodynamic decompensation based on their TEE findings (OR 1.95; 95% CI 1.02-3.72; p=0.04).

Conclusion: TELUS was associated with increased odds of establishing shock etiology in this cohort. TELUS is being performed by operators at various stages in training but predominantly by attending-level physicians with training in critical care medicine. Further research is needed to understand how TELUS findings can impact the diagnosis and management of shock in the emergency department and Intensive Care Unit.

No, authors do not have interests to disclose

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351 Sound Methodology? Evaluation of the Top-Cited Studies in Diagnostic Point-of-Care Ultrasound

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Study Objectives: Point-of-care ultrasound (POCUS) is a highly operator-dependent diagnostic tool that requires specific training and demonstrated competency to ensure accurate results. Despite this, the Standards for Reporting of Diagnostic Accuracy Studies (STARD) 2015 guidelines—widely endorsed for diagnostic accuracy research—do not explicitly require the reporting of operator training or competency. This omission may contribute to inconsistencies in reporting and limit the reproducibility and clinical applicability of POCUS research. This study assesses adherence to theSTARD 2015criteria and evaluates the frequency of reporting operator training, credentialing, and/or competency in the 100 most-cited POCUS diagnostic accuracy studies.

Methods: A bibliometric analysis was conducted to identify the 100 most-cited diagnostic accuracy studies of POCUS using Scopus and Google Scholar databases. Eligible studies were evaluated for adherence to theSTARD 2015checklist, with a specific focus on methodology. Method sections were reviewed for descriptions of prerequisite educational programs, experience/level of training, and credentials of the examiners (augmented STARD criteria). Additional data on date of publication, journal type, and citation count were collected for trend analysis. Two reviewers independently assessed all studies, with discrepancies resolved by consensus. Descriptive statistics and multivariable regression were used to analyze factors associated with operator-level reporting.

Results: Among the top 100 cited POCUS diagnostic accuracy studies, only 38% reported all three operator-related components of the augmented STARD criteria. The level of training was reported in 62% of studies, while operator competency and credentialing were described in only 27% and 43% of studies, respectively. Studies published in emergency medicine journals demonstrated significantly higher adherence to both overall STARD items (mean score 21.4 vs 18.7, $p < .01$) and augmented STARD methodology (45% vs 29%, $p = .03$). No associations were found between year of publication or citation count and methodological rigor. Interobserver agreement for STARD adherence scoring was high ($\kappa = 0.78$).

Conclusion: Despite their influence, many high-impact POCUS studies fail to report critical operator-related details necessary for reproducibility and external validity. Current STARD guidelines may inadequately prompt authors to include such information. Enhancing reporting standards to explicitly require descriptions of training and competency of those acquiring and interpreting images would improve the methodological rigor and generalizability of POCUS research.

No, authors do not have interests to disclose

352 Analysis of Intra-Articular Versus Interscalene Regional Anesthesia for Anterior Shoulder Dislocations

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Study Objectives: The glenohumeral joint is the most commonly dislocated joint in patients presenting to emergency departments, comprising roughly 50% of all major joint dislocations. Of these, the majority are anteriorly dislocated. Standard interventions to facilitate joint reduction involve procedural sedation; however, the utility of regional anesthesia has become increasingly studied and considered as an alternative. The interscalene and intra-articular approaches have shown positive outcomes as compared to procedural sedation, most notably demonstrating faster disposition times, fewer adverse events and similar pain scores. To our knowledge, there are no publications directly comparing interscalene to intra-articular regional anesthesia for the reduction of glenohumeral joint dislocation. Our objective is to assess the therapeutic performance of intra-articular injection compared to interscalene regional anesthesia for the reduction of anterior shoulder dislocations.

Methods: Since 2021, our US Fellowship has maintained a comprehensive database of regional anesthesia procedures performed by our Fellows and Ultrasound Faculty. In this database we track the following information: patient name, date of procedure, patient age, medical record identifiers, clinical team performing the procedure, indication for regional anesthesia, selection and dose of local anesthetic, regional anesthesia technique performed, patient-reported initial and post-procedure pain scores (0-10) and requirement of rescue procedural sedation. The presence of other complications are noted in a free-form comments section. We queried our database for all intra-articular and interscalene nerve blocks in patients presenting with anterior shoulder dislocations. In addition to reviewing the above information from our database, we collected data on door-to-disposition times for those patients via a review of our electronic medical records system. Our primary endpoint of evaluation is successful reduction without the need for rescue procedural sedation. Secondary endpoints include improvement of self-reported pain and door-to-disposition time.

Results: There were a total of 9 patients that received regional anesthesia for an anterior shoulder dislocation, 5 of which underwent intra-articular injection and 4 with interscalene. Of those who received intra-articular injection, 4 (80%) had successful joint reduction without the need for rescue procedural sedation, compared to 3 (75%) in those who received interscalene injection (**Table**). Pain scales are visually presented in **Graph 1**, demonstrating the comparative impact on subjective pain scores achieved by intraarticular injections and interscalane blocks (pain scores for patient 4 were not documented and therefore omitted from this report). Averages for each group were calculated and included: pre-/post-injection scores were 9.25/0.25 for intra-articular and 10/2.75 for interscalene. In our dataset Intra-articular injection also demonstrates a faster door-to-disposition time as compared to interscalene injection, with an average time of 176 minutes and 203 minutes, respectively (**Graph 2**).

Conclusion: We recognize the limitations of our study due to the size of the data set, and to further evaluate the efficacy of intra-articular injection with interscalene injection for anterior joint dislocation a larger study, powered for appropriate statistical analysis, should be conducted. However, our data suggests that intra-articular injection may have a higher rate of success in facilitating joint reduction without need for rescue procedural sedation, lower post-injection pain scores and a faster door-to-disposition time.

Patient ID	Age	Regional Anesthesia Technique	Regional Anesthetic	Anesthetic Dose	Successful Joint Reduction?	Initial Pain Score	Post Injection Pain Score	Door to Disposition (min)
1	64	Intraarticular	1% lidocaine w/o epi	200 mg	Yes	10	1	118
2	19	Intraarticular	1% lidocaine w/o epi	200 mg	Yes	10	0	183
3	37	Intraarticular	1% lidocaine w/o epi	200 mg	Yes	10	0	246
4	17	Intraarticular	1% lidocaine w/o epi	200 mg	Yes	-	-	96
5	40	Intraarticular	1% lidocaine w/o epi	200 mg	No	7	0	238
6	53	Interscalene	1% lidocaine w/o epi	200 mg	Yes	10	2	227
7	76	Interscalene	1% lidocaine w/o epi	200 mg	Yes	10	1	157
8	89	Interscalene	0.5% Bupivacaine	100 mg	Yes	10	1	223
9	92	Interscalene	1% lidocaine w/o epi	200 mg	No	10	7	206

Table 1. Collected patient data, regional anesthesia technique, documented successful vs unsuccessful outcomes of regional anesthesia intervention, pain scores and door-to-disposition times for patients with anterior shoulder dislocations who underwent regional anesthesia for joint reduction.

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353 High Rates of Avoidable Computed Tomography Angiography for Pulmonary Embolism Exclusion

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Study Objectives: Serum D-dimer testing is widely used to exclude pulmonary embolism (PE) in low- to moderate-risk patients, reducing reliance on computed tomography angiography (CTA). Validated pathways, including age-adjusted D-dimer thresholds and YEARS criteria (maximum threshold of 1,000 ng/mL), further reduce CTA use without increasing the false-negative rate above the accepted miss rate of 1.8%. We examined adherence to these alternative thresholds and estimated rates of potentially unnecessary CTA imaging.

Methods: This study analyzed emergency department (ED) visits from nonpregnant adults with at least one serum D-dimer value during 2022 from a health system of over 100 EDs in the Southeastern United States. Patients were grouped by their initial normalized D-dimer value: below the conventional cutoff (<500 ng/mL); between 500 ng/mL and their age-adjusted threshold; between the age-adjusted threshold and 1,000 ng/mL; and >1,000 ng/mL. Chest CTA usage, PE diagnosis rate, and CTA yield—represented as the number needed to scan (NNS) with associated 95% confidence intervals—were compared. A conservative base rate of chest CTA

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utilization was assumed equal to the CTA utilization rate among those with D-dimer <500 ng/mL to account for indications not excluded by D-dimer. Ventilation-perfusion (V/Q) scanning was performed at low rates.

Results: A total of 51,309 ED visits were included: 36.7% with D-dimer <500 ng/mL, 8.6% with D-dimer >500 ng/mL but < age-adjusted threshold, 24.3% with D-dimer > age-adjusted threshold but <1,000 ng/mL, and 30.4% with D-dimer >1,000 ng/mL. CTA utilization rates were 15%, 55%, 78%, and 74%, respectively. PE diagnosis was uncommon at 0.4%, 1.4%, 1.7%, and 6.1% of cases in each group. The NNS was 38 (95% CI: 30-47), 40 (31-53), 46 (40-52), and 12 (11-13), respectively. Assuming 15% CTA utilization for other indications, 72% of CTAs in patients with D-dimer >500 ng/mL but below the age-adjusted threshold could be avoided (reducing total CTA utilization by 6.7%). Assuming a base CTA utilization rate of 30% to account for other indications or non-max YEARS thresholds in the group with D-dimer <1,000 ng/mL, an additional 22% of all CTAs could have been avoided.

Conclusion: Even under conservative assumptions about CTA utilization for non-PE indications, 30% of all CTAs among patients evaluated with a D-dimer could be avoided while maintaining a PE miss rate far below 1.8%. There is a significant opportunity to improve adherence to validated PE diagnostic pathways.

No, authors do not have interests to disclose

354 Premedication Administration Time and Likelihood of an Iodinated Contrast Hypersensitivity Reaction

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Study Objectives: In certain clinical scenarios, emergent computed tomography (CT) is essential as diagnosis and management may be time sensitive. The objective of this study was to investigate whether the time between premedication administration and ICM exposure was associated with ICM hypersensitivity reactions in patients with documented ICM allergies who underwent emergent CT imaging in the emergency department (ED).

Methods: A retrospective observational cohort study of a consecutive sample of patient electronic health records was performed. Patients presenting to one of six EDs within a single health system in the southeast United States over a ten-year period were screened. Adult patients with a documented ICM or shellfish allergy who underwent CT imaging with ICM during their ED length of stay were included. Patient age in years, sex at birth, race, whether premedication (corticosteroid or antihistamine) was administered, and the length of time between premedication administration and ICM exposure in minutes (min) were recorded. The primary outcome was ICM hypersensitivity reaction defined by the administration of epinephrine, vasopressors, glucocorticoids, antihistamines, bronchodilators, or leukotriene inhibitors following ICM exposure. Univariate analysis was performed using a Wilcoxon rank sum test and multivariable logistic regression analysis was performed using SAS Studio v3.81; the level of significance was set as p-value <0.05.

Results: A total of 5,117 patients were screened and 1,791 satisfied eligibility criteria. 328 (18%) patients received premedication. The median times between premedication and ICM exposure were 74.5 min (95% CI: 67-84 min) and 97 min (95% CI: 78-120 min) for the non-hypersensitivity and hypersensitivity groups, respectively, and this difference was statistically significant (p=0.003). Time between premedication administration and ICM exposure (AOR: 0.999, 95% CI: 0.99-1.0), age (AOR: 0.984, 95% CI: 0.97-0.99), and Black or African American race (AOR: 1.86, 95% CI: 1.13-3.0) were found to be statistically significant.

Conclusion: The likelihood of an observed hypersensitivity reaction decreased with increasing lengths of time between premedication administration and ICM exposure. While increasing age is associated with shorter wait times, Black or African American patients appear to have longer wait times compared to White or Caucasian patients.

No, authors do not have interests to disclose

355 Subcutaneous Opioid Administration in the Emergency Department Improves Adverse Effects

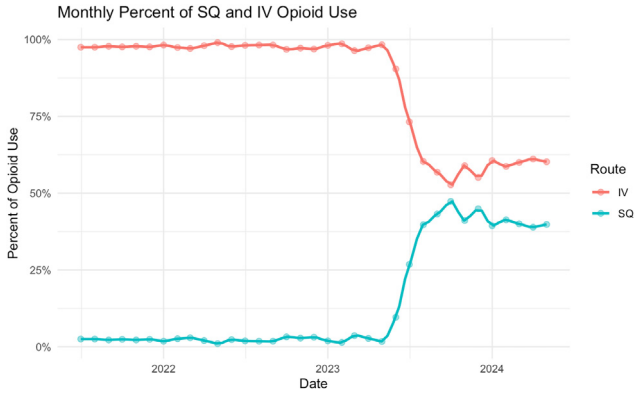
Dilip M, Sun W, Tuffuor K, Pavuluri S, Van Tonder R, Parwani V, Ulrich A, Venkatesh A, Sangal R/Columbia University Medical Center, New York, New York

Study Objectives: Opioid stewardship in the emergency department (ED) is critical to balancing effective pain management with minimizing opioid-related adverse events. Intravenous (IV) opioid administration has been the default route in many EDs but is associated with higher rates of adverse effects, including respiratory depression, nausea, and increased potential for opioid use disorder. Subcutaneous (SQ) opioid administration has been demonstrated as a safer alternative, offering comparable analgesic efficacy while reducing the risk of adverse effects and streamlining nursing workflows by eliminating the need for IV placement. However, despite these benefits, IV opioids remain the predominant route of administration likely due to ingrained clinical practice patterns, provider familiarity, and perceived patient preferences. We sought to reduce IV opioid utilization by promoting SQ opioid administration across a hospital system, enhancing both patient safety and adherence to opioid stewardship guidelines.

Methods: A retrospective review of patients who received opioids was performed from January 2021 to May 2024 across three EDs within a single delivery network: an academic quaternary care center, a community ED, and a free-standing ED. Baseline opioid administration patterns were analyzed from electronic medical records (EMRs), focusing on SQ vs IV opioid orders. Interventions included provider education and EMR modifications integrating SQ opioid order sets. Our primary outcome was the percentage of opioid orders administered via the SQ route. Our secondary outcomes examined the rates of adverse events (measured by antiemetic and Benadryl use), and patient-reported pain scores. Statistical analyses assessed changes pre- and post-intervention.

Results: Following intervention implementation in May 2023, SQ opioid utilization increased from a baseline of 2.3% to 34.9%, with sustained stabilization around 40% by project completion. A statistically significant decrease in IV opioid orders was observed (32.58% decrease, 95% CI [24.18%, 40.99%]). Additionally, antiemetic administration rates (mg given per day) declined by 51.56mg (95% CI [26.27, 76.75]) and Benadryl administration rates declined significantly by 26.99 (95% CI [16.37, 37.62]), suggesting a reduction in opioid-related adverse events. Pain scores remained unchanged (difference of 0.4, 95% CI [-0.05, 0.14]), indicating non-inferiority of SQ opioids in analgesic effectiveness.

Conclusion: A structured QI initiative successfully increased SQ opioid use in a multi-site ED system, reducing IV opioid reliance and associated adverse effects while maintaining pain control. FindingssupportSQopioid administration as a safer, effective alternative in acute pain management and highlight the importance of targeted interventions in opioid stewardship efforts.



No, authors do not have interests to disclose

356 Association Between Emergency Medicine Residency and Diagnostic Efficiency for Pulmonary Embolism

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Study Objectives: Residency programs are often perceived as contributing to less efficient care due to increased diagnostic testing attributed to trainee inexperience. However, the presence of a residency program might alternatively foster adherence to evidence-based practices (EBP), potentially improving diagnostic efficiency. Pulmonary embolism (PE) diagnosis serves as a valuable model, as the judicious use of D-dimer testing and adherence to risk-stratification strategies, such as age-adjusted D-dimer thresholds, are essential to reducing unnecessary CT angiography (CTA). This study

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evaluates the association between emergency medicine residency program (EMRP) presence and adherence to EBP in diagnostic workup for PE.

Methods: This study included non-trauma emergency department (ED) visits from non-pregnant adults who underwent chest CTA or serum D-dimer testing during 2022 at over 100 Southeastern U.S. EDs. Visits were grouped as CTA without D-dimer or by initial normalized D-dimer value: below the conventional cutoff (<500 ng/mL); between 500 ng/mL and the age-adjusted threshold; or above the age-adjusted threshold. Chest CTA usage (for D-dimer groups), PE diagnosis rate, and CTA yield were compared between visits to EDs with and without EMRPs, adjusting for patient demographics and hospital characteristics (oncology services, trauma level).

Results: Among 120,643 visits, 35% were from EMRP-affiliated EDs. For patients with D-dimer values <500 ng/mL, the absolute delta in CTA utilization was 4.1%, with lower utilization in EMRP EDs (16% vs 12%; 95% CI delta: 3.1%–5.2%). The difference widened to 9.1% (58% vs 49%; 95% CI delta: 5.9%-12.4%) for patients with D-dimer levels above the conventional but below the age-adjusted threshold, and decreased to 6.4% (95% CI delta: 5.3%-7.6%) for those above the age-adjusted threshold. PE diagnosis rates were similar between EMRP and non-EMRP sites. Aligning non-EMRP practices with EMRP age-adjusted D-dimer practices could eliminate 8.4% of all chest CTAs at non-EMRP sites, beyond the differential CTA use seen for patients with values <500 ng/mL. However, CTA yield for those without D-dimer testing was lower at EMRP sites (-0.7%, 95% CI diff: -0.3% to -1.1%).

Conclusion: EMRPs are associated with better adherence to age-adjusted D-dimer thresholds but lower CTA yield when imaging is performed without prior D-dimer. These findings highlight potential trade-offs in diagnostic efficiency.

No, authors do not have interests to disclose

357 Hypoglycemic Events in a Subcutaneous Insulin Protocol for the Treatment of Diabetic Ketoacidosis

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Study Objectives: Diabetic ketoacidosis (DKA) is a metabolic complication that can lead to coma or death if not treated promptly. Although mortality has decreased due to advancements in diagnosis and management, DKA remains a burden on emergency departments (EDs) and the health care system. For many hospitals across the United States, the standard of care involves the use of low dose continuous intravenous insulin infusion which requires admission to an intensive care unit (ICU). In 2023, Griffey and colleagues reported the use of subcutaneous insulin lispro in patients with mild to moderate DKA to be a safe and effective alternative to continuous intravenous insulin. Other recent studies using subcutaneous insulin for the management of DKA have shown an increase in ED throughput and a reduction in ICU admissions resulting in decreased use of hospital resources and overall cost savings. Concerns regarding the use of subcutaneous insulin protocols center around hypoglycemic events since CMS introduced measures regarding hypoglycemia and hypoglycemic events in 2023. In December 2023, our ED implemented a standardized subcutaneous insulin protocol using rapid-acting insulin aspart with or without long-acting insulin glargine for patients with mild to moderate DKA. The purpose of this study was to compare the efficacy and safety of a novel subcutaneous insulin protocol with intravenous insulin treatment for mild to moderate DKA in the ED, including comparing hypoglycemic events in the subcutaneous insulin protocol versus the intravenous insulin infusion group.

Methods: This is a retrospective, single center study of patients aged 18 years and older presenting to the ED with mild to moderate DKA completed at a large academic medical center with over 70,000 adult ED visits annually. A subcutaneous insulin protocol for the treatment of mild to moderate DKA was implemented on December 1, 2023. Data was compared pre and post implementation. Patients presenting from January 1, 2015 through December 30, 2023 were used as the control/comparative group. Patients with severe DKA, Glasgow Coma Score less than 8, suspected sepsis or shock, active co-morbidities, anticipated surgery, or patients with an additional need for ICU admission were excluded. The primary outcome assessed time to anion gap closure between the subcutaneous and intravenous insulin groups. Secondary outcomes included time to DKA resolution, ED length of stay, hospital length of stay, treatment failure, and hypoglycemic events during treatment or within 24 hours following resolution of DKA.

Results: A total of 288 patients were screened for study inclusion, of which 124 met inclusion criteria. The main reasons for exclusion included severe DKA or additional need for ICU admission. The population was predominantly male (59%) with a mean age of 43 ± 16 years. Of the 124 patients included, 44 (35%) patients were treated with subcutaneous insulin. The majority of patients in the subcutaneous insulin group were classified as mild DKA compared to the intravenous insulin infusion group (81% and 41%, respectively). The median time to anion gap closure was 4.35 hours in the subcutaneous insulin group and 8.11 hours in the intravenous insulin infusion group ($p < 0.05$). Less patients experienced a hypoglycemic event in the subcutaneous group compared to the intravenous insulin infusion group (5% and 26%, respectively).

Conclusion: Subcutaneous insulin resulted in a faster time to anion gap closure, fewer ICU admissions and decreased hypoglycemic events compared to continuous intravenous insulin infusion. Implementation of a standardized subcutaneous insulin protocol using rapid-acting insulin aspart with or without long-acting insulin glargine is a safe and effective alternative to intravenous insulin for the treatment of mild to moderate DKA.

No, authors do not have interests to disclose

358 Code Strepsis: A Multicenter Study on the Effect of Emergency Department Stroke Alert on Sepsis Care

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Study Objectives: Sepsis and stroke impose significant illness burden and healthcare costs, each partly mitigated by timely care. The Centers for Medicare and Medicaid Services (CMS) mandates public reporting on hospital performance for Sepsis Bundle (SEP-1) and Stroke Core Measures to promote rapid, comprehensive care. This encourages broad use and rapid activation of prehospital and emergency department time-sensitive treatment protocols for these conditions. However, it is not uncommon for signs of acute neurological deficit and systemic infection to co-occur, for example with sepsis unmasking prior stroke deficits (ie, recrudescence) or inducing new neurological symptoms in patients with underlying cerebrovascular disease. The priority activation of stroke protocols in emergency departments (EDs) may inadvertently delay sepsis detection and care. This study aimed to evaluate how ED stroke alerts influence SEP-1 compliance among patients ultimately diagnosed with severe sepsis or septic shock.

Methods: This retrospective, multicenter study included adult patients admitted from EDs across 40 Southeast hospitals within a large national health system in 2023. Patients with trauma activation within 30 minutes of arrival or interfacility transfers were excluded. The primary exposure was an ED stroke alert activated within 30 minutes of arrival, validated by a timely non-contrast brain CT scan. The primary outcome was adherence to a modified CMS SEP-1 three-hour bundle: lactate measurement, blood cultures before antibiotics, antibiotic administration, and intravenous fluid resuscitation (30 mL/kg) for hypotension or elevated lactate (>4.0 mmol/L). Secondary outcomes included time to bundle component completion, length of stay (LOS) and mortality. Statistical comparisons were made using chi-square and Wilcoxon rank sum tests. Although differences in sepsis care quality for those with early stroke alert versus not are meaningful without adjustment, we also examined differences in initial vital signs, laboratory values, Charlson Comorbidity Index, rates of diabetes and dementia, demographics, mode of arrival, and prehospital activation.

Results: Among 8,154 patients with severe sepsis or septic shock, 277 (3.4%) underwent stroke alert activation. SEP-1 compliance was similar between groups (73% vs 76%, $p = 0.273$), but stroke alert patients had delayed antibiotic administration (median 57 vs 43 minutes, $p = 0.005$) and bundle completion (median 60 vs 49 minutes, $p = 0.012$). Stroke alert patients also had greater overall illness severity, evidenced by longer hospital LOS (median 7 vs 5 days, $p < 0.001$), ICU LOS (median 5 vs 2 days, $p < 0.001$), and higher mortality or hospice discharge rates (35% vs 25%, $p = 0.008$).

Conclusion: Although ED stroke alerts were associated with delays in antibiotic administration and sepsis bundle completion, these differences were modest and unlikely to explain differences in LOS or mortality. Given that stroke alert patients typically presented with greater illness complexity, the results suggest clinicians generally avoided significant diagnostic anchoring, and the co-occurrence of a stroke alert does not broadly disrupt timely sepsis detection and treatment.

No, authors do not have interests to disclose

359 Cost-Effective Automated Assistant for Emergency Department Flow Improvement

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Study Objective: To improve the identification and resolution of emergency department (ED) patient flow bottlenecks using an automated, AI-driven reporting and analysis system.

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Methods: This quality improvement initiative was implemented in a community ED, using a cloud-based relational database (Airtable) to collect real-time reports of patient flow delays. ED staff submitted issues via a custom Airtable form accessed by scanning posted QR codes whenever a flow bottleneck issue was encountered. The form allowed reporters to categorize the type of issue and add a descriptive narrative. Upon submission, automated email alerts notified ED leadership and relevant department heads. An AI-driven script performed monthly analysis of the reports, using natural language processing to identify common themes and generate summary reports.

Results: Over 6 months, the system captured 114 flow issue reports. Radiology delays were the most frequently reported bottleneck (48%), far surpassing other categories including staffing shortages (15.8%) and inpatient boarding delays (7%). Additional issues included lab result delays, slow admission orders, triage backlogs, and lack of ED beds. Real-time notifications facilitated timely leadership interventions—for example, contacting the on-call radiologist to expedite critical results or mobilizing extra staff during surges. The AI-generated monthly summaries highlighted persistent system-level problems, prompting targeted actions to improve efficiency, such as expanding radiologist coverage and streamlining registration/discharge processes.

Conclusion: An inexpensive, AI-powered reporting assistant can help streamline ED operations. This novel workflow leveraged readily available technology (QR codes, a cloud database, and AI analysis) to capture and analyze flow bottlenecks in real time. It improved situational awareness among ED leaders and facilitated prompt, data-driven interventions for recurring issues. However, limitations included inconsistent utilization of the reporting process by staff, resulting in potential underreporting of some issues or failure to capture recurring flow bottlenecks. Future improvement efforts should include staff engagement strategies to increase reporting flow delays.

No, authors do not have interests to disclose

360 Impact of a Limb Preservation Pathway on Emergency Department Patient Flow and Care

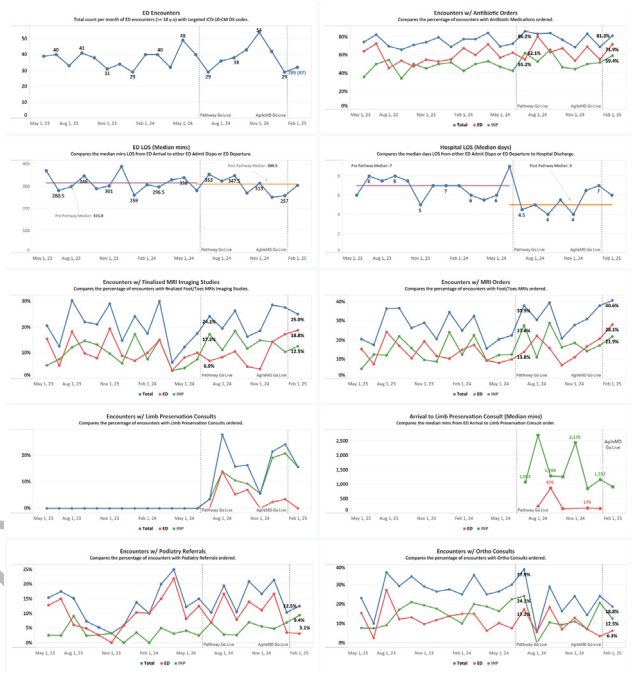
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Study Objectives: The implementation of the Limb Preservation Pathway at the University of Virginia aimed to address variability in the emergency department (ED) management of chronic wounds. Our primary objective was to optimize patient care by standardizing the workup for patients presenting with chronic wounds, ensuring a more systematic and efficient approach. Specifically, we sought to reduce ED length of stay, decrease unnecessary MRI utilization, and minimize non-emergent orthopedic consultations within the ED. Additionally, we aimed to enhance antibiotic stewardship by promoting evidence-based prescribing practices, thereby improving overall patient outcomes while reducing resource overutilization.

Methods: In early 2024, a multidisciplinary team at the University of Virginia, including specialists from emergency medicine, internal medicine, infectious disease, orthopedics, and vascular surgery, collaborated to develop a standardized approach for the evaluation and management of patients presenting to the ED with foot wounds concerning for osteomyelitis. This effort resulted in the creation of the "Limb Preservation Pathway" which stratifies patients into three categories: those eligible for discharge with outpatient management, those requiring inpatient hospitalization for further medical workup, and critically ill patients necessitating urgent surgical intervention. The pathway provides guidelines for wound classification, appropriate antibiotic administration, and recommendations for specialty consultation timing. Following its implementation, a data dashboard was established to track key performance metrics, including ED length of stay, hospital length of stay, MRI utilization, use of the new Limb Preservation consult service, orthopedic consultation frequency, and antibiotic administration patterns. These metrics are being monitored to assess the impact of the pathway on patient care and resource utilization.

Results: Implementation of the Limb Preservation Pathway had a variable impact on key performance metrics. The median ED length of stay was relatively unchanged, from 315 minutes pre-implementation to 309 minutes post-implementation. However, total hospital length of stay showed a significant reduction, with the median decreasing from 7 to 5 days. Antibiotic usage was relatively unchanged, with the percentage of encounters involving antibiotic orders dropping from 86.2% before implementation to 81.3% after. MRI utilization in the ED was unchanged, with finalized foot/toe MRI studies remaining at 10.5%. The percentage of encounters with orthopedic consultations was significantly reduced, while utilization of the newly established Limb Preservation consult service became more common, improving care coordination.

Conclusion: The implementation of the Limb Preservation Pathway at the University of Virginia demonstrated improvements in hospital length of stay and care coordination, particularly through increased utilization of the Limb Preservation consult service and reduced orthopedic consultations. However, its impact on emergency department-specific metrics, including ED length of stay, antibiotic stewardship, and MRI utilization, was limited. These findings suggest that while the pathway successfully standardized aspects of inpatient chronic wound management, further refinements are necessary to optimize ED workflow and patient progression. Continued monitoring and iterative improvements will be essential to fully achieve the pathway's intended objectives.



No, authors do not have interests to disclose

361 Quantifying Changes in Daily Census Across Emergency Departments in 2018 and 2023: A Call to Action

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Study Objective: To compare daily patient census data between academic, community and freestanding emergency departments (EDs) within a single health system in the pre- and post-COVID-19 era (2018-2023).

Methods: This retrospective study was conducted across multiple EDs in a health system in southeastern Michigan. Operational data from three distinct ED settings (one academic, four freestanding, and four community) were reviewed for the years 2018 and 2023. The primary metric was the median treatment census by hour of the day for each site, assessing patient volume at specific times. The number of patients for each hour of the day was plotted along the Y- and X-axes. This analysis was performed separately for each year (2018 and 2023) and each ED setting. We calculated the percentage of variance between the lowest and peak patient census for each ED setting/year to assess daily variation. To compare daily census differences between 2018 and 2023, we focused on two time points: 7 am and 8 pm and calculated the relative percent increase in census between these times. Data from the four freestanding and four community EDs were aggregated and compared to the academic center using two-way analysis of variance (ANOVA).

Results: The lowest daily census consistently occurred around 7 am, and the highest around 8 pm across all sites in both 2018 and 2023. Freestanding EDs exhibited the greatest fluctuations in census compared to other EDs ($p < 0.001$). In 2018, the freestanding EDs had a median census of 11 patients at 7 am and 51 patients

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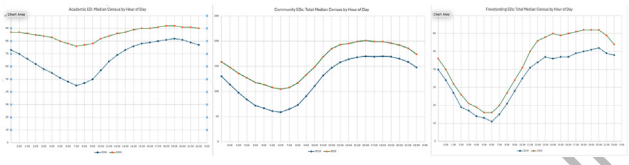
at 8 pm, with a variability of 462%. In 2023, the median census at 7 am was 16, and at 8 pm, it was 62, representing a 387% variability. Community EDs exhibited similar trends but with lower variability. In 2018, the median census at community EDs was 59 at 7 am and 170 at 8 pm, reflecting a 288% increase. In 2023, the median census was 105 at 7 am and 196 at 8 pm, a 186% increase. The academic center had the least variability in daily census ($p < 0.001$). In 2018, the median census at the academic site was 48 at 7 am and 82 at 8 pm (a 121% increase), while in 2023, the census was 78 at 7 am and 92 at 8 pm (a 117% increase). Total yearly volume for the four freestanding EDs was 129,547 in 2018 and 128,156 in 2023. The community EDs had a total yearly volume of 244,753 in 2018 and 228,896 in 2023, while the academic center had 101,210 in 2018 and 84,792 in 2023.

Conclusion: This study reveals consistent daily census fluctuations across ED settings, with freestanding and community EDs experiencing greater hourly variability than academic sites. Post-COVID trends show reduced total volume but persistently elevated hourly census, likely reflecting longer lengths of stay and delayed throughput. The academic ED's stable census pattern may indicate ongoing boarding challenges. These insights can guide EDs in adjusting staffing models, anticipating peak times, and developing targeted surge protocols across diverse care environments.

Table 1. Median Hourly Census and Intra-Day Variability Across Emergency Department Types in 2018 and 2023

	2018			2023		
ED	Time	Median Census	Relative Change in Census	Time	Median Census	Relative Change In Census
Freestanding	7AM	11	462%	7AM	16	387%
	8PM	51		8PM	62	
Community	7AM	59	288%	7AM	105	186%
	8PM	170		8PM	196	
Academic	7AM	48	121%	7AM	78	117%
	8PM	82		8PM	92	

Figure 1.



No, authors do not have interests to disclose

362 Using Split-Flow Methodology to Mitigate Lost Emergency Department Space During Planned Construction

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Study Objectives: Emergency departments (EDs) have implemented numerous strategies to overcome challenges associated with patient crowding. Split-flow methodology allows for a more streamlined care of patients, who would typically experience longer wait times during their ED course, by utilizing the concept of assigning vertical patients to a team of multidisciplinary clinicians. The goal of this quality improvement project was to ascertain if using split-flow methodology could safely mitigate the loss of physical space in an area undergoing construction by improving efficiency of ED throughput.

Methods: During a planned renovation project, a portion of the ED in this community hospital was closed, leaving less physical space for one area of the department (the orange area). To counter the loss of several patient care areas, the remaining space was used to create an intake area for an initial evaluation by a physician, a phlebotomy/procedure area, and, by converting 3 stretchers into 6 recliner spots, a results-waiting area managed by an advanced care practitioner. A retrospective review of all patients seen was performed for this pilot period inclusive of September 16, 2024 through November 30, 2024, and compared with patients seen in a similar (control) period one year prior, from September 18, 2023 through December 1, 2023. The patient volume, patients' length of stay and their final disposition were compared. Additionally, as a marker of quality assurance, the number of 72-hour returns to the ED was compared during both time periods.

Results: In the 75-day period from September 18, 2023 through December 1, 2023 (control), 8,703 independent patient encounters were recorded, compared to 8,722 encounters in the 75-day period from September 16, 2024 through November 29, 2024 (pilot). The orange area in the control period had 2,057 patient encounters, while under the pilot period recorded 2,289 patient encounters. The median length of stay for discharged patients from the orange area was 259 minutes (95% CI, 252-265) in the control period during 2023, while under the split-flow model, the median length-of-stay decreased to 214 minutes (95% CI, 209-219). The overall median length of stay for all discharged patients was 291 minutes (95% CI 286-296) in the control period, compared to 285 minutes (95% CI 284-289). For the control period there were a total of 377 patients returning within 72-hours of discharge (representing 6.0% of all discharged), versus 288 patients returning within 72-hours of discharge during the pilot period (4.6%).

Conclusions: The use of split flow methodology effectively increased efficiency in terms of improved provider to disposition and volume, helping to mitigate the loss of physical space during a planned construction period. These improvements did not come at the expense of prolonged times in the other areas of the department. Additionally, a lower number of 72-hour returns in after discharge during the pilot suggests that this methodology did not compromise quality of care during the pilot period.

No, authors do not have interests to disclose

363 Operational Challenges and Strategies in Emergency Departments During the 2022 Tripledemic: A Qualitative Analysis

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Study Objectives: InFall 2022, emergency departments (EDs) and pediatric emergency departments (PEDs) faced an unprecedented surge in pediatric respiratory illnesses due to RSV, Influenza, and COVID-19. This study examines the challenges hospitals faced, and the strategies used to mitigate the tripledemic's impact. Through qualitative interviews, we aimed to identify operational barriers and highlight best practices for pediatric surge preparedness.

Methods: This qualitative study utilized semi-structured interviews with hospital personnel across the U.S. Participants were recruited via the Pediatric Pandemic Network (PPN) from hospitals with varying pediatric capabilities. Interviews were transcribed and analyzed using constant comparison analysis by three independent coders, with member-checking ensuring validity.

Results: Five key themes emerged: staffing shortages, space constraints, supply chain vulnerabilities, systems-based challenges, and patient experience concerns. Staffing shortages, worsened by burnout and workforce attrition, led to critical gaps in nursing and physician coverage. Space constraints resulted in overcrowded EDs, prolonged boarding, and patient care in hallways. Supply chain issues caused medication shortages, including albuterol and procedural sedation agents, further straining care delivery. Systems-based challenges, including hospital inefficiencies, regional coordination failures, and inadequate surge capacity planning, led to delayed transfers and barriers to real-time surge tracking. The patient experience was affected by long wait times, limited outpatient access, and increased ED violence. Proposed solutions are outlined in the **Table**.

Conclusions: Our findings emphasize the need for proactive staffing strategies, expanded ED capacity, improved supply chain resilience, enhanced regional coordination, investments in telehealth infrastructure, development of regional surge dashboards, and creation of culturally competent care pathways. Addressing these issues will strengthen pediatric emergency preparedness and improve future surge response.

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Table 1. Challenges based on identified themes with recommendations

Theme	Challenges	Recommendations
Staffing	Nurse shortages	Faster onboarding, utilize senior nurses to supervise travelers
	Non-pediatric nurses	Shadowing at pediatric hospitals, hire pediatric emergency care coordinators, pediatric training initiatives for staff.
	Physician shortages	Recruit EM-trained physicians to staff PEDs, flexible scheduling, targeted incentives.
	Burnout	Rotate providers, acknowledge post-COVID exhaustion.
Supplies	Medication shortages	Stock essential outpatient meds, anticipate disruptions, track shortages.
Space	Overcrowding & boarding	Use alternative spaces, daily surge meetings, flexible staffing.
	Behavioral health	Embed trained staff, expand dedicated beds.
	Telehealth access	Strengthen telemedicine, partner with pediatric hospitals for consults.
	Acute care access	Partner with urgent care & PCPs for triage support.
System	Boarding patients	PICU co-manages ED boarders.
	Unexpected surges	Use dashboards with surge triggers.
	Transfer delays	Centralized transfer entry, define catchment areas, direct admit protocols.
	Subspecialty referrals	Alternative care spaces, direct admits, bed control meetings.
	Complex low-frequency cases	Define algorithms with subspecialists, designate receiving teams.
	Pediatric expertise gaps	Pediatric tele-consultation, integrate pediatrics into emergency ops plans.
	Regional coordination	Establish PMOCC, data-sharing agreements, regional bed dashboards.
Patient Experience	Keeping patients local	Outpatient respiratory clinics, pediatric follow-up pathways.
	Equitable care	Culturally tailored resources, insurance & referral pathways.
	Workplace violence	Enhance security, de-escalation training.

No, authors do not have interests to disclose

364 An Innovative Staffing-Neutral Flow Model Reduces Rates of Leaving Without Being Seen

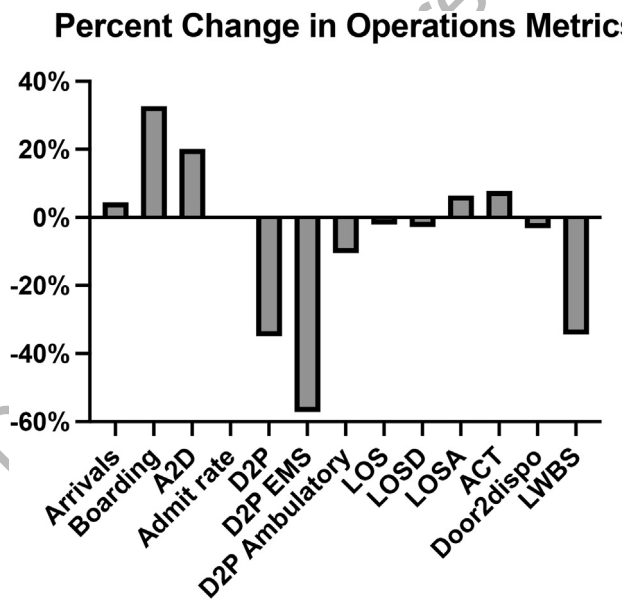
Shanin D, Berlyand Y, Anderson J, Feden J, Monti J, Kumar P, Napoli A/Brown University, Providence, Rhode Island

Study Objectives: Emergency department (ED) crowding and boarding have emerged as bottlenecks in ED operations, with rapidly rising rates of patients leaving-without-being-seen (LWBS). Innovations, such as the standard provider-in-triage model, have shown limited effectiveness in mitigating the effects of these external forces. We instituted a new patient flow model which prioritizes physician presence at triage for both low and high acuity patients, provides a mechanism for order execution within triage, and cohorts boarding patients to better utilize emergency physician capacity. We hypothesized that this flow model would improve operational metrics and reduce rates of LWBS.

Methods: We performed an observational, retrospective, quasi-experimental pre-post analysis of key ED intake and throughput characteristics in the year prior to and after implementation of a new flow model in a level 1 urban, academic trauma center. The key interventions included a new rapid physician assessment of patients arriving by ambulance, extension of an ambulatory vertical care model into 24-hour operations, and demand-capacity matching of physician staffing into early morning hours. Physician staffing was not changed. Metrics included: arrivals, door-to-provider (D2P), left without being seen rate (LWBS), length of stay (LOS), length of stay of discharged patients (LOSD), length of stay of admitted patients (LOSA), active care time measured as provider-to-disposition time (ACT), and door-to-disposition (door2dispo). Total boarding time per day served as a hospital operations metric and admission rate is used as a balance metric. Mann-Whitney U tests were used for pre-post comparison and statistical process control charts (SPC) assessed for special cause variation.

Results: Compared with the baseline, there was an increase in daily arrivals by 4.5% [247 to 258 arrivals per day, p <0.001] and total boarding time per day (boarding) by 32.7% [398 hours to 528 hours, p <0.001]. D2P decreased by 34.9% [76 minutes to 50 minutes, p <0.001], D2P for patients arriving by emergency medical services (EMS) by 57.1% [63 to 27 minutes, p <0.001], D2P for ambulatory arrivals by 10.4% [86 to 77 minutes, p=0.03], LOSD by 2.8% [381 minutes to 370 minutes, p <0.01], door2dispo by 3.1% [338 minutes to 327 minutes, p <0.001], and LWBS by 34.0% [9.6% to 6.3%, p <0.001]. Admission rate did not change [26.9% vs 26.8%, p =0.9]. ACT increased by 7.8% [225 minutes to 243 minutes, p <0.001]. As measured by a Cohen's d value $\geq$ 0.8, large effect sizes were seen in changes in D2P, D2P for EMS arrivals, LWBS, and ACT.SPCchart analysissupportedthese findings.

Conclusion: A new, staffing-neutral flow model was able to reduce waits to be seen, LWBS, and improve overall flow metrics despite rising daily arrivals and increased boarding. This flow model was successful without any changes to physician staffing. This innovative approach serves as a proof of principle that it is possible to improve ED operations and reduce LWBS despite rising boarding and patient volumes. Future studies are needed to better evaluate the impacts of this model on quality and safety outcomes, physician experience, and patient experience.



No, authors do not have interests to disclose

365 Mobile Phone Auscultation to Determine VO_2Max: Implications for Emergency Medicine and Telehealth

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Study Objective: VO_2max, or the maximum volume of oxygen one can utilize during exercise, accurately predicts cardiovascular mortality. VO_2max measurements via metabolic gas analysis during peak exertion are technically difficult, time consuming, expensive, and stressful. All patients would benefit from a low cost, efficient modality that could be deployed in the emergency department (ED) and through telehealth. This study describes a novel use of mobile phone auscultation recordings to create a diagnostic test to approximate VO_2max.

Methods: This prospective study enrolled a convenience sample of subjects of varying athletic ability to perform maximum exertion climbing on a "tread-wall" apparatus. Before and after the climbing session, 30 second recordings were obtained with the microphones of unenhanced mobile phones placed at the right second-intercostal (aortic) site. All subjects completed gold standard, treadmill-based VO_2max testing within two-weeks of the climbing exercise. Auscultation recordings were matched to VO_2max results. The approach paralleled the team's prior work on congestive heart failure, pulmonary disease, infectious diseases, and pregnancy complications. Markers were extracted from the acoustic data for modeling. These

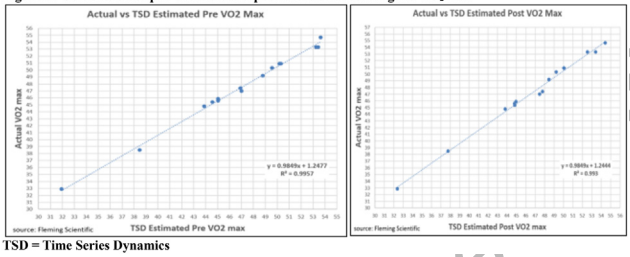
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markers represent the dynamics of blood flow, such as turbulence, created by organ functionality. The best marker was fitted to VO_2max values with linear regression. The chaos-based approach utilized Time Series Dynamics (TSD) software. In FDA terms, TSD creates "hardware agnostic class 2 diagnostic software as medical devices" that are not considered to be artificial intelligence or machine learning because they do not utilize neural networks.

Results: Fifteen subjects, 17 male (81.0%), 4 female (19.0%), with a mean age of 33 years, completed climbing and VO_2max testing. The mean and median VO_2max scores were 47.6 mL/kg and 48.2 mL/kg respectively. Thesponsorof the study developed models using both Pre- and Post-tread-wall phone auscultation recordings. Results indicate that Correlation Dimension and Maximal Lyapunov Exponent (MLE)supportthe assumption of low dimensional chaos, with correlation dimension <3 and MLE >0. Results from pre and post recordings were essentially the same. The "Post-model," using recordings obtained at peak heart rate, approximated gold-standard VO_2max results closely, with Pearson's r value >0.9. The "Pre-model," using *at rest* recordings, also matched formal VO_2max testing with Pearson's r >0.9 (see **Figure**).

Conclusion: Results showed the models performed accurately in predicting gold-standard VO_2max measurements and that both pre and post recordings produced the same results. We hypothesize that cardiorespiratory functionality scales similarly on exercise. This "fractal" scaling is a common property of chaotic systems that is revealed by the approach. In practice, using chaos-based mobile phone auscultation recordings could democratize access to one of the most powerful predictors of cardiovascular disease *and* all-cause mortality: VO_2max. The ability to obtain values *at rest* and thus eliminating the need for an exercise test could have widespread implications. This approach would allow accurate prediction of both short- and long-term mortality in any patient, most notably in those without access or ability to measure VO_2max. This diagnostic approach could predict mortality in ED waiting rooms, primary care, and public health settings. This pilot study provides a proof of concept in a small sample; future studies will aim to develop test and train sets for the model.

Figure 1: Correlation of pre-exertion and post-exertion recordings to VO_2max



TSD = Time Series Dynamics

No, authors do not have interests to disclose

366 Validation of a Deep Learning Model to Predict Echocardiography Findings Using an EKG in Syncope

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Study Objective: Syncope is a common complaint in the emergency department (ED) and can be caused by structural heart disease (SHD), such as aortic stenosis or cardiomyopathy. While echocardiography is the gold standard to diagnose these conditions, it is expensive and not always readily available. EchoNext is a novel Deep Learning model that analyzes the 12-lead ECG to predict the results of echocardiography. Our objective was to validate this model in a prospective cohort of ED patients with syncope or near-syncope.

Methods: This was a secondary analysis of a multicenter, prospective, observational study of ED patients with unexplained syncope or near-syncope aged 40 years and older. We collected the index 12-lead EKG data on all patients and abstracted the echocardiography results within 30 days, if ordered by the treating clinician. We then calculated the test characteristics of the EchoNext score using a cutoff of >0.6 and <0.3, ie, high risk or low risk for SHD, using standard statistical methods. SHD was defined as a clinically significant structural abnormality, eg, valvular disease, reduced ejection fraction, pulmonary artery hypertension, or significant pericardial effusion.

Results: Using data from two EDs, one community and one academic, we collected 124 EKG-echocardiography pairs. A total of 45 patients (36.3%) had significant SHD on subsequent echocardiography. The most common SHD finding was reduced ejection fraction (n=20, 16.3%). The specificity and positive predictive value of a high-risk EchoNext score (ie, >0.6) was 94% and 75%, respectively. The sensitivity and negative predictive value of a low-risk EchoNext score (ie, <0.3) was 77% and 82%. The area under the receiving operator curve was 0.77.

Conclusion: The Echo Next Deep Learning model demonstrated promising predictive performance characteristics in a cohort of ED patients with unexplained syncope or near-syncope. This model could help clinicians determine which patients require echocardiography. Further research to validate this model using a larger sample size is warranted.

Yes, authors have interests to disclose

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Timothy Peterucha

Stockholder

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Disclosure: Has received research support from Eidos Therapeutics, Pfizer, Janssen Pharmaceuticals, Edwards Lifesciences, and Google. 1 / 2 125%

Pierre Elias

Grant Support

Has received research support from Eidos Therapeutics, Pfizer, Janssen Pharmaceuticals, Edwards Lifesciences, and Google. 1 / 2 125%

367 Comparison of Platelet Response to Aspirin in Patients Receiving Morphine, Fentanyl, or No Narcotic

Hysell M, Tiemann J, Luna M, Jiwani Z, Mancini M/Corewell Health – South/Lakeland, St Joseph, Michigan

Study Objectives: The beneficial effects of aspirin are widely accepted in patients with acute coronary syndrome (ACS). Narcotics have often been given to these patients both out of empathetic attempts to reduce pain, as well as to decrease myocardial oxygen requirements by decreasing sympathomimetic responses to pain. However, morphine has been shown to slow absorption of aspirin leading to worsened outcomes in ACS. Many clinicians now use fentanyl. It is our goal to test the effectiveness of aspirin upon platelet function when paired with morphine or fentanyl in emergency department (ED) patients with chest pain.

Methods: Aspirin interferes with arachidonic acid mediated aggregation because of its effects upon COX-1 conversion of arachidonic acid to thromboxane A2. Arachidonic acid is therefore the best trigger to use to evaluate aspirin's effect upon platelets. We obtained Research Use Only software activation to perform platelet function testing using light transmission aggregometry with arachidonic acid on a Sysmex CS-2400-2500 analyzer. This was tested on 11 lab volunteers to confirm baseline normal ranges in non-aspirin users. We then performed testing on ED patients presenting with chest pain who at zero and two hours were anticipated to require troponin testing, who would receive aspirin in the first 30 minutes of their ED stay, and who had not recently received aspirin or narcotics, and who were not expected to receive ketorolac or heparin. Administration of pain medicines would be at the discretion of the treating physician, though they were asked to use the same agent throughout the 2 hour period. We tested platelet function at zero and two hours in these patients when a study laboratory tech was available to screen patients, consent qualifiers, and run the lab. The study was IRB approved and registered as NCT05367336.

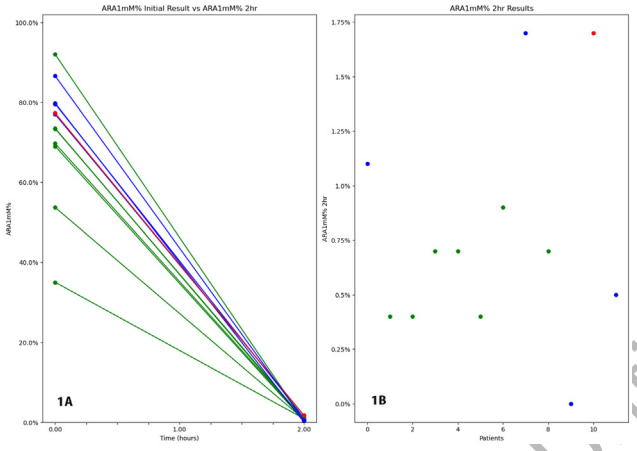
Results: Platelet function results of 11 test volunteers, not on aspirin, ranged 47.8% – 102.9%, mean 82.5% with SD 13.9. Enrollment was limited by COVID-related supply chain shortages of the blue top tubes required for the tests, maternity leave of our study technician able to run the test, and finally by new FDA testing regulations for experimental tests. We enrolled 21 patients in our study, 11 female, median age 52 (ranging 24 to 83 with IQR 28). Three patients identified as black, 17 as white, and one as multi-racial. Despite screening for prior aspirin use, the initial

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platelet function results were very bimodal. Nine patients had initial results ranging from 0% to 7.8%, felt to reflect unreported aspirin use. The other eleven patients (**Figure 1A** and **1B**) had initial results ranging from 35.0% to 92.0% (mean 72.2 with SD 15.1). Seven patients who did not receive narcotics with normal initial platelet testing decreased from mean 66.6% (SD 17.9) down to 0.6% (range 0.4%-0.9%) (SD 0.2) with p <0.0001, 95%CI of difference 49.3 – 82.7. Four patients receiving fentanyl with normal initial platelet testing decreased from mean 80.8% (SD 4.1) down to 0.8% (range 0% to 1.7%) (SD 0.7) with p >0.0001, 95%CI of difference 72.7 – 87.1. One patient receiving morphine with normal initial platelet testing decreased from 77.3% down to 1.7%. There was no statistical difference demonstrated between the seven patients not receiving narcotics 2 hour platelet function (0.6%) and the five patients receiving narcotics 2 hour platelet function (1.0%) p=0.20, 95% CI -1.1 to 0.25.

Figure 1A: Platelet reactivity at 0 and 2 hours;Figure 1B: 2 hour platelet reactivity. Green = No narcotics, Blue = Fentanyl, Red = Morphine.

Conclusions: All patients had massive decreases in platelet function when administered aspirin. However, patients receiving fentanyl averaged about 30% more residual platelet function than those receiving no narcotics, and one of the patients receiving fentanyl and the patient receiving morphine had residual platelet function about triple that of those receiving no narcotics.



No, authors do not have interests to disclose

368 Hypertension Severity and Indeterminate High-Sensitivity Cardiac Troponin

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Study Objectives: Hypertension increases the risk of acute coronary syndrome (ACS) and major adverse cardiovascular events (MACE) (ie, myocardial infarction, all-cause mortality, and urgent revascularization), but its relationship with high-sensitivity cardiac troponin I (hs-cTnI) levels remains unclear. This study aimed to evaluate the association between hypertension severity and hs-cTnI levels and examined the impact of hypertension on 30-day MACE risk in patients with suspected ACS.

Methods: We conducted a secondary analysis of a cluster randomized trial implementing a hs-cTnI early rule-out protocol. Patients were eligible for analysis who had suspected ACS and hs-cTnI testing and an electrocardiogram at a large, integrated health system consisting of ten emergency departments: five hospital-based and five free-standing facilities. We excluded patients without hs-cTnI values or values above the 99th percentile (18 ng/L). Patients were categorized into three hypertension severity groups: normotensive, defined as systolic blood pressure (SBP) less than 140 mmHg or diastolic blood pressure (DBP) less than 90 mmHg; moderately hypertensive, characterized by SBP between 140 mmHg and 180 mmHg or DBP between 90 mmHg and 110 mmHg; and severely hypertensive, where SBP was 180 mmHg or greater or DBP was 110 mmHg or greater. A generalized linear model assessed the relationship between hypertension severity and hs-cTnI levels, while multivariable logistic regression analyzed the effect of hypertension severity on 30-day MACE, adjusting for key confounders.

Results: A total of 23,803 patients fit the inclusion criteria. Severe hypertension demonstrated an independent, statistically significant relationship with higher hs-cTnI levels (β = 0.0645; 95% CI: 0.047 to 0.082, p < 0.001). Likewise, severely hypertensive patients showed higher rates of elevated troponin levels (25.8% for 5-9 ng/L and 20.4% for 10-18 ng/L) compared to the other groups. After adjustment for confounders, the relationship between severe hypertension and 30-day MACE outcomes approached statistical significance (aOR: 1.61; 95% CI: 0.98–2.65, p = 0.063).

Conclusion: This study revealed that patients with suspected ACS show increased hs-cTnI levels and higher 30-day MACE risks with worsening hypertension severity. Clinicians should interpret elevated troponin levels cautiously in hypertensive patients, prioritizing established risk factors such as coronary artery disease.

No, authors do not have interests to disclose

369 Characterizing Patients with Cold Drink-Triggered Atrial Fibrillation: A Mixed-Methods Study

DiLena D, Zhang J, Rauchwerger A, Reed M, Marcus G, Warton E, Vinson D/Kaiser Permanente Division of Research, Pleasanton, California

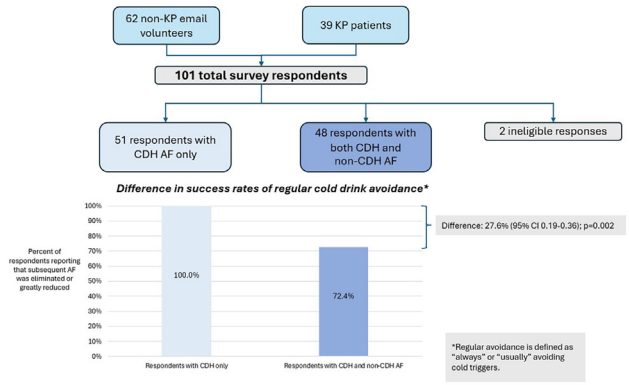
Study Objectives: Atrial fibrillation (AF) is a common arrhythmia with significant health implications. Identifying modifiable lifestyle triggers is important in improving patient outcomes and mitigating recurrence. A subset of AF patients has reported cold drinks or foods as triggers, a phenomenon termed "Cold Drink Heart" (CDH). Literature on CDH is scarce and primarily limited to case studies. We sought to characterize patient experiences with CDH in the emergency department (ED) and assess the effectiveness of cold trigger avoidance in reducing AF recurrence among affected patients.

Methods: This mixed-methods study employed a cross-sectional survey targeting adults with intermittent AF who identified at least one past episode that followed ingestion of a cold drink or food. Participants were identified from two distinct populations: 1) patients who sought care for AF in any one of sixteen community EDs in Northern California and 2) an international sample of volunteers who emailed the principal investigator directly. Survey questions addressed demographics and clinical features. Subsequently, we conducted chart review to validate diagnoses and calculate CHA_2DS_2-VASc scores for the first study population. We performed a chi-squared analysis to compare those with CDH only and those with both CDH and non-CDH AF episodes.

Results: The cohort included 101 respondents; 39 were identified in the ED and 62 self-identified via email. The median age at the time of the survey was 56, while the median age of CDH onset was 44.5 years. A majority (74.3%) of respondents were male. The median CHA_2DS_2-VASc score was 1 (IQR 0-2), and 25.7% were on anticoagulant medication at the time of the survey. Most respondents (96.8%) reported that cold ingestion did not consistently trigger AF, though 50.5% of respondents attributed all of their AF episodes to CDH. Rapid onset after ingestion was common, with 78.8% reporting that symptoms started within one minute of consumption. Many described a higher susceptibility to CDH when preceded by exercise, and some (19%) reported concomitant brain freeze.Figure 1depicts the development of comparison groups and the varying success rates of regular cold drink avoidance between them. Avoidance of cold ingestion was effective in reducing or eliminating AF episodes in 86.4% of cases, with more patients reporting success among CDH-only patients (100%) compared with those with CDH and non-CDH AF (72.4%) (p <0.01). Physician awareness of this phenomenon was low, with 52.4% of respondents reporting dismissive attitudes from one or more healthcare providers.

Conclusion: Cold-triggered AF is an underreported subset of ED AF presentation that is often underappreciated by healthcare providers. Findings from this mixed methods study suggest effectiveness of cold trigger avoidance as a management strategy in patients with AF induced by cold ingestion. Further study will be required to determine the prevalence of CDH among a larger, unselected AF patient population and to assess the generalizability of these findings. Emergency physician awareness of this phenomenon will be critical to ensure adequate care for this subset of AF patients.

Research Embargoed Until Determine of Presentation



No, authors do not have interests to disclose

370 Kinetic Changes in High-Sensitivity Troponin for Risk Stratification of Emergency Department Chest Pain Patients

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Study Objective: Kinetic patterns of high-sensitivity cardiac troponin I (hs-cTnI) levels may provide prognostic value in chest pain patients. This study aimed to evaluate the association between these patterns and 30-day major adverse cardiac events (MACE).

Methods: A retrospective observational study was conducted, involving emergency department (ED) chest pain patients with at least two serial hs-cTnI measurements during their ED stay. Patients were categorized into three groups based on their hs-cTnI kinetic patterns: no change (delta hs-cTnI $\leq$15ng/L), rising pattern (RP, delta hs-cTnI >15ng/L), and falling pattern (FP, delta hs-cTnI >15ng/L). Thirty-day MACE outcomes were compared across these groups. A stepwise multivariable logistic regression was utilized to evaluate the association of hs-cTnI patterns with 30-day MACE.

Results: This study included 4,243 patients. No changes in hs-cTnI were observed in 3,777 patients, with 136 (3.6%) experiencing 30-day MACE. RP was identified in 294 patients, of whom 101 (34.4%) experienced 30-day MACE, while FP was observed in 172 patients, with 25 (14.5%) experiencing 30-day MACE. After adjustment, RP was strongly associated with 30-day MACE (adjusted odds ratio [AOR] 7.68; 95% CI 5.34–11.05; $p < 0.001$).

Conclusions: Serial hs-cTnI measurements are valuable for identifying patients at risk for 30-day MACE, particularly those with RP changes.

No, authors do not have interests to disclose

371 Trends in Emergency Medical Services Closures: Impact of Ownership, Geography, and Service Type

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Study Objectives: Emergency Medical Services (EMS) agencies are experiencing harsher financial operational conditions due to the increasing cost of staffing, supplies, and equipment leading to media reports of recent and impending closures. These challenges have been associated with increased response times, discontinuation of certain services, and reduced ambulance coverage. While there are many possible contributors to the national strain on EMS systems, little to date is known regarding national workforce trends among EMS agencies in recent years, especially following the COVID-19 pandemic. The objective of this study was to identify changes in EMS closures across ownership, geography, and type of service.

Methods: We conducted a cross-sectional analysis using Centers for Medicare and Medicaid Services (CMS) Medicare Physicians and Other Providers data to identify EMS agencies that were operational between 2017 and 2022. We classified each agency by ownership (public, private non-profit, private for-profit, facility owned, and private equity), Rural-UrbanCommuting Area score, and type of services billed (advanced lifesupport[ALS] versus basic lifesupport[BLS] only). We defined agencies as closing in a given year if they did not bill for services in the following calendar year. We first performed descriptive analyses to examine trends in EMS agencies by rural/urban status, service type, and ownership and applied two proportion z-tests to compare the proportion of agencies exhibiting specific characteristics. We then used a mixed effect model – presenting odds ratios – to evaluate the risk of closure by ownership, geography, and type of service.

Results: Our analytic sample included 12,196 unique EMS agencies billing services in one of the study years. Across all study years combined, closures (2,163, 17.7%) outpaced new entry (1,967, 16.1%). Publicfundingownership was most common, comprising 62.8% in 2017 and 64.2% in 2022. The proportion of private equity-owned agencies increased from 5.5% in 2017 to 6.2% in 2022 ($p = 0.014$), while the proportion of private for-profit agencies decreased from 14.7% to 13.5% ($p = 0.009$). Compared to private for-profit agencies, private equity-owned agencies and publicfundedagencies respectively had an 84% ($p = 0.003$) and 69% ($p < 0.001$) lower odds of closure. BLS-only agencies had higher odds of closure compared to ALS-capable agencies (OR 7.54, 95% CI 4.40 – 12.95, $p < 0.001$), while geography was not significantly associated with closure (OR 1.23, 95% CI 0.73 – 2.06, $p = 0.44$). Compared to the pre-pandemic period, private for-profit agencies exhibited higher rates of closure in the post-pandemic period (OR 1.50, CI 1.17 – 1.94, $p = 0.002$); conversely, private equity-owned agencies exhibited lower rates of closure (OR 0.53, CI 0.53 – 0.95, $p = 0.036$).

Conclusion: Private equity-owned and publiclyfundedEMSagencies were more resilient to agency closure than private for-profit agencies, particularly post-pandemic, which could be due to mergers and acquisitions of smaller, private for-profit agencies. BLS-only agencies faced significantly higher closure rates, potentially due tofundingand billing limitations. The increase in private equity ownership and differential closure trends suggest ongoing structural shifts in EMS, with implications for service availability and workforce stability. Understanding these trends is critical for policymakers and healthcare systems aiming to sustain EMS capacity.

No, authors do not have interests to disclose

372 Talk It Out: The Impact of Physician-Patient Communication on High-Risk EMS Refusals

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Study Objectives: Emergency Medical Services (EMS) often rely on standing-order protocols, but complex or high-risk situations may necessitate direct medical oversight through online medical control (OLMC). Previous research has shown that high-risk refusals are the most common reason for OLMC contact. However, little is known about how physicians manage these cases and whether direct communication between the physician and patient impacts the likelihood of transport. This study aims to examine the frequency of direct physician-patient communication during high-risk refusals, whether it increases the rate of patient transport, and whether the gender of the medical control physician influences these outcomes.

Methods: This retrospective analysis examined OLMC calls from a large, county-based, urban EMS system, covering eight different agencies. The base station, located at a tertiary care center, is staffed by trained emergency physicians. In this system, EMS crews are mandated by protocol to call OLMC for refusals on patients <6 months of age. Otherwise, hailing OLMC for refusals is at the discretion of the EMS provider and what they deem high risk. The primary outcomes evaluated were the rate of physician-patient communication and the number of patients agreeing to transport. Subgroup analyses were performed looking at calls generally deemed high-risk by the EMS community, which included patients at the extremes of ages (<6 months, $\geq$ 65 years old), those meeting alert criteria (eg, STEMI, trauma, stroke), or patients with significantly abnormal vital signs (HR > 110, SBP < 90). A secondary analysis was performed to assess whether physician gender affected rates of physician-patient communication and rates of transport. Descriptive statistics and chi-squared analyses were used to summarize and compare categorical variables, respectively.

Results: A total of 276 refusal calls were analyzed. Direct physician-patient communication occurred in 205 calls (71%). After speaking with the physician, 39 patients (19%) agreed to transport. None of the patients who did not have direct communication with the physician agreed to transport. In the subgroup analysis, 154 calls were identified by reviewers as high-risk (56% of total calls), and physician-patient communication occurred in 117 cases (76%). Of these, 28 patients (24%) agreed to transport. Female physicians responded to 109 of the 276 refusal calls (39%), while

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male physicians responded to 167 calls (61%). Female physicians were significantly more likely to engage in direct communication with patients (90 calls, 83%) compared to male physicians (116 calls, 69%) (p=0.01). Although patients were slightly more likely to agree to transport after speaking with a female physician (20% vs 18%), this difference was not statistically significant (p=0.73).

Conclusion: Although time-consuming, physicians frequently engage in direct communication with patients during high-risk refusal calls, with 71% of cases involving this interaction. Despite this effort, only 19% of patients agreed to transport after speaking with a physician. Physician-patient communication was more common in high-risk refusals and led to a higher transport rate in these cases. While female physicians were more likely to engage in direct communication, gender did not significantly influence the transport rate.

No, authors do not have interests to disclose

373 Resource Use When Psychiatric Patients are Treated by Community Paramedics in a Prehospital Setting

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Study Objectives: This study examined the impact of community paramedics (CP) versus traditional Emergency Medical Services (EMS) responses on unit-hour utilization and healthcare system costs for psychiatric emergencies. Staffing shortages and resource limitations have strained EMS and emergency departments (EDs), highlighting the need for alternative patient transport strategies. Psychiatric patients frequently experience costly and delayed care when transported directly to EDs, prompting an examination of the efficacy and safety of CP-led assessments and subsequent transport to specialized psychiatric care centers.

Methods: This retrospective analysis reviewed 911 calls in Forsyth County, NC (2019-2023), involving psychiatric emergencies, comparing calls with and without CP involvement. Unit-hour utilization was assessed by comparing on-scene ambulance time and total time dedicated to calls. random sample of psychiatric patients transported either to the Atrium Health Wake Forest Baptist Medical Center (WFBMC) ED or to Daymark Recovery Services Behavioral Health Urgent Care (BHUC), following CP assessment, was analyzed for treatment costs and length of stay (LOS). Discharge outcomes were also examined to assess patient care appropriateness. Due to the unequal variances of the data sets that were examined, Welch's t-tests were used to determine if any statistically significant differences were present.

Results: Among 21,048 psychiatric emergency calls, 1,066 involved CPs. Ambulances spent significantly more time on-scene when a CP responded (average 40 min, 32 sec) compared to ambulance-only responses (20 min, 7 sec; $p < 0.001$). However, total ambulance dedication time did not significantly differ between CP-involved calls (47 min, 55 sec) and ambulance-only calls (45 min, 56 sec; $p < 0.05$). In a random sample of 250 ED-transported patients with 37 BHUC-transported patients, the average cost at BHUC ($329.56) was significantly lower than the ED ($4,697.03), reflecting a 92.98% cost reduction ($p < 0.0001$). The average LOS at BHUC (12.70 hours) was significantly shorter than at the ED (15.06 hours; $p < 0.05$), a 15.67% reduction. Discharge rates were comparable, with approximately two-thirds discharged home with outpatient resources (ED: 69.6%, BHUC: 67.6%). However, 10.8% (n=4) BHUC patients required secondary transport to an ED.

Conclusion: CP assessments and alternative psychiatric destinations did not significantly affect overall EMS resource utilization in Forsyth County. However, these alternative destinations substantially reduced patient treatment costs and LOS compared to ED care, suggesting potential savings and improved ED resource allocation. While this study highlights the potential benefits of CP involvement in diverting psychiatric patients to specialized care facilities, further research is necessary to clarify the broader role CPs can play in optimizing resource utilization while ensuring high-quality patient care.

No, authors do not have interests to disclose

374 EMS Clinician Perspectives on Writing Involuntary Psychiatric Holds

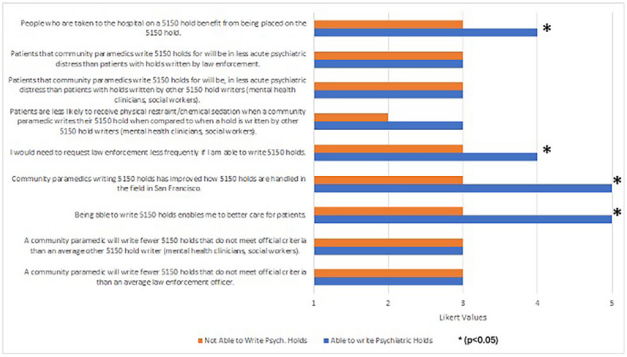
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Study Objectives: Many patients in acute psychiatric distress arrive at emergency departments on involuntary psychiatric holds. In our urban municipality, paramedics recently gained the authorization to write involuntary psychiatric holds. However, it is unclear how emergency medical (EMS) clinicians feel regarding this new authority and its impacts on patient care. We aimed to assess EMS clinician attitudes and perceptions about involuntary hold writing and compare these between hold-writers and non-hold-writers.

Methods: The study was a mixed-methods survey of hold-writing and non-hold-writing EMS clinicians in a large Northern California EMS provider agency. Participants were asked to complete an anonymous electronic survey including demographic, multiple choice (Likert Scale [1-5]), and short answer questions. The survey questions centered on experiences and opinions regarding psychiatric hold-writing practice. Quantitative questions were analyzed with Chi-squared and Fisher's exact tests. Open-ended questions were analyzed with thematic analysis using emergent coding. Theme generation was conducted by authors TA, JG, and MM. The authors agreed all themes were mutually exclusive and cumulatively exhaustive. When there was disagreement in theme assignment, the consensus opinion was adopted.

Results: Sixty-one of 339 respondents were included (18%). Hold-writing paramedics (n=32) generally had a more positive view than non-hold-writing paramedics (n=29) on the effects of paramedic-written holds on patient care ($p < 0.05$), decreased need for law enforcement assistance ($p < 0.05$), overall patient benefit ($p < 0.05$), and effect on the change on the handling of prehospital involuntary psychiatric holds within the municipality ($p < 0.05$). Qualitatively, both hold-writers and non-hold-writers emphasized an improvement in patient care due to paramedics writing psychiatric holds. Other themes encountered included: the presence of systemic issues in the prehospital management of behavioral crises, knowledge gaps associated with learning the hold writing process, and the importance of following the strict legal criteria when apprising hold appropriateness. Uniquely, non-hold-writers were neutral to skeptical about the effects of paramedics' new hold-writing ability on patient care.

Conclusions: Instituting paramedic-written psychiatric holds was generally viewed positively by EMS clinicians in our survey, more so by those who write holds than do not. Given qualitative themes, this is likely due to increased psychiatric training, decreased need for law enforcement assistance, and increased autonomy. Expanding paramedic behavioral health training, including education on involuntary hold placement, may lead to improved attitudes and perceptions about involuntary hold writing by EMS clinicians and may also improve prehospital care of psychiatric patients in crisis, although further research is required to ascertain this.



No, authors do not have interests to disclose

375 EMS Through Their Eyes: A Thematic Analysis of Experiences of Persons Experiencing Homelessness

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Study Objective: Persons experiencing homelessness (PEH) are among the highest utilizers of 9-1-1 emergency medical services (EMS). PEH have higher rates of morbidity, mortality, substance use disorders, and mental health disorders. Given decreased access to preventive medical care, PEH have different healthcare utilization patterns, often relying on unscheduled care via emergency services, including EMS. As the population of PEH continues to grow, interactions between PEH seek and EMS

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clinicians will increase. Recent works have focused on the perspectives of EMS Medical Directors and EMS clinicians. However, understanding the patient experience is critical to current and future prehospital care pathways. The objective of this study is to describe the experiences and perspective of PEH who have received care from EMS clinicians.

Methods: Semi-structured one-on-one interviews of a convenience sample of PEH from two community resource centers were conducted in-person and audio-recorded. Inclusion criteria were being at least 18 years of age, residing in Los Angeles County, speaking English or Spanish and having received medical care from 911-EMS in Los Angeles County in the prior 18-months. The interview tool included probes about motivations for calling EMS, expectations of EMS care, prior experiences with EMS providers, and current health status. Interviews were audio recorded, professionally translated, and transcribed. Interviews were coded using an inductive and iterative approach. Thematic analysis was performed.

Results: Thirty subjects were interviewed. 90% identified as male. The mean age was 52.7 years old (30-77), 10% spoke Spanish; 60% identified as Black, 27% as Latino, and 13% as white. The mean duration of homelessness was 7.2 years (range 0.1-21), and a majority reported mental health conditions (57.1%), drug use (56.7%), and alcohol (63.3%). The major themes identified were calls, care, communication, equity, perceptions of EMS, and self-perception.

Calls:

"I only call 911 if I really feel I have to…If it's not serious, just take yourself to the hospital…I don't abuse it."- 63 year old Black male

"If you keep calling them for the same thing, they get to know you. So, they're probably like stop calling us… They're tired of coming out there for you."- 37 year old Black male

Care:

"They were never mean, they were never rude or anything. They were always gentle, they never hurt me or anything. There was always the safe transport."- 30 year old Black female

"They really be trying to save 'em…That's I, I see it with my own eyes. I have never seen a paramedic uh do, never do his best… they always show concern."- 63 year old Black male

Communication:

"Show us the ins and outs of calling 911…If we don't understand their job, if they take a long time, we don't understand why, so we cuss them out. If they come explain to us why, we have more understanding."- 37 year old Black male

Equity:

"My mind is they're coming to a mission to pick up a homeless person. They're probably just gonna throw you in the ambulance and try to get you to the hospital so they can go and tend to someone that is legitimate, that has medical insurance and deserves the care."- 64 year old Black male

Perceptions of EMS:

"Even if I was having something like a heart attack or something, I wouldn't even want to call them." - 31 year old White Male

"I think they treat people very well. Whether you live on the streets or not, no matter what race you are. They are good people."- 77 year old Hispanic Male

Self-perception:

"Being homeless is bad for the person that is homeless.…Even though the person that they might have in their ambulance could be uh mentally ill, um just don't take it personal."- 38 year old Hispanic male

"Just 'cause we're homeless, doesn't mean we're bad people."- 35 year old White female

Conclusion: PEH described their experiences with EMS with a focus on quality of care and desire for equity; PEH note both positive and negative perceptions of EMS clinicians. Incorporating patient perspectives is critical to developing culturally appropriate prehospital care strategies and community resources to care for PEH.

No, authors do not have interests to disclose

376 Predicting Emergency Department Arrivals by Ambulance Versus Walk-In for Patients After Sexual Assault, 2022-2024

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Study Objectives: In this study, we aimed to identify factors associated with emergency medical services (EMS) transport among individuals who experienced sexual assault. Specifically, we examined the role of demographic characteristics, assault-related factors, substance use, and healthcare access indicators in predicting whether survivors arrived at the emergency department (ED) via EMS or as walk-ins. Understanding these factors may help improve response strategies and healthcare access for sexual assault survivors.

Methods: Two years (January 2022 – December 2023) of ED records at a single Level 1 urban trauma center were assessed for all diagnoses related to SA. Multivariable logistic regression models were estimated to predict the likelihood of ambulance arrival versus walk-in for the study population (n=134). Predictors included patients' age, sex, time elapsed since SA, involvement of substances on presentation, injuries or reported strangulation, insurance status, housing status, whether the presentation was during the night or on a weekend, and season of presentation.

Results: Thirty-seven percent of the sample presented via ambulance post-SA. Patients presenting for SA via EMS tended to be older (34 years old compared to 27 years old) and presented to the ED more quickly after the reported SA (16 hours compared to 35 hours). In logistic regression models examining factors associated with EMS transport versus walk-in presentation among individuals experiencing sexual assault, age, time since assault, and substance use were significantly associated with EMS arrival. Older age was associated with increased odds of EMS transport (OR=1.04, p=0.026). Individuals with a shorter time since assault had slightly higher odds of EMS transport (OR=0.986, p=0.040), suggesting that those presenting sooner after the assault were more likely to arrive via EMS. Additionally, substance use was a significant predictor, with those reporting any substance use having over three times the odds of EMS transport compared to those without (OR=3.306, p=0.017). Other variables, including time of visit (nighttime, weekend, season), strangulation or other reported injury, insurance type, housing status, and female sex, were not significantly associated with EMS transport. The association between nighttime visits and EMS transport approached significance (p=0.082), suggesting a possible trend toward increased EMS utilization during nighttime hours. Finally, additional models were estimated to explore whether time to MD was affected by EMS arrival versus walk-in presentation for SA after arrival to the ED, and no significant difference was found between the two groups.

Conclusions: In this study, we sought to identify factors associated with EMS transport among individuals experiencing sexual assault. Older age, shorter time since assault, and substance use were significantly linked to increased odds of EMS arrival to the ED. These findings suggest that individuals who seek care soon after an assault or who have substance involvement may be more likely to require EMS services. Understanding patterns of SA presentation can help inform targeted interventions to improve access to timely and appropriate care for SA patients.

No, authors do not have interests to disclose

377 Impact of an ECPR Program on Out-of-Hospital Cardiac Arrest Ambulance Arrivals to the Emergency Department

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Study Objectives: Extracorporeal cardiopulmonary resuscitation (ECPR) has seen increasing use globally as a life-saving intervention for patients with refractory cardiac arrest, including those suffering out-of-hospital cardiac arrests (OHCA) transported to the emergency department (ED). ECPR requires extensive resource commitment and outcome results for OHCA patients transported to ECPR capable EDs remains limited. The objective of this study was to determine the impact of the initiation of an ED ECPR program on OHCA ambulance arrivals to an academic medical center ED.

Methods: We conducted a before-after study at an urban, academic, level 1 trauma and STEMI-receiving center ED (annual census approximately 50,000). The regional county Emergency Medical Services (EMS) agency (population 3.1 million) initiated anECPRpilot program for directing Advanced LifeSupport(ALS) 911 transports of refractoryOHCApatients to a limited number of ECPR-capable EDs designated asECPRreceiving centers. Criteria included age 18-70 years, witnessed arrest with bystander CPR within 5 minutes, initial pulseless shockable rhythm and 2 defibrillation attempts, mechanical CPR device available, and time from arrest to ECPR receiving center </= 45 minutes. We analyzed ECPR, OHCA, and total ALS 911 EMS ED transports in the 3 months before (August – October 2024, pre-ECPR) and 3 months following (December 2024 – February

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2025, post-ECPR) county EMS agency designation as an ECPR receiving center. The implementation month, November, was excluded from all analyses. The proportion of ALS transports compared to the total ED census and the proportion of OHCA compared to total ALS transports in the 3-month pre and post implementation periods were compared using descriptive statistics as indicated, with a $p < 0.05$ considered statistically significant.

Results: There were 4,581 ALS transports with a total census of 6,962 during the pre-ECPR months and 4,246 transports with a total census of 7,327 in the post-ECPR months. There were significantly more OHCA transports after the initiation of the ECPR program (19 (0.42%) vs 36 (0.86%) OHCA patients, pre- vs post-ECPR, $p < 0.01$) and significantly more ALS arrivals (4581 (39.68%) vs 4246 (36.69%), $p = 0.01$). Of note, only 5 of 36 OHCA patients transported to the ED in the post-ECPR period actually met the County criteria for ECPR initiation, and only one was placed on veno-arterial extracorporeal membrane oxygenation.

Conclusion: Inclusion into a county-wide ED ECPR program for refractory OHCA resulted in a significant increase in the number of OHCA and ALS transports to the ED, even though many of these patients did not actually meet pre-determined criteria for ECPR activation from the field.

No, authors do not have interests to disclose

378 The Missing Skill: Prehospital Chest Tube Placement by EMS – A 10-Year Retrospective Study

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Study Objectives: Paramedics and flight nurses at many institutions are trained to perform prehospital chest tube placement and needle decompression for trauma patients. This single-institution study aimed to evaluate the success rates of prehospital needle decompression and chest tube placement, as well as to investigate whether increasing the availability of chest tube placement to additional emergency medical services (EMS) agencies could reduce mortality.

Methods: A retrospective chart review was conducted from 2013 to 2023, focusing on trauma patients who presented to a Level 1 trauma center and received chest tube placement or needle decompression by EMS. Success was determined by relief of symptoms, improvement of vital signs, and radiographic imaging.

Results: Over the 10-year study period, 80 patients with research authorization were identified to have had either needle decompression or chest tube placed by EMS in the pre-hospital setting. A total of 43 chest tubes were attempted to be placed, with 88 % (n=38) considered successful based on imaging or clinical findings. There were 67 needle decompressions performed with 25% (n= 17) of patients reporting symptomatic relief. Of the 50 patients who failed to respond to needle decompression, EMS correctly identified the need for a chest tube and proceeded in 38% of cases (n=19), with the majority (94%) of these chest tubes being placed correctly. Overall, mortality in the cohort was 25% (n=20), with 70% (n=14) of deaths occurring after arrival and initial resuscitation in the emergency department. Of the 13 patients who experienced cardiac arrest, there was no return of pulses following needle decompression, 15% (n=2) after EMS-placed chest tube, and 15% (n=2) after chest tube placement in the resuscitation bay by trauma team after failing needle decompression by EMS. On review of the 20 available autopsy reports, 25% (n=5) patients had no catastrophic injury pattern besides their pulmonary injury, 40% (n=8) had a non-survivable injury, and 35% (n=7) had an additional life-threatening injury. Of the 5 non -catastrophic patients, all had unsuccessful needle decompression, with 3 (60%) patients expressing shortness of breath and difficulty breathing in the EMS chart. Four patients (80%) patients developed cardiac arrest after failed needle decompression.

Conclusion: This study highlights the critical role of prehospital chest tube placement in managing traumatic pneumothorax when needle decompression fails. EMS providers demonstrated a high success rate (88%) in placing chest tubes correctly. In cases where needle decompression was ineffective, providers appropriately identified the need for escalation and were able to obtain similar success rates (94%). Importantly, a subset of patients who succumbed (25%) had survivable injuries, with failed needle decompression preceding cardiac arrest in most cases. This group was also able to voice their respiratory distress in a majority (60%) of cases. This patient population highlights the potential benefit of expanding EMS protocols to include chest tube placement, as it may improve outcomes for patients with potentially reversible traumatic pneumothorax and demonstrates that EMS providers can successfully place chest tubes.

No, authors do not have interests to disclose

379 Maintaining Continuity: A Framework for Emergency Department Lab Operations During Prolonged Downtime

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Introduction: While the near universal adoption of electronic health records (EHRs) and other integrated software, such as lab integration systems (LIS), has greatly improved the speed, quality, and quantity of information available to emergency department (ED) providers, it has also increased the vulnerability of ED care to the growing threat of cyber-attacks, specifically ransomware. In 2022, there were 1,463 cyber-attacks against global health care entities per week. These events had an average downtime, or period with partial or complete information technology unavailability, of 24 days in 2022, costing an average of $10 million. They also have a profound impact on ED patient care. Notably, timely and accurate ED laboratory specimen processing—critical to emergent medical decisionmaking—is particularly vulnerable to downtime, as highlighted by a review of downtime safety reports which found lab-related errors constituted a near majority of incidents.

Study Objective: Creation of pragmatic and actionable best practices for ED lab specimen processing during prolonged unplanned downtime by the Disaster Medicine Interest Group (DMIG) of the Society of Academic Emergency Medicine (SAEM).

Methods: Our recommendations are based upon a scoping review of current literature, a review of a national sample of institutional guidelines for prolonged, unplanned periods of downtime, and case interviews with emergency physicians who have experienced prolonged down time.

Results: Both preanalytic (before specimen processing) and postanalytic (after specimen processing) functions are interrupted during unplanned downtime. During ransomware events, hospitals often shut down all information systems, including LIS, pneumatic tubes, and digital phone and fax systems. Once a specimen arrives at the lab, numerous clerical, processing, and communication challenges exist (cumulatively thought to require double the amount of labor during downtime); the most important of which is the communication of critical results to ED providers. Without digital phone and fax systems, remote communication will be limited to personal mobile phones and remnant analog machines. Physical transmission of results is also heavily labor intensive and error prone. In summary, while the ED input of labs is unlikely to change during downtime, lab throughput will become slower and drastically more challenging, inhibiting patient care as well as increasing opportunities for error.

Recommendations: To allow for continued patient care, we recommend hospital and ED leadership initiate downtime procedures within 20 minutes of system failure. A clinical administrator (physician or nurse leader) should lead a structured huddle, activate downtime processes, and escalate to leadership. Activation of surge staffing should also be considered. Downtime protocol initiation should include a checklist-based framework like TeamSTEPPS to ensure essential tasks are covered systematically. To maximize lab functionality during downtime, we recommend checklist-style lab order forms are included in downtime carts, listing commonly ordered items with standard frequency and collection/delivery methods to reduce ordering errors and improve efficiency. Additionally, downtime protocols and training should emphasize that: 1) lab forms should be manually completed using pre-printed materials, 2) specimen tracking and processing must be coordinated manually since the electronic systems are down, and 3) coordination between nursing and lab personnel is essential to ensure that labs are properly labeled, logged, and routed without electronic tracking.

Conclusion: Cyber-attacks from ransomware have increased the threat of prolonged EMR downtime to EDs worldwide and require innovative clinical and operational strategies to continue patient care. ED lab specimen processing is both vital to emergency care and vulnerable to error during periods of downtime. Clear interdepartmental protocols, including surge staffing, and manually coded infrastructure can reduce errors and improve patient safety during periods of prolonged downtime.

No, authors do not have interests to disclose

Research Embargoed Until Determination of Presentation

380 Non-Trauma Centers as Primary Buffer for Caring Victims in Civilian Protests

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Introduction: Mass gatherings and civilian protests are frequent events in Argentina and the World. During March 2025 a new conflict arises with a wave of protest of low-income retired populationsupportedby soccer fans, political parties, unions and other political/social organizations. This conflict generated two protests in the vicinity of the Argentinean Congress. EMS operations, triage and Interrelation with receiving hospitals are often difficult in this conflict setting leading to delay in definitive care. Our center is a small 30 bed surgical ambulatory center, so we decided to set up a triage and treatment facility considering we are less than 300meters in proximity of the conflict.

Study Objectives: Describe the role and experience of the non-trauma center closest to the Argentinean Congress. Epicenter of two violent protests in 2025.

Methods: Observational, descriptive, retrospective study based on records of patients wounded during the Congress protests in March 13 and 20/2025 treated in the Callao's Surgical Institute (Instituto Quirúrgico del Callao) located at 300 meters of the point of conflict. As mass casualty protocol was initiated, the data was collected initially on paper and then in the Hospital Information System. For data analysis we used Microsoft Excel 365. We've deployed a triage and treatment area inside of our facility adapting our current Mass Casualty Incident Plan (MCI) based on WHO MCI course. Security was reinforced, only one entrance was possible. One EMS unit was standing in case we needed rapid evacuation for a patient. Triage, MCI, Red zone and green zone kits were deployed and unidirectional flow established.

Results: 48 patients were treated during the two protests. Mean age 28yrs. 35 (73%) civilians and 13 (27%) police officers. All civilians except one, walked in and all police officers were transported by police cars. No patients were transported by EMS. The initial triage category was ambulating (green) 42 (87.5%) and the rest non-ambulating (yellow) 6 (12.5%). The most frequent injuries sustained by patients: ophthalmological injury 33 (68.75%), limb trauma (including fractures, wounds, less lethal projectile impacts, etc) 9 (18.75%), mild Traumatic Brain Injury (TBI) 3 (6.25%) and other (including dyspnea, syncope, etc) 3 (6.25%). All TBI patients were police officers. All patients were identified with a wrist band and triaged. In the post mission debrief as lesson learned we identified that in the first protest, patients were not adequately decontaminated for irritating riot agents generating mild symptoms in health care providers. No security incidents were registered inside the facility.

Conclusion: Close non-Trauma centers could be an adequate triage and stabilization and treating facility for low acuity patients during mass gatherings if they are adequately prepared, with a formal mass casualty and security plan, trained and equipped. This approach could prevent that low acuity patients reaches trauma centers avoiding the diversion of valuable resources for critical patients. After action reports allow us to learn valuable lessons to apply in the next incident.

	mar-13	mar-20
Transport Mode		
Walk In	21	13
Transported by Police	6	8
Total	27	21
Demographics		
Civilians	22	13
Police Officers	5	8
Age (mean)	28	28
Initial Triage Category		
Green	23	19
Yellow	4	2

Injuries (both days)	n	%
Ophthalmological Injury	33	68,75
Wounds in limbs	9	18,75
Mild TBI	3	6,25
Other	3	6,25
Total	48	

No, authors do not have interests to disclose

381 Leveraging an Emergency Department Observation Unit in a Pandemic: A Retrospective Difference-in-Difference Study

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Study Objective: It is unknown what the impact of leveraging an emergency department observation unit (EDOU) for alternative purposes during a public health emergency might be. The study objective was to determine the impact of shifting observation patients from an EDOU to inpatient beds on hospital observation outcomes - length of stay (LoS), total cost, and inpatient admission rate.

Methods: This is a retrospective observational difference-in-difference study across four hospitals within a large academic health system in Atlanta, Georgia. All had type 1 EDOUs managed by emergency medicine. At the onset of the pandemic, the intervention hospital converted the EDOU to a COVID unit, displacing all observation patients to inpatient beds (April 2020). The remaining 3 hospitals maintained operations and served as controls. Data was abstracted from hospital clinical and financial observation databases. Comparisons were made between the pre-intervention period (August 2019 to March 2020) and the intervention period (April 2020), and between intervention and control hospitals. The primary outcomes measured were the percentage of observation patients captured in an EDOU (% EDOU), average per-patient cost, LoS, and inpatient admission rate. Continuous outcomes were evaluated using mixed-effects gamma regressions; admissions were evaluated using mixed-effects logistic regressions. Analyses were adjusted for age, sex, triage level, diagnosis, and procedural ICD codes. We present mean ratios for continuous outcomes, odds ratios for binary outcomes, and 95% CIs. The time-by-intervention interaction tests whether the change from pre-to-post differs between control and intervention sites.

Results: Over the study period there were 22,263 observation patients (3,080 intervention patients, 19,183 control patients). Average age 58 (42-71), 56% female. Five most common CCS conditions were chest pain (10.8%), hypertension (5.4%), fluid electrolyte disorders (3.7%), syncope (2.5%), abdominal pain (2.4%). In April 2020 the intervention hospital saw %EDOU decline from 55% to 15%, while control hospital went from 49% to 48%. Per-patient cost increased from $3449 to $4645 (MR = 1.35, 95% CI: 1.20-1.51), but remained stable for control hospitals ($3876 to $3997; MR = 1.03, 95% CI: 0.99-1.08; p-interaction < .001). Total LoS (observation + inpatient) increased from 32.1 hrs to 36.6 hrs (MR = 1.14, 95% CI: 1.01-1.30), but decreased for control hospitals (36.4 to 34.3; MR = 0.94, 95% CI: 0.90-0.99; p-interaction = .008). Observation LoS increased from 21.3 hrs to 26.1 hrs (MR = 1.22, 95% CI: 1.09-1.38), but decreased for control hospitals (23.8 to 19.8; MR = 0.83, 95% CI: 0.80-0.87; p-interaction < .001). Hospital admission rates increased from 13.3% to 21.0% (OR = 1.74, 95% CI: 1.16-2.61), but remained stable for control hospitals (16.4% to 16.8%; OR = 1.02, 95% CI: 0.88-1.19; p-interaction = .02).

Conclusion: Displacing EDOU observation patients to inpatient beds to accommodate disaster or surge patients is associated with increases in observation patient cost, length of stay, inpatient bed use, and inpatient admission rate.

Table 1: Study Characteristics

Age	58	43 – 72
Sex		
Female	12425	55.8
Male	9838	44.2
Admitted		
LoS	22	14 – 44
Obs LoS	20	12 – 29
Total Cost	2574	1709 – 4400
Payer Type		
HMO	6846	30.8
Medicare Part B	6646	29.9
Medicare Part A	2965	13.3
Self Pay	2716	12.2
Medicaid	1793	8.1
Blue Cross PPO	783	3.5
PPO	345	1.5
Government (misc)	76	.3
CHAMPUS	93	.4
10 Most Common CCS		
Non-Specific Chest Pain	2409	10.8
Hypertension w/ Complications	1206	5.4
Fluid and Electrolyte Disorders	815	3.7
Syncope	560	2.5
Abdominal pain and other digestive/abdomen signs and symptoms	525	2.4
Diabetes mellitus with complication	493	2.2
Urinary tract infections	436	2
Cardiac dysrhythmias	426	1.9
Coronavirus	420	1.9
Coronary atherosclerosis and other heart disease	391	1.8

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

382 Global Analysis of Melee-Based Attacks: Patterns, Lethality, and Regional Disparities

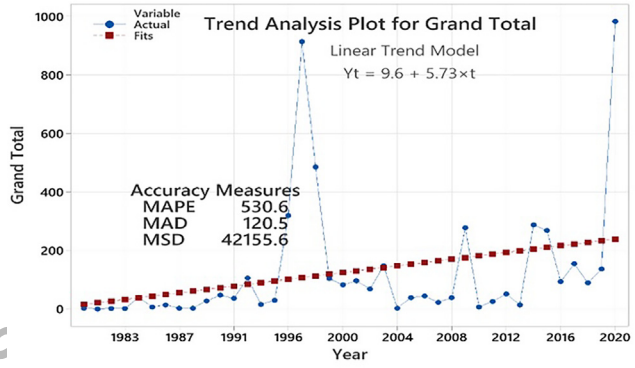
Abdelsayed N, Shapovalov V, Groussis M, Tran Q, Tilley L, Bontrager B, Pourmand A/ The George Washington University School of Medicine and Health Sciences, Washington, District of Columbia

Study Objectives: Melee attacks, defined as the use of accessible weapons like knives or fists, require minimal skill or cost, yet cause severe injuries and comparable mortality to firearms, with a noted rise in chest-abdominal trauma. This study aimed to analyze death and injury prevalence in the Americas, Europe, Asia, and Africa and fatality trends over time to enhance mass casualty preparedness.

Methods: The Global Terrorism Database (GTD) was reviewed from 1970 to 2020 to analyze melee-related terrorist attacks involving human deaths and injuries. Case exclusion criteria included attacks that only targeted property, attacks that did not result in casualties, and cases where the narrative review of an attack did not indicate if a melee-type weapon was utilized. Time series with best-fit curves were performed to assess the trend of the annual rate of fatalities.

Results: The GTD dataset analysis identified 1,505 melee-based attacks worldwide. These incidents resulted in a total of 5,110 fatalities and 5,528 injuries, highlighting the severe impact of melee-based violence. The highest concentration of attacks occurred in Africa, Asia, and Europe, with Africa being the deadliest continent. The African region recorded a mean of 99.4 fatalities per year making melee attacks in Africa significantly more lethal compared to other continents, followed by Asia at the mean of 22.77. Asia experienced the highest number of melee-based attacks, with 576 recorded incidents (38.27%), though these attacks were generally less fatal. Overall, the number of injured and killed per attack resulted in 3.67, and 3.39, respectively. Regression analysis examining the relationship between injuries and fatalities revealed that for every additional injury, fatalities increase by 0.154 on average, suggesting a moderate correlation between attack severity and lethality. However, only 10.6% of the variation in fatalities could be explained by injuries, indicating that other factors—such as weapon type, attack strategy, and medical response—contribute to overall lethality. The most commonly used melee weapons were knives or sharp objects at 864 (57%) attacks, followed by blunt objects at 280 (18.5%) attacks, reinforcing the accessibility and effectiveness of these weapons in attacks. These findings emphasize the regional disparities in melee violence, the lethality of attacks in Africa, and the role of weapon choice and injury rates in determining fatalities. Time series showed that fatalities globally followed quadratic models, with its highest peak in 2020.

Conclusion: Our analysis showed a rising trend in melee-related fatalities worldwide, with knives and sharp objects being the predominant weapons used. Civilians emerged as the primary targets of these attacks. To address the increasing frequency of melee-based mass casualty incidents in the Western world, additional resources must be allocated to ensure effective medical response.



No, authors do not have interests to disclose

383 Educational Intervention Improves Anticoagulation Reversal in Life-Threatening Bleeding

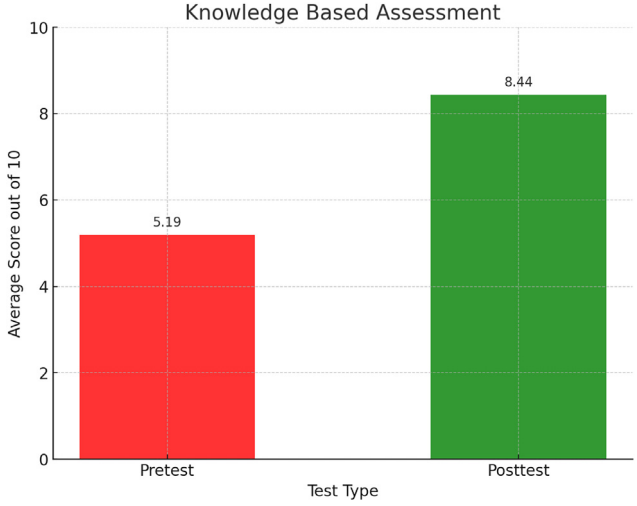
Koboldt T, Butterfield J, Crenshaw Z, Goddard K, Yang C, Broomhead C, Pelletier J/ University of Missouri, Columbia, Missouri

Study Objectives: Anticoagulant use is increasingly common and agents including direct oral anticoagulants (DOACs) are more commonly in use than older agents like warfarin. Their reversal requires knowledge of newer and often more complicated and expensive reversal agents. This challenge had come up as a recurring patient safety theme in our peer review committee and so we designed a coordinated effort of simulation education, didactic education, and rapid reference materials to improve both knowledge of reversal and performance of appropriate reversal in our emergency department.

Methods: We used a multimodal approach of simulation-based education (SBE) cases with standardized patients, high-fidelity mannequins, and virtual reality scenarios. After a pretest, learners (EM residents, medical students, and PA fellows) completed SBE and then took a post-test. They were also given a rapid reference badge buddy card. Faculty were given didactic education in lieu of SBE and also received a badge buddy. We completed chart review of reversal agent ordering in the three months before and four months after this educational intervention. This was graded as meeting or not meeting the standard for our hospital protocol by our clinical pharmacist.

Results: Learners(n=16) took a pre-test with an average score of 5.2/10 which increased to 8.4/10 after simulation-based education. Post simulation testing results showed a 62.7% increase in scores, with a p <.001 using paired t-test. Besides improved objective scoring there was also an increase in subjective confidence using anticoagulation reversal. Only 25% of learners rated themself as "not at all" or only "slightly confident" post-simulation, which was decreased from 75% prior to simulation. Through chart review we saw an increase in correct dosing of anticoagulation reversal after simulation. Over the 3 months prior to simulation, correct anticoagulation was correctly ordered 16/19 (84.2%). This can be further broken down to 92.8% (13/14) with pharmacist staffing and only 60.0% (3/5) without pharmacist staffing. Chart review after simulation showed 100% adherence to anticoagulation reversal protocol with reversal being ordered correctly 11/11 times with pharmacist staffing and 5/5 times without pharmacist staffing.

Conclusion: Simulation based education activity increased learner knowledge and confidence in reversal of anticoagulation in life threatening bleeding. Combined with didactics and supplying quick reference guides, there was improved performance in ordering appropriate reversal agents in the emergency department.



No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

384 Sepsis Heart Rate Trigger in Atrial Fibrillation Patients

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Study Objectives: Sepsis guidelines recommend early interventions to improve outcomes. Multiple hospitals have alert systems in place to trigger sepsis warnings. However, patients with atrial fibrillation (AF) and infection present a unique challenge since AF per se causes tachycardia. Empirically treating these patients for sepsis could lead to antibiotic and resource overuse. However, having a higher threshold to consider sepsis in AF patients could risk poorer outcomes. We sought to assess if atrial fibrillation patients may benefit from a higher HR threshold before 'triggering' for potential sepsis.

Methods: The study was approved by the Institutional Review Board of Hospital Corporations of America (HCA). Patients were queried from the HCA electronic data warehouse for the East Florida division from January 1, 2022 through December 31, 2023. Data were pulled for patients aged 50 or older who presented to the ED, triggered the sepsis flag, and were diagnosed with either severe sepsis or septic shock. In order to assess for HR differences between AF vs non-AF patients (both of whom were also diagnosed with severe sepsis or septic shock), we performed logistic regression. Sensitivity difference of initial HR > 100 for AF vs non-AF patients was assessed using chi square to compare proportions. All analyses were performed on JASP, Microsoft Excel, and R (version 4.3.2).

Results: 9,866 patients were diagnosed with either severe sepsis or septic shock. Of these, 9,854 had a documented initial HR – 8,207 without AF and 1,647 with. Initial HRs followed a normal distribution. Mean initial HR for AF patients ultimately diagnosed with severe sepsis or septic shock was 112.1 (110.9 – 113.2) whereas for non-AF patients it was 110.1 (109.7 – 110.5; $p < 0.001$). A HR cutoff of 100 was 68.4% (67.4–69.4%) sensitive for predicting severe sepsis or septic shock in non-AF patients and 66.9% sensitive (64.6–69.2%; p 0.33) in AF patients.

Conclusion: Patients with AF are prone to have HRs due to their arrhythmia per se; in our study, those with concomitant severe sepsis or septic shock indeed showed a higher mean HR than non-AF patients (with same concomitant disease), but only by 2 beats per minute. Furthermore, using a HR cutoff of 100 (to predict severe sepsis or septic shock) had even poorer sensitivity for AF than for non-AF patients. Our findings suggest that it is not safe to increase the HR threshold for sepsis triggers in AF patients.

Yes, authors have interests to disclose

Disclosure: Pfizer

Murtaza Akhter

Consultant/Advisor

Pfizer

385 3122 Quality Improvement Project

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Study Objective: Staff wellbeing is recognized as a vital component of an organization's framework. In fact, the Quadruple Aim—the healthcare delivery framework—includes provider experience as a key element. To address this, the Maslach Burnout Inventory was distributed to all hospitalists at a large community hospital to identify burnout drivers. With an 83% response rate (33 out of 40 hospitalists), workload emerged as the primary driver of burnout. One identified issue was the 3122 form or Return to Assisted Living Medical Evaluation Form. Completing this handwritten form for each patient discharged to an Assisted Living Facility took hospitalists away from bedside care. The objective was to reduce this administrative burden, allowing hospitalists to spend more time practicing within their scope of expertise.

Methods: A multi-disciplinary wellness learning community was established at our hospital to create evidence-based practices thatsupportstaff wellbeing. The first initiative focused on reducing the administrative burden of the 3122 Form for the hospitalist team, addressing a key factor contributing to burnout. Discussions were held with our social work and case management teams, as well as with similar groups at neighboring hospitals in the same system, to understand their workflows regarding this form. After several multi-disciplinary meetings, the decision was made to streamline the process by assigning responsibility for the form to the social work team. This form included questions about activities of daily living and other areas within their scope of practice. Medications, previously handwritten by hospitalist staff, were printed from the EMR and attached to the form—aligning with practices at other hospitals and improving patient safety while reducing staff workload. Hospitalists would then review the form before it was sent to assisted living facilities. The revised workflow was piloted on one floor, and even before the pilot was complete, other hospitalists expressed interest in adopting the process on their own floors.

Results: A two-question post-implementation survey was conducted with the hospitalist group, asking them to rate the following statements: "Removing the 3122 form as a physician task has decreased my workload burden" and "I recommend partnering with the Wellness Learning Community for further process changes and program development." The results were overwhelmingly positive. Seventy-six percent of respondents either agreed or strongly agreed that removing the 3122 form as a physician task reduced their workload, and 76% recommended continued collaboration with the Wellness Learning Community for further process improvements and program creation.

Conclusion: Improving workflow processes can streamline administrative tasks for physicians, reducing unnecessary burdens and allowing them to prioritize patient care over paperwork. Wellness initiatives are closely connected to quality and process improvements, and a multidisciplinary approach, as demonstrated in this workflow, can greatly enhance provider wellbeing.

No, authors do not have interests to disclose

386 Impact of High-Sensitivity Troponin Assay on Hospital Resources and Emergency Department Discharges

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Study Objectives: The high-sensitivity troponin assay, endorsed by the 2021 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR Guideline for the Evaluation and Diagnosis of Chest Pain, has been integral in protocols aimed at ruling out myocardial infarction (MI) in emergency department (ED) settings. Notably, the HISTORIC trial showcased reduced length of stay and hospital admissions, alongside an increase in ED discharge rates from 53% to 74% with its utilization. In May 2022, our community hospital transitioned exclusively to the Siemens Atellica high-sensitivity troponin assay. Characteristics and thresholds for this assay were determined based on the recommendations of this vendor. Our study aimed to investigate the impact of this implementation on hospital resource utilization and ED discharge rates among patients presenting with symptoms suggestive of myocardial infarction. Specifically, we aimed to assess whether the adoption of high-sensitivity troponin assays facilitates more efficient triage and management strategies, thereby potentially decreasing hospital admissions and augmenting rates of safe ED discharges.

Methods: This retrospective review study analyzed electronic health records (EHRs) of patients presenting to the ED with symptoms concerning for myocardial infarction before and after the implementation of a high sensitivity troponin assay. Patient data were collected over a specific time period, including demographic information, presenting symptoms, medical history, laboratory results, provocative testing, and ED disposition. The study population consisted of adult patients (age >18 years) who underwent troponin testing during their ED visit. Patients with a documented history of MI within the past 30 days or those with incomplete medical records were excluded from the analysis. Outcome measures included hospital resource utilization metrics such as hospital admission rates, length of stay (LOS), provocative testing, and rates of ED discharges. Statistical analysis was performed to compare outcomes before and after the introduction of the high sensitivity troponin assay. Descriptive statistics were used to summarize patient characteristics, while inferential statistics, including chi-square tests and t-tests were employed to evaluate differences in outcomes between the pre- and post-implementation periods.

Results: A total of 3,218 patients met the inclusion criteria. Following implementation, there was a 10% decrease in ED discharge rates and a 10% increase in admission rates ($p < 0.05$). Provocative testing utilization, including nuclear stress tests, stress echocardiograms, diagnostic cardiac angiograms, and treadmill stress tests, significantly increased post-implementation ($p < 0.05$). However, echocardiogram utilization showed no significant difference. Initial analysis revealed low adherence to appropriate troponin testing protocols, with only

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18% of ED patients with chest pain receiving timely testing. Lengths of stay slightly increased post-implementation.

Conclusions: The implementation of a high-sensitivity troponin protocol in our community hospital setting resulted in notable shifts, including increased admission rates, decreased ED discharge rates, prolonged lengths of stay, and heightened utilization of provocative testing. Our findings underscore the importance of timely troponin testing and highlight inconsistent application of single-level rule-out procedures. Consequently, we plan to conduct further investigations into the downstream effects on ED disposition and resource utilization. This will besupportedby educational initiatives aimed at enhancing awareness and interpretation of high-sensitivity troponin algorithms amongED, internal medicine, and laboratory personnel.

No, authors do not have interests to disclose

387 Impact of an Emergency Department Agitation Scoring and Intervention Program on Physical Restraints

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Study Objectives: Efforts to reduce emergency department (ED) violence have led to increased focus on means to intervene and de-escalate ED patients with acute intoxication and behavioral health emergencies. We implemented a program to identify and treat ED patient agitation prior to the need for physical intervention and assessed the impact on physical restraint use among ED patients.

Methods: Intermountain Health Utah Valley Hospital ED is an urban ED with approximately 50,000 annual visits. We implemented a pilot program in January 2023 which included a paper-based scoring system to assess ED patient agitation. This included pre-specified de-escalation and medication interventions based on scoring results. After seven months of review of program implementation and provider response, we implemented a full program in August 2023 which included an ED order set in the electronic medical record (EMR). We performed a secondary analysis of existing quality improvement data to compare the use of physical restraint use among adult ED patients before and after program implementation.

Results: Over the 45-month period, 334 patients required physical restraints in the ED. During the 24 months preceding the intervention, 218 patients required restraints compared to 116 patients during the 21 months after the intervention. Average monthly patient restraint use was 9.1 pre-intervention (range: 3-15) and 5.5 post-intervention (range: 0-10). As a proportion of total adult ED visits, 218/79,526 ED patients required restraints pre-intervention (0.27%) compared to 116/73,868 (0.16%) post-intervention ($p < 0.001$). We additionally compared restraint use over the 14 months preceding the pilot period to the 14 months after full EMR implementation. Restraint use among ED patients was 120/46,452 (0.26%) pre-pilot and 73/50,091 (0.15%) post-pilot ($p=0.001$).

Conclusion: In our experience, implementation of an agitation scoring system and intervention protocol resulted in a significant decrease in the use of physical restraints among ED patients. Such a reduction would presumably reduce the risk of physical contact with ED providers and warrants further investigation.

No, authors do not have interests to disclose

388 Improving SEP-1 Bundle Compliance Across an Academic Hospital System

Champion JC, Schaeffer C, Cox R, Jensen K, Sexton M, Zinaveah E, Bales B, Stubblefield W, Andereck J/Vanderbilt University Medical Center, Nashville, Tennessee

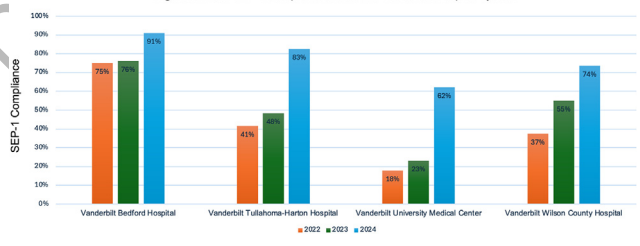
Study Objective: The Center for Medicare and Medicaid Services (CMS) uses the severe sepsis and septic shock early management bundle (SEP-1) as part of its hospital value-based purchasing program for reimbursement. The majority of cases evaluated for SEP-1 bundle compliance have either a portion or all of their six-hour care in the emergency department (ED). The bundle includes blood culture collection, antibiotic administration, lactic acid measurement, fluid resuscitation, and reassessment of perfusion status. The objective of this quality improvement (QI) initiative was to increase compliance with a six-hour (SEP-1) bundle in the main adult ED and transfer key interventions to three affiliated community sites within our hospital system.

Methods: We initiated the QI project at our main, quaternary care ED in December 2023. The study design included several, rapid PDSA (Plan-Do-Study-Act) cycle changes to achieve the stated objective. Included patients underwent a sepsis alert placed in the electronic medical record (EMR) by an emergency provider. Patients were excluded if they were transferred from an outside hospital or receiving palliative care. Interventions included a clinician pathway for sepsis management, an ED trackboard best practice alert, development of a sepsis reassessment dot phrase for clinical documentation, creation of a sepsis alert dashboard for monitoring, and hiring of a sepsis coordinator for auditing and feedback. Interventions were initiated at our main ED site, and key interventions were subsequently deployed to three community hospitals in the first quarter of 2024. Compliance data from the 2024 fiscal year were compared to baseline data from 2022 and 2023 at each site. We report CMS compliance of the SEP-1 bundle by randomly selected chart abstraction at our main hospital and three affiliated community sites.

Results: Compliance of the SEP-1 bundle improved across the four-hospital system: 23% to 62% at the main adult ED (Vanderbilt University Medical Center) with similar improvements in SEP-1 compliance mirrored at each of the three community sites (Bedford County, Tullahoma-Harton, and Wilson County) (**Figure**). Key drivers included timely antibiotics, repeat lactate orders, and initial 3-hour bundle compliance. Improvement of performance at all sites were associated with two key interventions: (1) an EMR-based treatment pathway (Agile MD) which incorporated components of the SEP-1 metrics, (2) a targeted best practice alert for initiation of sepsis protocols when pre-specified criteria were met.

Conclusion: This QI initiative using rapid PDSA cycle changes improved SEP-1 compliance over 12 months at a large academic medical center and interventions were subsequently successful when transferred to 3 community affiliated sites. A clinician pathway and a targeted best practice alert were identified as two key interventions.

Figure. Annual SEP-1 Compliance across the Vanderbilt Hospital System



No, authors do not have interests to disclose

389 The Novel Use of Video Review in Cardiac Arrest Resuscitation Research: A Scoping Review

Ali M, Li T, Ramraj R, Morales J, Becker L, Rolston D, Jafari D/Touro University, Middletown, New York

Study Objectives: Cardiac arrest (CA) video review, a practice originated in trauma care, is the process of recording audiovisuals of CA resuscitation for the purposes of quality improvement and data collection. There is no published review of video review use in CA research focused on practices and procedures. We thus aim to perform a scoping review to describe the demographics, settings, interventions and outcomes reported in the available literature.

Methods: This scoping review was pre-registered on Open Science Framework. We queried the PubMed, Scopus, EMBASE, and Cochrane, on March 22, 2025, for pre-defined keywords tailored to our inclusion criteria. The inclusion criteria were abstracts or full text manuscripts of adult in hospital and out of hospital cardiac arrest patients, with video recording derived data from pre-hospital, emergency department, or intensive care unit. Our exclusion criteria were pediatric studies and simulation video review studies. Duplicate abstracts of included full text papers were removed after confirming with authors. A team of independent reviewers were recruited and trained by the principal investigator. At least two reviewers voted, and if a conflict arose, a third reviewer was the deciding vote. This

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process was repeated for screening titles and abstracts, as well as full-text review and data extraction. Reviewers extracted data points on demographics of the study population, setting, interventions, time to events, and outcome variables. Descriptive statistics, including medians, ranges, and percentages were reported for aggregate results.

Results: Out of the 3,081 studies identified, after removing 9 duplicate abstracts, 79 publications were selected to be included in this scoping review. 46 were full texts, 33 were abstracts that were not published as full- text at the time of literature search. The median sample size was 86 patients (range 1-745), and the population median age was 70 (range 18-89, interquartile range 76-61.5) years old. 54 studies were retrospective and 25 were prospective. Publication dates ranged from 1992 - 2024, with 40 from the United States, 16 from Europe, and 23 from Asia. The majority setting was urban (n=65, 82.3%), followed by suburban (14, 17.3%). Only three studies were multi-centered. In terms of interventions reported, the most common was duration of interruption (n=38, 48.1%), followed by receipt of shock (n=29, 36.7%), followed by receipt of mechanical Cardiopulmonary Resuscitation (CPR) (n=27, 34.2%). Return of spontaneous Circulation (ROSC), survival to admission, and discharge were reported in 31 (median 41%), 14 (median 26.7%), 18 (median 8.15%) respectively. Nine studies reported neurologic function after CA survival. Time to events were reported in 32 (41%) studies: time to intubation (n=5, median 63.1 seconds) and time to mechanical chest compression device (n=3, median 122.6 seconds). Only 9 studies reported inter-rater reliability, ranging from good to excellent. The **Table** shows the breakdown between full text and abstracts.

Conclusions: The video review of CA is a novel research tool that so far is largely used in retrospective, single center, academic settings in the US, Asia, and Europe to study duration of interruption of CPR, defibrillation, and mechanical CPR rates. Less than half of studies reported outcomes such as ROSC. Inter-rater reliability is rarely reported. Future studies should aim to enroll in multi-center, prospective manner.

Category	Subcategory	Abstracts	Full Text	Total
Settings				
	Urban (n)	26	39	65
	Suburban (n)	7	7	14
	Rural (n)	0	0	0
	United States (n)	26	14	40
	Europe (n)	2	14	16
	Asia (n)	5	18	23
	Multicenter (n)	0	3	3
	Single Center (n)	33	43	76
	Timeframe of Study in years (med)	1.83	1.58	1.6
Demographics				
	Number of Patients (med)	71	95	86
	Age of Patients (med)	75	69	70
Interventions				
	Receipt of Shock (n)	8	21	29
	Receipt of Epinephrine (n)	0	7	7
	Receipt of Other Medication (n)	0	6	6
	Receipt of Intubation (n)	3	18	21
	Receipt of ECMO (n)	0	1	1
	Quality of Chest Compression (n)	4	11	15
	Duration of Interruption (n)	13	25	38
	Receipt of Mechanical CPR (n)	9	18	27
Outcomes				
	Time to Events (n)	12	20	32
	Compression Fraction (n)	3	5	8
	ROSC (n)	8	23	31
	Admitted to Hospital (n)	5	9	14
	Survived to hospital Discharge (n)	3	15	18
	Neurologic Recovery (n)	1	8	9

Table 1. Settings, demographics, interventions and outcomes reported in full-texts and abstracts included in the scoping review. CPR: Cardiopulmonary Resuscitation, ECMO: Extracorporeal membrane oxygenation, ROSC: Return of spontaneous circulation.

Yes, authors have interests to disclose
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Disclosure: Philips Consultant
Lance Becker
Consultant/Advisor
Philips Consultant
Disclosure: Flosonics
Daniel Rolston
Grant Support
Flosonics
Disclosure: Zoll Foundation, previous
Daniel Rolston
Grant Support
Zoll Foundation, previous

390 Emergency Department Utilization of Coronary Computed Tomography Angiography

Pong A, Sattler S, Levy D, Raio C, Abdullah E, Boyers T, Wren S, Thomas R, Klein L/ Good Samaritan University Hospital, West Islip, New York

Study Objectives: Coronary CT angiography (CCTA) is a potentially useful adjunct for evaluating emergency department (ED) patients with chest pain. In this study we reviewed the utilization of CCTA in our health system, specifically looking at the rate of percutaneous coronary intervention (PCI) as a result of an abnormal CCTA.

Methods: This was a multi-center retrospective analysis of CCTAs performed on ED patients. All patients undergoing an ED CCTA are placed in an "ED observation unit". A cardiology consult is not required. The decision to order the CCTA is at the discretion of the ED observation attending. Patients with known coronary artery disease, prior PCI, or prior known abnormal CCTA or abnormal cardiac catheterization are generally not candidates for CCTA. The patient must have an EKG that is either normal or with nonspecific ST segment abnormalities, and at least one negative cardiac hs-troponin. Patients were excluded from this investigation if they (1) had a CCTA while admitted to the hospital, (2) had chest pain deemed consistent with unstable angina (as these are not placed in observation), or (3) had initially elevated cardiac enzymes consistent with acute coronary syndrome. Demographic and clinical data were collected. We calculated the rate of cardiac catheterization, and PCI (primary outcome) after a completed CCTA. An abnormal calcium score was considered 11 and above (representing a highly conservative cutoff for mild coronary artery disease). We also recorded the presence of non-calcified coronary lesions.

Results: During the study period 7/1/2022-7/1/2024 the health system completed 4,520 CCTAs at four different hospitals. The median age was 57 years (range 21-86), and 49% were male. The total number of cardiac catheterizations that occurred in this cohort was 654 (14.5%, 95% CI 13.5-15.5%). There were 623 cardiac catheterizations for patients with abnormal calcium scores (13.8%, 95% CI 12.8-14.9%), and 31 cardiac catheterizations for patients with normal calcium scores and significant noncalcified lesions (0.7%, 95% CI 0.5-1.0%). The total number of patients who required PCI was 253 (5.6%, 95% CI 5.0-6.3%). There were 244 PCIs performed on patients with abnormal calcium scores (5.4%, 95% CI 4.8-6.1%), and 9 PCIs on patients with normal calcium sores and noncalcified lesions (0.2%, 95% CI 0.09-0.4%). Among the 253 PCIs completed, only 10 (3.9%) had a positive second hs-troponin (ruled in), 234 (92.5%) had normal/nonspecific findings on EKG, and only 6 (2.4%) had a "highly suspicious" history.

Conclusions: CCTA assisted in the identification of ED patients who underwent PCI. While it is possible that these patients would have undergone cardiac catheterization regardless of CCTA results, ED utilization of CCTA can assist in the risk stratification of patients with clinically significant coronary artery disease without invasive measures.

No, authors do not have interests to disclose

391 Emergency Department Visits for PSVT: An Analysis of the HCUP Nationwide Emergency Department Sample

Desai NR, Fermann G, Pollack C, Venkatesh A, Hooda N, Jiang X, Sacks N, Holtz A, Bharucha D, Pokorney S/Yale School of Medicine, New Haven, Connecticut

Study Objectives: Paroxysmal supraventricular tachycardia (PSVT) is an arrhythmia that may be challenging to diagnose due to its sudden and episodic nature. Based on projections to the 2018 US Census, the prevalence of PSVT in the US was

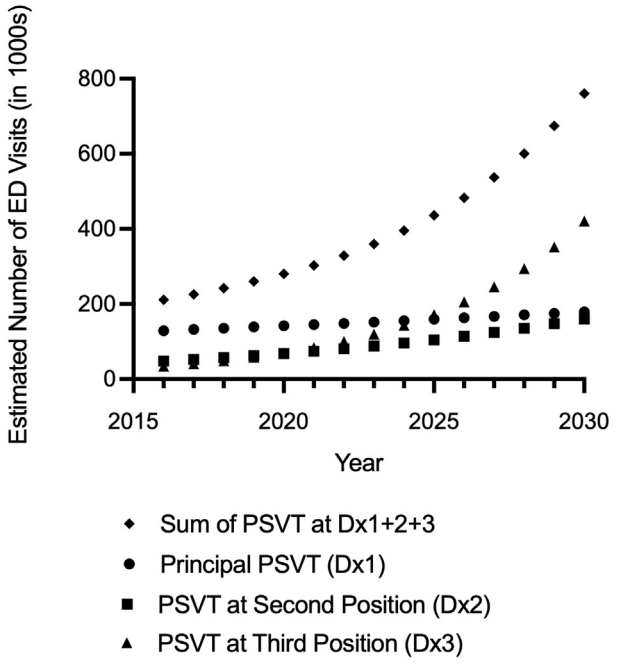
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estimated to be as high as 2.1 million patients, with an annual incidence of nearly 300,000. Prior studies report significant increases in healthcare resource use among newly diagnosed PSVT patients but may not fully reflect emergency department (ED) use or provide information on contemporary acute care utilization in a prevalent PSVT population. In this study, we quantified ED visits for PSVT and examined temporal trends in PSVT ED visits across time among United States (US) adults aged 18 years and older.

Methods: This retrospective, observational cohort study used the Agency for Healthcare Research and Quality (AHRQ) Healthcare Utilization Project (HCUP) National Emergency Department (NEDS) database from 2016-2019, the most recent years of data unaffected by the COVID-19 pandemic, to examine ED visits with a principal diagnosis of PSVT (ICD-10: I47.1) by adults age ≥18y. We used sampling weights provided by HCUP to estimate annual ED visit counts in the US overall and by the presence or absence of comorbid atrial fibrillation (AFib)/atrial flutter (AFL). We examined demographic characteristics, calculated annual visit rates per 10,000 US population, and assessed visit trends 2016-2019. We also conducted sensitivity analyses for ED visits for which PSVT was recorded as a diagnosis in the second or third coding positions. Further, we used Poisson regression, based on 2016-2019 visit increases, to project estimates of PSVT visits through 2030.

Results: There were 139,992 (95% CI: 132,913, 147,070) ED visits with PSVT as the principal diagnosis in 2019. Among principal-position PSVT ED visits, mean age was 57.8y; 62.6% were <65y; 59.3% were female; 24.2% resulted in admission to the same hospital. Similar results were seen for ED visits for principal PSVT without a coded secondary AFib/AFL diagnosis (mean age: 56.2y, 60.7% female), although fewer (18.8%) of that cohort resulted in admission. Total ED visits for PSVT increased over the study period (from 129,219 to 139,992; p <0.0001); ED visit rates per 10,000 also increased, from 5.16 (95% CI: 4.87, 5.45) to 5.46 (95% CI: 5.18, 5.73) (p=0.0029). Sensitivity analyses identified an additional 124,435 ED visits with PSVT as the second or third position diagnosis in 2019. The most commonly coded principal diagnoses for these ED visits included diagnoses that could be consistent with acute presentation of PSVT (eg, chest pain (ICD10: R0789) and palpitations (R079)). Based on the rate of change from 2016-2019, annual ED visits with a principal diagnosis of PSVT are projected to reach nearly 180,000 among US adults by 2030 (**Figure**).

Conclusion: With ED visits for PSVT significantly increasing among US adults, outpatient interventions for PSVT that reduce the need for an ED visit may minimize the burden of PSVT for patients, providers, and payers.



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Nihar R Desai
Consultant/Advisor
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Nihar R Desai, Gregory J. Fermann
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Astra Zeneca
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Nihar R Desai, Gregory Fermann, Charles Pollack, Arjun Venkatesh, Naushin Hooda, Xiaohui Jiang, Naomi Sacks, Sean Pokorney
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Disclosure: Milestone Pharmaceuticals
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392 Time to Mechanical Thrombectomy: Impact on Intermediate-Risk Pulmonary Embolism in the FLASH Study

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Study Objectives: Mechanical thrombectomy (MT) can reduce thrombus burden in intermediate risk (IR) pulmonary embolism (PE) patients, but it is unknown whether the time to treatment initiation influences outcomes. The purpose of this secondary analysis was to evaluate the impact of time from emergency department/hospital arrival to mechanical thrombectomy (TtMT) on outcomes in IR PE patients in the US and European (EU) cohorts of the FLASH registry.

Methods: The FLASH registry (NCT03761173) enrolled 799 US (IR n= 736, 92.1%) and 200 EU (IR n= 118, 59.6%) PE patients treated with MT using the FlowTriever System (R) (Inari Medical) with 6-month follow-up. The primary endpoint was a composite of device-related mortality and major bleeding at 48 hours, and intraprocedural device- or procedure-related adverse events. Outcomes were compared in IR patients for short TtMT (≤12 hours) vs long TtMT (>12 hours) groups.

Results: There were 215 (29.6%) US patients and 40 (35.7%) EU patients in the short TtMT group, with median TtMT of 6.12 [4.18, 7.97] and 4.18 [2.63, 6.01] hours, respectively. There were 511 (70.4%) US patients and 72 (64.3%) EU patients in the long TtMT group, with median TtMT of 24.78 [18.88, 39.38] and 21.51 [18.57, 27.34] hours, respectively. Patient characteristics and outcomes are shown in the **Table**. Symptom duration was shorter and central thrombus was more common in the short TtMT groups. There were no significant differences in the primary endpoint between short and long TtMT groups. The US short TtMT group experienced greater mean pulmonary artery pressure (mPAP) reduction pre- to post-procedure and greater RV/LV ratio reduction at all follow-up visits, though these trends were not seen in EU patients. Six-minute walk test distance was greater in the short TtMT group at 30 days for EU patients and 6 months for US patients.

Conclusion: Data from the FLASH registry suggest that rapid initiation of MT may provide in-hospital benefits and improved acute and long-term outcomes in IR PE patients, though more research is needed to understand geographical differences.

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Table: Outcomes for Short and Long TtMT Groups in Intermediate Risk FLASH Patients

Variable*	Short TtMT (≤12 h) US: N=215 Europe: N=40	Long TtMT (>12 h) US: N=511 Europe: N=72	*P*-value
Baseline and Clinical Characteristics			
Age			
US	60.20 ± 15.83	61.89 ±13.86	0.2648
EU	67.60 ± 9.24	62.35 ± 14.62	0.1621
Gender: Female			
US	96 (44.7%)	235 (46.0%)	0.7449
EU	13 (32.5%)	29 (40.3%)	0.5415
Symptom Duration (days)			
US	2.3 ± 9.8	2.8 ± 4.6	**<0.0001**
EU	0.9 ± 3.9	1.8 ± 3.1	**<0.0001**
PE Treatment Location			
US			
Central Only	75 (34.9%)	133 (26.1%)	
Lobar Only	17 (7.9%)	76 (14.9%)	**0.0064**
Both	123 (57.2%)	301 (59.0%)	
EU			
Central Only	12 (30.0%)	19 (26.8%)	
Lobar Only	2 (5.0%)	20 (28.2%)	**0.0075**
Both	26 (65.0%)	32 (45.1%)	
Procedure Time (minutes)			
US	67.0 [51.0, 100.0]	66.0 [50.0, 90.0]	0.1726
EU	50.0 [39.0, 69.0]	68.5 [50.0, 96.0]	**0.0045**
Outcomes			
Primary Endpoint			
US	7 (3.3%)	7 (1.4%)	0.1358
EU	1 (2.5%)	1 (1.4%)	1.0000
Device-related mortality			
US	0	0	1.0000
EU	0	0	1.0000
Major bleeds			
US	6 (2.8%)	5 (1.0%)	0.0942
EU	0	1 (1.1%)	1.0000
Intraprocedural AEs			
US	1 (0.5%)	2 (0.4%)	1.0000
EU	1 (2.5%)	0	0.3604
mPAP change, mmHg, pre- to post-procedure			
US	-9.0 ± 6.2	-7.2 ± 6.2	**<0.0001**
EU	-7.4 ± 6.6	-6.6 ± 6.4	0.5491
RV/LV Ratio change (echo), baseline to follow-up			
US			
48 hours	-0.38 ± 0.25	-0.29 ± 0.35	**0.0481**
30 days	-0.53 ± 0.33	-0.40 ± 0.30	**0.0240**
6 months	-0.63 ± 0.39	-0.38 ± 0.43	**0.0013**
EU			
48 hours	-0.35 ± 0.25	-0.30 ±0.36	0.8499
30 days	-0.51 ± 0.28	-0.46 ± 0.24	0.7059
6 months	-0.53 ± 0.27	-0.51 ± 0.25	0.9925
mMRC Dyspnea Score change, baseline to 48 hours			
US	-1.6 ± 1.6	-1.8 ± 1.6	0.1960
EU	-2.5 ± 1.0	-2.0 ± 1.2	**0.0433**
6-Minute Walk Test Distance (m)			
30 days			
US	390.1 [303.0, 480.0]	360.0 [252.0, 466.0]	0.0768
EU	485.0 [360.0, 861.9]	400.0 [347.0, 494.0]	**0.0291**
6 months			
US	450.5 [312.0, 567.8]	390.0 [300.0, 480.0]	**0.0260**
EU	493.5 [395.0, 600.0]	460.0 [381.0, 612.0]	0.7521

*Data presented as mean ± SD, median [IQR], or n (%). Range of n's: Short: US: 28-215, EU: 18-40; Long: US: 171-511, EU: 27-72

No, authors do not have interests to disclose

393 Cocaine and Outcomes in Emergency Department Patients Presenting With Chest Pain: Real-World Data

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Study Objectives: Cocaine use has long been associated with increased cardiovascular risk, primarily due to its sympathetic stimulation causing hypertension, tachycardia, increased myocardial oxygen demand, and arrhythmias. However, the risk of major adverse cardiovascular events (MACE) in patients who present to the emergency department (ED) with chest pain and a positive urine sample for cocaine remain unclear, largely due to studies with small sample size. Our study aims to investigate this association using a large real-world database.

Methods: Using ICD-10 codes within the TriNetX database, we analyzed adult patients presenting to the ED, between 2005-2025. Patients who had diagnosis of chest pain, shortness of breath and had received urine toxicology tests were eligible. Patients whose urine samples tested positive (+COCN) for cocaine were compared with those tested negative for cocaine (-COCN). Patients with a history of atrial fibrillation, left ventricular hypertrophy, and cardiomyopathy, other MACE diagnoses prior to the index ED visits were excluded. We also did not include patients with high sensitivity troponin. Outcomes of interest were the 30-day rates of acute myocardial infarction (MI), acute decompensated heart failure (ADHF), and serum troponin level. We also used a propensity score model with 23 pre-selected [NM1] variables that are associated with MACE to produce 2 balanced groups of patients. Results were expressed as risk difference (RD) and 95% confidence intervals.

Results: A total of 83,300 patients were included, mean age was 45 years, 47% were female; other demographic and clinical characteristics were similar in both groups. 40,991 (49%) patients had +COCN urine test. The risk difference of acute myocardial infarction, ADCH, ischemic stroke was 0.2% (95% CI 0.11%-0.33%), 0.11% (95% CI 0.049%-0.16%), 0.27% (95% CI 0.2%-0.34%), respectively. The risk difference for cardiac arrest was 0.054% (95% CI 0.009%-0.100%). The mean value of serum troponin [NM2] for the +COCN group was 0.77 (Standard Deviation [SD] 5.6) vs 0.82 (SD 6.9, P = 0.78) for -COCN group.

Conclusions: Patients presenting with chest pain and shortness of breath who had a positive urine cocaine sample did not have a clinically significant higher risk of MACE than those with negative cocaine. Thus the presence of a positive cocaine sample should not influence our clinical management in patients presenting with chest pain and shortness of breath.

No, authors do not have interests to disclose

394 Discharge of Low-Risk Patients With Venous Thromboembolism: Real-World Practice Limitations

Stubblefield W, Barclay J, Wrenn J, Wells Q, Zuo Z, Beauchamp K, Storrow A, Collins S, Beckman J/Vanderbilt University Medical Center, Nashville, Tennessee

Study Objectives: Risk stratification tools and monotherapy using direct oral anticoagulants (DOACs) have bolstered outpatient treatment of emergency department (ED) patients with venous thromboembolism (VTE) (deep vein thrombosis (DVT) and/or pulmonary embolism (PE)). We initiated an institutional pathway for outpatient treatment of low-risk patients with VTE at a quaternary-care medical center in Nashville, TN and evaluated ED discharge rates and safety outcomes before and after pathway initiation. Prior to pathway initiation, discharge decisions were made by attending physicians based on clinical expertise. After decision-supportpathway initiation this process was augmented by the ability to schedule a one-week follow-up with an outpatient provider in vascular medicine clinic, a 30-day DOAC prescription, and anticoagulant education facilitated by theEDclinical pharmacist.

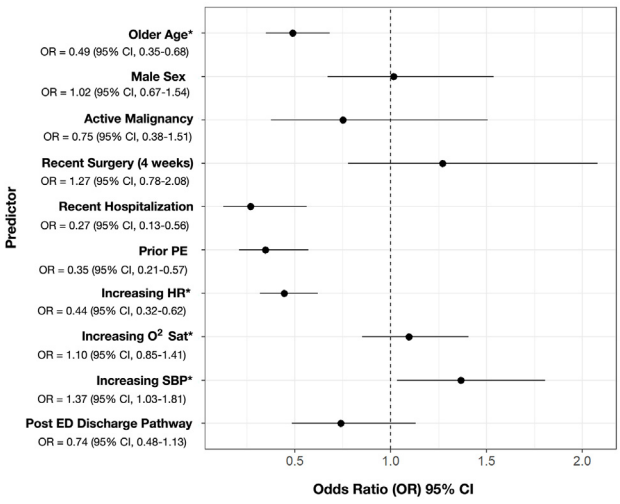
Methods: A retrospective cohort of 1,260 patients with acute VTE presenting to the ED between July 1, 2014 and June 30, 2018 were identified in the electronic health record (EHR) by a natural language processing algorithm scanning radiology reports for the presence or absence of PE or DVT. We compared patients who presented over the two years before and two years after pathway initiation (July 1, 2016) using a regression model adjusted for age, sex, VTE diagnosis (PE or DVT), active malignancy, recent surgery, heart rate (HR), oxygen saturation, and systolic blood pressure (SBP) to examine the independent effect of ED pathway initiation on discharge rates.

Results: Patients with acute VTE before (N=575) and after (N=685) pathway initiation were similar in age, race, ethnicity, ED vital signs, and prevalence of active malignancy, but differed significantly in their prevalence of hypertension, prior hospitalization, and prior PE. In the unadjusted analysis, of the 537 patients with DVT, 22.6% (58/257) were discharged from the ED prior to pathway initiation and 13.2% (37/280) after pathway initiation (p=0.005). Of the 723 patients with PE, 3.5% (11/318) were discharged from the ED prior to pathway initiation and 1.7% (7/405) after pathway initiation (p=0.14). Pathway initiation trended towards fewer ED discharge of low-risk patients with VTE (aOR= 0.74, 95% CI, 0.48 to 1.13). Older age, recent hospitalization, prior PE, and higher HR were associated with lower odds of ED discharge (figure). There were no significant increases in ED return visits, hospitalization, or bleeding events following pathway initiation.

Conclusions: Initiation of a VTE discharge pathway was complicated by an increase in the proportion of patients with recent hospitalizations and prior PE and associated with lower odds of ED discharge in the post-pathway period.

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Figure. Odds Ratio of ED Discharge by Age, Sex, Active Malignancy, Recent Surgery, Recent Hospitalization Prior PE, HR, O^2 Sat, SBP, and Pre-Post ED Discharge Pathway



Abbreviations: ED, emergency department; O^2 Sat, oxygen saturation; PE, pulmonary embolism; SBP, systolic blood pressure
*Odds Ratios by 75th and 25th quartiles

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Alan Storrow

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Sean Collins

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Joshua Beckman

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395 WITHDRAWN

396 High Blood Pressure Among Emergency Department Patients: Effects of an Educational Intervention

Egner M, Marco C, Turner M, Soderman C, Wang G, Haynos A, Schaefer-Hood G/Penn State College of Medicine, Hershey, Pennsylvania

Study Objectives: Hypertension is a significant global health issue, affecting approximately half of adults in the United States and over one billion people internationally. In the emergency department (ED), treatment is typically not indicated for asymptomatic hypertension, however it may still represent an opportunity for patient education to improve health outcomes. This study aimed to identify ED patients with asymptomatic hypertension and provided a brief educational intervention about high blood pressure. Following intervention, adherence to medications, medical care, diet, and exercise recommendations were assessed at 2 and 4 weeks.

Methods: In this prospective quasiexperimental design, eligible subjects included consenting adult ED patients identified to have hypertension (systolic blood pressre over 140 mmHg and/or diastolic blood pressure over 90 mmHg) who were discharged home. Baseline assessment of medication adherence, exercise, diet, tobacco, and alcohol use was collected. An educational intervention was provided using "The American Heart Association: Blood Pressure Fact Sheets". Subjects were contacted by phone at 2 and 4 weeks following the ED visit to assess blood pressure, medication adherence, exercise, diet, tobacco and alcohol use.

Results: Among 151 participants, data was collected from 89 subjects at the 2-week follow-up (59% follow-up rate). Following the educational intervention, participants had lower systolic blood pressure at 2 weeks (baseline mean 163 mmHg (95% CI 159-166), 2-week mean 130 mmHg (95% CI 126-135); $p < 0.001$) and diastolic blood pressure at 2 weeks (baseline mean 93 mmHg (95% CI 91-95), 2-week mean 77 mmHg (95% CI 75-80); $p < 0.001$). Participants were more likely to take antihypertensive medication daily at 2 weeks (baseline 52%; 2-week 69%; $p = 0.0271$). There was no significant difference in self-reported healthy diet adherence (baseline 21%; 2-week 26%; p = 0.1), exercise (baseline 30%; 2-week 26%; $p = 0.8$), smoking (baseline 12%, 2-week 9%; $p = 0.4803$), or alcohol use (baseline 34%, 2-week 31%; $p = 0.6366$) at 2 weeks. Similar results were found at 4 weeks. Data was available at 4 weeks post-intervention for 88 subjects (58.2% follow-up rate). Participants had lower systolic blood pressure (baseline 163 mmHg, (95% CI 159-166), 4-week 132; $p < 0.001$) and lower diastolic blood pressure (baseline 93 mmHg (95% CI 91-95, 4-week 78; $p < 0.001$). A significant difference in self-reported exercise emerged at 4 weeks with a lower percentage reporting no exercise (baseline reporting no exercise 30%, 4-week 18%, $p = 0.0348$). There were no significant differences in reported healthy diet adherence (baseline 21%, 4-week 24%; $p = 0.6705$), smoking (baseline 11.92%, 4-week 5.68%; $p = 0.1147$), or alcohol use (baseline 34% using, 4-week 28%; $p = 0.3361$).

Conclusions: The educational intervention provided in the ED was associated with lower reported systolic and diastolic blood pressure at 2 and 4 weeks post ED visit, as well as improved adherence to prescribed medications at 2 and 4 weeks, and improved self-reported exercise at 4 weeks. There were no differences in reported healthy diet adherence, smoking, or alcohol use.

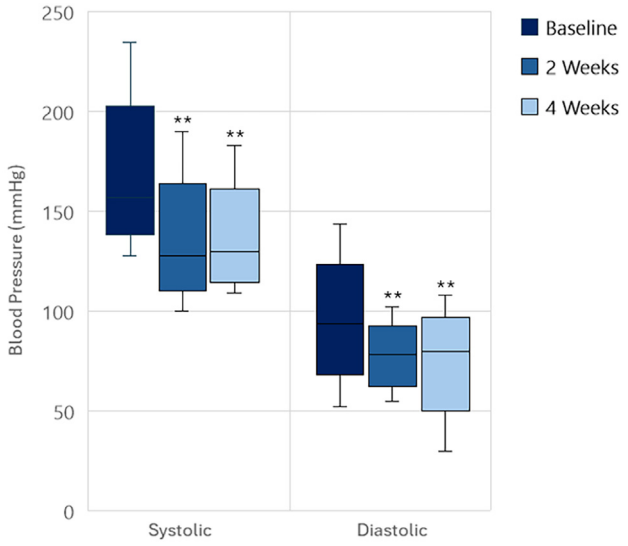


Figure 1: Systolic and Diastolic Blood Pressures of Participants at Baseline and at 2 and 4 Weeks Following Educational Intervention.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

397EMF Adverse Effects of Adjuvant Heat Treatment for Catheter Salvage in CLABSI

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Study Objectives: Definitive source control in the treatment of central line-associated bloodstream infection (CLABSI) often requires central venous catheter (CVC) removal and the loss of critical and limited vascular access sites, particularly in patients on hemodialysis. We previously developed a promising heat and shear-based catheter salvage strategy that reduces biofilm load from infected CVCs in an animal model of CLABSI. However, we observed subsequent histopathological evidence of intravenous tissue damage or remodeling following treatment. The extent of potential adverse effects to the local vascular endothelium in response to supraphysiological temperatures and mechanical stress during treatment are not well understood. We hypothesize that heated perfusate treatment at supraphysiological temperatures will decrease barrier function and increase markers of cytotoxicity in vascular endothelium as modeled by cultured human umbilical vein endothelial cell (HUVEC) monolayers.

Methods: We designed and built a custom heated perfusate cycling apparatus for *in vitro* testing of primary HUVEC monolayers cultured on 12 mm PET Transwell inserts to 100% confluence. This apparatus mimics our *in vivo* treatment system. On the apical surface of these monolayers, 60°C (experimental) and 37°C (control) phosphate-buffered saline was cycled via syringe pump for 20 minutes. A heater setpoint of 60°C was chosen for the experimental temperature as it was observed in our animal model to effectively remove and kill biofilm. Transendothelial electrical resistance (TEER) indicating cell permeability (barrier function) as well as adenylate kinase (AK) as a readout of cytotoxicity, were measured in the same monolayers before and after treatment.

Results: A heater setpoint of 60°C achieved an average apical fluid T_{max} of 50.17°C ± 3.51°C at 5 minutes which decreased to 47.67°C ± 2.08°C by 20 minutes. A 37°C setpoint achieved an average apical fluid T_{max} of 36.0°C ± 1.00°C at 15 minutes which remained stable within error until the end of the experiment. In the 60°C group, TEER values decreased from a mean of 12.60 Ω ± 6.12 Ω pre-treatment to -0.589 Ω ± 5.85 Ω post-treatment ($p = 0.00026$). In the 37°C group, TEER values decreased from a mean of 6.44 Ω ± 9.56 Ω pre-treatment to -5.60 Ω ± 5.01 Ω post-treatment ($p = 0.0096$). There was no statistically significant difference in the magnitude of TEER decrease between control and experimental groups ($p = 0.82$). Conversely, there was a statistically significant increase in AK values from 26.41 RLU ± 7.95 RLU pre-treatment to 47.52 RLU ± 29.15 RLU post-treatment ($p = 0.017$) in the 60°C group as compared to the 37°C group, which stayed relatively stable from 32.63 RLU ± 22.90 RLU to 24.14 RLU ± 8.82 RLU ($p = 0.72$). This indicates that only monolayers exposed to supraphysiological temperatures exhibited significant cytotoxicity.

Conclusion: Our findings suggest that the decrease in TEER following exposure to supraphysiological temperatures associated with our catheter salvage strategy may be independent of temperature and instead, related to fluid shear forces experienced by the apical side of the cell monolayer. The observed increase in cytotoxicity following 60°C treatment but not 37°C treatment may indicate a temperature-dependent effect compounded with that of fluid shear. Endothelial cells located at the tip of the catheter lumen experience both supraphysiological temperatures and fluid shear based on our previous computational models. Future mechanistic studies isolating temperature effects from other physical manipulations of the endothelium associated with placement and usage of thermoregulatory catheters, already used in the ED for acute hypothermia and targeted temperature management in post-cardiac arrest and neurocritical care, will enable us to improve safety profiles for patients and engineer new advances in care.

No, authors do not have interests to disclose

398 Delta High Sensitivity Cardiac Troponin Measures to Exclude Myocardial Infarction

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Study Objectives: Chest pain guidelines recommend measuring high sensitivity cardiac troponins (hs-cTn) and their serial change (delta) values. However, data examining optimal delta cut-points to exclude myocardial infarction (MI) are limited. This study aims to evaluate the diagnostic performance for MI of a range of delta hs-cTnI measurements within a large multisite US cohort.

Methods: We conducted an observational cohort study using the Wake Forest Chest Pain Registry. Patients ≥18 years old with chest pain, serial hs-cTnI measures, and without STEMI on ECG were accrued from five US emergency departments (EDs) from 11/1/2020-7/31/2022. Patients' 0- and 2-hour hs-cTnI (Beckman Coulter) measures were used to determine delta values. The primary outcome was MI at the index visit determined by validated ICD codes. The efficacy, sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV), and negative and positive likelihood ratios (-LR and +LR) for MI with associated 95% confidence intervals were assessed for a range of absolute delta cut-points (1-20 ng/L). Efficacy (rule-out rate) was defined as the proportion of patients with a delta value below each cut-point. The optimal delta cut-point was defined by achieving maximal efficacy while maintaining a NPV ≥99% for MI.

Results: During the study period, 12,845 patients with serial hs-cTnI measures were included, of which 51.6% (6,632/12,845) were female with a median age of 57 (IQR: 45-68) years. Index MI occurred in 7.5% (957/12,845). Delta cut-points ranging from 1-4 ng/L yielded NPVs ≥99% for MI. Among these, maximal efficacy of 84.2% (95% CI: 83.6-84.9%) was achieved at a delta cut-point of 4 ng/L. At this cut-point, the NPV was 99.1% (95%CI: 98.9-99.2%) and the -LR was 0.12 (95%CI: 0.10-0.14) for MI. The **Table** describes full test characteristics across delta cut-points from 1-20 ng/L.

Conclusions: In a large multisite cohort of patients with acute chest pain, the optimal delta cut-point to exclude index MI was 4 ng/L, which maximized efficacy and achieved high NPV.

Table 1. Test characteristics for absolute delta hs-cTnI cut-points.

Cut-Point (ng/L)	Efficacy (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	+LR (95% CI)	-LR (95% CI)
1	49.9 (49.0, 50.8)	98.2 (97.2, 99.0)	53.8 (52.9, 54.7)	14.6 (13.7, 15.5)	99.7 (99.6, 99.8)	2.12 (2.08, 2.17)	0.03 (0.02, 0.05)
2	72.8 (72.0, 73.6)	95.2 (93.6, 96.5)	78.3 (77.5, 79.0)	26.1 (24.6, 27.6)	99.5 (99.3, 99.6)	4.39 (4.23, 4.55)	0.06 (0.05, 0.08)
3	80.7 (80.0, 81.4)	92.0 (90.0, 93.6)	86.5 (85.9, 87.2)	35.5 (33.6, 37.4)	99.3 (99.1, 99.4)	6.84 (6.51, 7.18)	0.09 (0.08, 0.12)
4	84.2 (83.6, 84.9)	89.3 (87.2, 91.2)	90.2 (89.6, 90.7)	42.2 (40.1, 44.4)	99.1 (98.9, 99.2)	9.09 (8.57, 9.63)	0.12 (0.10, 0.14)
5	86.4 (85.8, 87.0)	87.8 (85.5, 89.8)	92.4 (91.9, 92.8)	48.1 (45.7, 50.4)	98.9 (98.7, 99.1)	11.49 (10.75, 12.29)	0.13 (0.11, 0.16)
10	90.2 (89.7, 90.7)	81.6 (79.0, 84.0)	96.0 (95.6, 96.3)	62.0 (59.2, 64.7)	98.5 (98.2, 98.7)	20.25 (18.46, 22.22)	0.19 (0.17, 0.22)
15	91.7 (91.2, 92.2)	76.1 (73.2, 78.7)	97.2 (96.8, 97.4)	68.3 (65.4, 71.1)	98.1 (97.8, 98.3)	26.76 (23.95, 29.89)	0.25 (0.22, 0.28)
20	92.6 (92.2, 93.1)	71.4 (68.4, 74.2)	97.8 (97.5, 98.0)	72.0 (69.1, 74.9)	97.7 (97.4, 98.0)	32.02 (28.24, 36.30)	0.29 (0.26, 0.32)

PPV – positive predictive value, NPV – negative predictive value, +LR – positive likelihood ratio, -LR – negative likelihood ratio, CI – confidence interval

No, authors do not have interests to disclose

399EMF Epidemiology of Intracerebral Hemorrhage Associated With Anticoagulant and Antiplatelet Use

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Study Objectives: Intracerebral hemorrhage (ICH) is a serious form of stroke caused by bleeding from a ruptured artery. The use of antithrombotic medications, including anticoagulants and antiplatelets worsen morbidity and mortality outcomes following ICH. Assessing the outcomes of those who had an ICH and used an anticoagulant, antiplatelet or both in a national cohort will inform practice in prescribing antithrombotic agents and treatment following an ICH.

Methods: This was a retrospective cohort from the national Veteran Health Administration Corporate Data Warehouse including Veterans ≥ 18 years and diagnosed with an ICH between January 1, 2018 and January 1, 2024. Patients were identified using ICD-10 codes for ICH and prescription records for medications. The primary endpoint of 90-day mortality was compared across the following groups: anticoagulant only, antiplatelet only, dual anticoagulant and antiplatelet, or no antithrombotic drugs within 180 days of ICH. Logistic regression was completed to

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compare odds on 90-day mortality. Rates and medians were also observed for in hospital mortality, 30-day mortality, in hospital length of stay, and discharge disposition.

Results: There were 87,435 Veterans matching inclusion criteria with an ICD-10 code for ICH. However, many patients did not have an ICH date in VA inpatient or emergency department records. Once these patients were removed, the final cohort of veterans with ICH was 13,960. In the 180 days prior to ICH, most patients (52.3%) had no active prescriptions for anticoagulants or antiplatelets, followed by antiplatelet only (27.1%), anticoagulant (12.4%), and both (8.09%). Most Veterans were male (96.3%), White (62.9%), non-Hispanic (87.1%), and elderly (median age 73). Comorbidities were common, including diabetes (41.7%), stroke (31.6%), chronic kidney disease (27.6%), heart failure (22.4%), and atrial fibrillation (21.4%). Apixaban was the most prescribed anticoagulant (10.5%), and aspirin was the most common antiplatelet (30.8%). For 90-day mortality, the dual anticoagulation and antiplatelet group had the highest mortality rate (33.3%) (**Table**). They also had a longer median hospital stay (7 days) than the other groups. The antiplatelet group had the highest rate of discharge back home or to a nursing home. In the multivariable logistic regression (Table 1), the anticoagulant group had increased odds of 90-day mortality compared to the antiplatelet group (OR 1.22, 95% CI 1.08 to 1.38) and the no prescription group (OR 1.52, 95% CI 1.35 to 1.70). The odds of mortality did not differ between the anticoagulant group and the dual prescription group (OR 0.91, 95% CI 0.77 to 1.07).

Conclusion: Findings show that patients on an anticoagulant, with or without an antiplatelet, had increased 90-day mortality relative to those only on an antiplatelet or not on an antithrombotic prior to ICH. Consistent with previous literature, a prescription for an anticoagulant prior to ICH negatively impacts mortality. Given that prescriptions for anticoagulants are increasing, ways of improving mortality rate following ICH should be further explored.

Table 1. Results

Characteristic	ICH Cohort (n=13,960)
Anticoagulation, n (%)	
Apixaban	1,468 (10.5)
Edoxaban	17 (0.1)
Rivaroxaban	372 (2.7)
Warfarin	893 (6.4)
Enoxaparin	440 (3.2)
Fondaparinux	19 (0.1)
Dabigatran	128 (0.9)
Antiplatelet agents, n (%)	
Aspirin	4,296 (30.8)
Clopidogrel	1,344 (9.6)
Prasugrel	18 (0.1)
Ticagrelor	97 (0.7)
Cilostazol	68 (0.5)
Dipyridamole	5 (0.04)
Anticoagulant (n =1,735) outcomes	
In hospital mortality (up to day 30), n (%)	388 (22.4)
30-day mortality, n (%)	457 (26.3)
90-day mortality, n (%)	541 (31.2)
Hospital length of stay (days)	6 (3-13)
Antiplatelet (n =3,788) outcomes	
In hospital mortality (up to day 30), n (%)	716 (18.9)
30-day mortality, n (%)	854 (22.5)
90-day mortality, n (%)	1,025 (27.1)
Hospital length of stay (days)	6 (3-13)
Anticoagulant & antiplatelet (n =1,129) outcomes	
In hospital mortality (up to day 30), n (%)	258 (22.9)
30-day mortality, n (%)	324 (28.7)
90-day mortality, n (%)	376 (33.3)
Hospital length of stay (days)	7 (3-15)
No anticoagulant or antiplatelet (n =7,308) outcomes	
In hospital mortality (up to day 30), n (%)	1,185 (16.2)
30-day mortality, n (%)	1,406 (19.2)
90-day mortality, n (%)	1,682 (23.0)
Hospital length of stay (days)	6 (3-13)
Anticoagulant (n =1,735) discharge disposition	
Home	633 (36.5)
Nursing home	102 (5.9)
Outside hospital	66 (3.8)
Other government hospital	22 (1.3)
Died	388 (22.4)
Unknown	524 (30.2)
Antiplatelet (n =3,788) discharge disposition	
Home	1,613 (42.6)
Nursing home	307 (8.1)
Outside hospital	137 (3.6)
Other government hospital	58 (1.5)
Died	716 (18.9)
Unknown	957 (25.3)
Anticoagulant & antiplatelet (n =1,129) discharge disposition	
Home	421 (37.3)
Nursing home	78 (6.9)
Outside hospital	68 (6.0)
Other government hospital	27 (2.4)
Died	258 (22.9)
Unknown	277 (24.5)
No anticoagulant or antiplatelet (n =7,308) discharge disposition	
Home	2,900 (39.7)
Nursing home	551 (7.5)
Outside hospital	239 (3.3)
Other government hospital	117 (1.6)
Died	1,185 (16.2)
Unknown	2,316 (31.7)

No, authors do not have interests to disclose

400 Association of Crystalloid Use and Favorable Neurologic Outcome After Out-of-Hospital Cardiac Arrest

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Study Objectives: Normal saline (NS) and lactated Ringer's (LR) are two commonly used crystalloid fluid solutions used for volume resuscitation. Recent randomized trials comparing outcomes in patients receiving LR and NS have had conflicting results. Importantly, there is no data to help guide emergency physicians in fluid type for resuscitation of patients with out-of-hospital cardiac arrest (OHCA). However, patients with OHCA are at risk of cerebral edema and thus normal saline may be superior to LR for initial volume resuscitation. We hypothesized that OHCA patients resuscitated with NS would have improved neurologic outcomes compared to those who did not or who received LR only.

Methods: We conducted a single system, multi-centered retrospective study consisting of two emergency departments at a 750-bed academic medical campus. We included patients with OHCA between July 2014 and February 2021, and all patients who received at least 500cc of crystalloid within the first 24 hours after presentation. Patients who failed to achieve return of spontaneous circulation (ROSC), received mixed fluid resuscitation (eg, mixed amounts of NS and LR), were made comfort care, or survived less than 72 hours were excluded from the study. A 72-hour cutoff was determined to allow for sufficient time for neuro-prognostication and exclude patients with early non-survivable injuries from analysis. Our primary outcome was survival with favorable neurologic outcome at hospital discharge, defined as a Cerebral Performance Category (CPC) score of 1-2. Secondary outcomes included survival to hospital discharge and development of or worsening cerebral edema on imaging. Descriptive statistics are provided where indicated. A chi- squared test was used to compare primary and secondary outcomes. A p value < 0.05 was considered significant in all analyses.

Results: We identified 441 OHCA patients during our study time. Of these 84 (19.1%) patients met inclusion criteria, 61 of which received NS (72.6%) and 23 who received LR (27.3%). Of the patients who received NS for resuscitation, 21/61 (34.4%) survived with favorable neurologic outcome, compared to 9/23 (39.1%) who received LR, $p = 0.42$. There was no difference in our secondary outcomes of survival to hospital discharge or development of cerebral edema for patients who received NS or LR.

Conclusion: We found there was no difference in neurologic outcomes in OHCA patients who did or did not receive NS within the first 24 hours in hospital. Our data suggest that emergency physicians may use either fluid during the initial resuscitation of patients with OHCA, however, larger studies are needed to validate these findings.

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401 Targeted Temperature Management Device Type Over Time in an Ongoing Clinical Trial of Cardiac Arrest

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Study Objectives: The most common methods of modern targeted temperature management (TTM) in post-cardiac arrest patients are endovascular and surface devices. Endovascular devices cool internally via a catheter in a central vein but require venous access and pose risks like venous thromboembolism. Surface devices cool externally but demand more intensive nursing monitoring, pose risks of thermal skin injury, and may take longer to reach target temperature. It is unclear how evolving evidence, such as the TTM2 trial, and clinical preferences have influenced choice of device. As part of the ICECAP trial (Influence of Cooling duration on Efficacy in Cardiac Arrest Patients), we evaluated trends in device usage. We hypothesized an increase in surface device use over time.

Methods: ICECAP trial data (May 2020 - October 2024) were collected from participating sites on cooling device type (surface vs endovascular) for each enrolled participant and site-level device availability (surface-only, endovascular-only, or both). A Cochran-Armitage test was applied to evaluate temporal trends in the proportion of participants cooled with each device type and the distribution of device usage across sites over time.

Results: As of October 11, 2024, the ICECAP trial enrolled 1,000 participants from multiple sites. In 2020, 56% of participants were cooled with a surface device, compared to 55% in 2024. The proportion of sites reporting exclusive use of surface devices was 57% in 2020 and 53% in 2024. There were no statistically significant trends in the proportion of participants cooled with surface devices (p=0.68) or in the proportion of sites exclusively using surface devices (p=0.83).

Conclusion: Trends in TTM device usage remained stable over five years. This consistency ensures representation of both methods within ICECAP over time. Importantly, it could better allow ICECAP to evaluate the effectiveness and safety of each cooling method across varying TTM durations. Since enrollment sites are selected, individual participation is voluntary, and eligibility depends on rapidity of cooling, selection bias both at the participant and site level may limit the representativeness of these data.

Year	Number enrolled	Proportion cooled with Surface Device	Proportion cooled with Endovascular Device	Number of sites	Proportion of Sites using Surface Device alone	Proportion of Sites using Endovascular Device alone	Proportion of Sites using both
2020	101	0.56	0.41	23	0.57	0.3	0.13
2021	275	0.51	0.48	45	0.58	0.29	0.13
2022	255	0.55	0.45	48	0.6	0.27	0.13
2023	205	0.55	0.45	43	0.6	0.28	0.12
2024	164	0.55	0.43	43	0.53	0.28	0.19

No, authors do not have interests to disclose

402 Risk Stratification Following PE in Patients With Cancer: How Do Current Tools Perform?

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Study Objectives: Pulmonary embolism (PE) is one of the leading causes of death for patients with cancer. Although several risk prediction models have been created to disposition patients following PE, they fail to investigate cancer specifically, and in most cases lack the necessary sensitivity or specificity to appropriately risk stratify this high-risk group. We created a study to investigate 2 current risk stratification tools to assess which would be most appropriate for use in ED for cancer patients presenting with PE.

Methods: This retrospective cohort study was conducted between 1/2018 and 1/2022 at 2 academic EDs in Southern California. Adult patients (18 years or older) with cancer who presented to the ED and were diagnosed with a PE were included in the study. Demographic characteristics as well as PE risk factors were collected to calculate the simplified PE severity index (sPESI) and the Registro Informatizado de la Enfermedad TromboEmbolica (RIETE) scores for all patients. Sensitivity and specificity for death, bleeding and recurrent PE are reported for each score.

Results: During the study period, we included 400 patients with cancer who presented to a study ED with PE. The cohort was 61% male and predominantly non-hispanic white (62%) followed by Hispanic (18%) and Asian (7.2%). There was a high burden of disease, with 59% presenting with stage 4 cancer. The rates of 30-day mortality as well as new PE or bleed within 90 days were 21.9%, 16.5% and 21.2%, respectively. The sensitivity and specificity (sens, spec) for the sPESI score were as follows: 30-day mortality (80.9%, 20.9%), 90-day bleed (82.4%, 21.3%), 90-day PE (80%, 20.6%). The sensitivity and specificity (sens, spec) for the RIETE score were: 30-day mortality (97.8%, 9%), 90-day bleed (96.5%, 8.3%), 90-day PE (91%, 6.9%). The negative predictive value (NPV) of the RIETE score for mortality was 93% vs 79% for the sPESI score.

Conclusion: Overall, there was a high incidence of morbidity and mortality following the diagnosis of PE in our cohort with approximately 1/5 of the patients dying within 30 days. The RIETE score had a much higher sensitivity for negative outcomes than the sPESI score, with only 2 false negatives in 30-day mortality. Both scores were poorly specific. Among existing tools, the RIETE score appears most appropriate when screening for high-risk cancer patients following PE. Further investigation is needed to create a more accurate, cancer-specific PE risk stratification tool.

No, authors do not have interests to disclose

403 Management of Emergency Department Patients With Low-Risk Deep Vein Thrombosis in the United States

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Study Objective: Historically, patients diagnosed with deep vein thrombosis (DVTs) were admitted for anticoagulation. In 2024, the American College of Emergency Physicians (ACEP) introduced a quality measure to encourage discharging patients with low-risk DVTs as part of the Merit-Based Incentive Payment System (MIPS). Patients with high-risk factors such as proximal DVT, concurrent PE, syncope, or those already on anticoagulation are excluded from the measure. The aim of our study is to evaluate retrospective adherence with ACEP's new DVT MIPS measure.

Methods: Data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2016-2022 was analyzed, which contained ED visit information representing 1,867,690 patients diagnosed with DVT (ICD-10 codes: I82.4, I82.6, I82.5, I82.B). Bivariate and multivariable analyses examined associations between demographic factors, clinical characteristics (including DVT risk type and comorbidities), and disposition (admission versus discharge). Statistical tests used included Weighted Welch's T-Test and Rao-Scott Chi-Square Test.

Results: Overall, 81.5% of patients were considered low-risk (95% CI, 73.9-87.3%). There was a significant difference in ED disposition by MIPS risk-type with 68.4% of low-risk patients being discharged (95% CI, 58.9-76.6%) compared to only 34.8% of high-risk patients being discharged (95% CI, 17.8-56.9%; p=0.005). Of the exclusion criteria in the MIPS measure, only concurrent PE was independently associated with admission (23.7% [95%CI 14-37%] admitted patients versus 3.17% [95% CI 0.71-13%] discharged patients, p=0.002), like due to infrequent reporting of other exclusion criteria. Additionally, we found several other factors associated with admission that are not currently built into the MIPS measure, such non-syncope other diagnoses associated with hemodynamic instability (hypotension [p <0.001], acute hypoxic respiratory failure [p=0.016]), composite risk of bleeding (p=0.007), acute blood loss anemia (p=0.033), and other comorbidities such as CKD/ESRD (p=0.008) and Alzeheimer's/dementia (p=0.003).

Conclusions: Based on our study, opportunities exist to increase adherence with this measure. Additionally, opportunities exist to modify the measure to add additional exclusions for hemodynamic instability, risk of bleeding, or other comorbidities.

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404 Association of Troponin Delta With 30-Day Major Adverse Cardiovascular Events

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Study Objectives: Evaluating chest pain and suspected acute coronary syndrome (ACS) heavily relies on high-sensitivity cardiac troponin assays. Analysis of dynamic troponin changes (troponin delta) is essential in this evaluation, yet the prognostic value of delta increases vs decreases are not well defined. This study examines how troponin delta categories (increase, decrease, and stable) correlate with 30-day all-cause mortality/myocardial infarction (MI) and coronary revascularization.

Methods: The retrospective cohort study assessed adult patients who presented with chest pain to 10 Michigan emergency departments (ED) during 2020–2022. Patients eligible for the study received at least two high-sensitivity cardiac troponin (hs-cTnI) measurements taken in the emergency department (ED) (0, 1, and/or 3 hour), with all EDs using the same assay (Beckman Coulter hs-cTnI). We excluded those age <18 years and patients with ST-elevation MI. Troponin delta was defined as the percentage change between serial values: >20% increase, >20% decrease, or ≤20% change (stable). The primary outcome was a composite of 30-day mortality/MI, and the secondary outcome was revascularization. Logistic regression models adjusted for demographics, comorbidities, and clinical variables. We present adjusted odds ratios (aOR) and 95% confidence intervals (CI).

Results: There were 21,912 patients included in the cohort with a mean age of 56 years and 52.7% female. The median and interquartile ranges in each troponin category are as follows: decrease (14.0 [8.0, 35.0] ng/L), increase (23.0 [6.0, 133.0] ng/L), and stable (4.0 [4.0, 6.0] ng/L). The primary outcome occurred in 33.2% of patients with a delta increase, 16.5% with a delta decrease, and 6.0% with a stable delta. A troponin delta increase was strongly associated with the primary outcome (aOR = 4.98; 95% CI: 4.35–5.71, $p < 0.001$). A troponin delta decrease was modestly associated with the primary outcome (aOR = 2.61; 95% CI: 1.87–2.65, $p < 0.001$). Rates of revascularization were not statistically significant across delta categories.

Conclusion: Troponin delta serves as an independent predictor for 30-day mortality/MI among patients experiencing chest pain in ED settings. While it had a more modest association, delta decrease was an independent predictor.

No, authors do not have interests to disclose

405 Performance Errors in Hyperangulated Video Laryngoscopy

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Study Objectives: Traditionally, ETI has been taught dichotomously as successful or unsuccessful. The near ubiquitous adoption of video laryngoscopy has changed the emergency airway education landscape. Recent literature utilizing the video recording feature has described performance errors commonly seen in standard geometry video laryngoscopy (SGVL) attempts. However, hyperangulated video laryngoscopy (HAVL) requires a different technique and may therefore have different performance errors than SGVL.

Methods: We performed a retrospective review of 50 HAVL videos. The videos were a random selection of HAVL attempts from a single urban, academic, tertiary care hospital with emergency medicine residents. The primary outcome was to determine the performance errors seen in HAVL. A secondary outcome was to determine the frequency of these performance errors. Two board-certified emergency physicians reviewed the same videos. The reviewers were blinded to each other's results. A third board certified emergency physician served as tiebreaker. Videos were scored for all performance errors seen during a single ETI attempt. Descriptive analytics were used for statistical analysis. Interoperator agreement was calculated by Cohen's Kappa.

Results: Interoperator agreement was excellent (0.87). Of 50 videos, 22% (11/50) had no performance errors. Seventeen discrete performance errors during HAVL were identified, of which 4 were unique to HAVL: dislodgement of endotracheal tube (ETT) during rigid stylet removal, ETT dislodgement during rigid stylet pop, failure of angle control, and translation (not rotation) of the ETT with rigid stylet). Other performance errors seen common to SGVL included: insertion off midline, inadequate suctioning, missed anatomical structure recognition, overly deep insertion, failure to engage midline vallecula, lost seating in vallecula, not full seated in vallecula, failure to engage midline vallecula, too much force in the vallecula, inadequate lifting force, overly-rotated insertion, anterior tracheal ring hangup, glottic structure trauma, and premature withdrawal of camera. The most common performance error was insertion off midline (11/50) followed by over-rotated insertion (5/50).

Conclusion: HAVL is a discrete skill from SGVL. In this small cohort, the most common performance errors were insertion off midline and over-rotation insertion.

Yes, authors have interests to disclose

Disclosure: Verathon

Consultant/Advisor

Verathon

406 A Computational Model for Automated Blood Pressure Control in Critical Care

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Study Objectives: In critically ill patients, blood pressure (BP) volatility is associated with increased morbidity and mortality. Current clinical care requires human operators to manually adjust drug therapy in response to BP, introducing delay and error in the form of over-and under-correction. We develop a computational simulation of an automatically controlled drug infusion to regulate BP dynamically and gradually. This approach enables rapid testing and optimization of control strategies prior to clinical deployment, offering a risk-free, low-cost, and computationally efficient framework before physical implementation. Our system includes an automated interface between a simulated BP monitor and drug infusion to achieve and maintain a target BP (mean arterial pressure, MAP) range. We hypothesized that this simulation-based control strategy would achieve rapid and stable MAP regulation across diverse starting conditions.

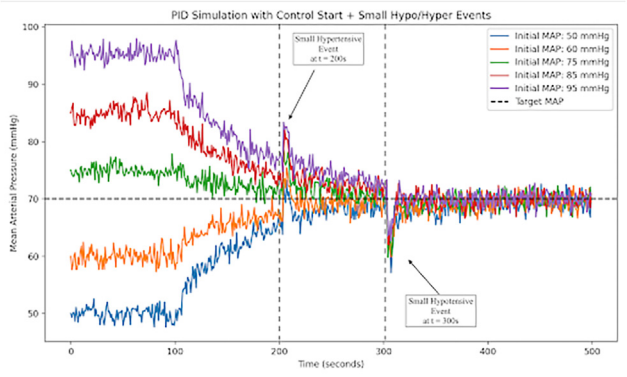
Methods: The simulation modeled hemodynamic responses to a hypothetical drug infusion, incorporating delayed physiological feedback, infusion rate constraints, and natural BP variability. A control phase was established for the first 100 simulated-seconds of each case to observe baseline MAP fluctuations. Between 100 and 500 simulated-seconds, the automated system was activated and attempted to correct MAP to a target value, defined by the operator. As an additional test of control system responsiveness, hypertensive and hypotensive challenges were presented at 200 simulated-seconds and 300 simulated-seconds. The system was tested in 10,000 simulations across a range of initial MAP values (50-95 mmHg). Variability in blood pressure before and after reaching MAPtarget was also evaluated to understand how tightly the system could control BP fluctuations. We also measured the time required to complete simulations, an important outcome for this research tool.

The automated system employed a proportional-integral-derivative (PID) algorithm to adjust the infusion rate in response to deviations from MAPtarget. A moving target model with an exponential decay curve guided the MAPcurrent toward MAPtarget value. The PID controller adjusted infusion based on the error signal (difference between MAPcurrent and MAPtarget), with the proportional (P) term responding to immediate error, the integral (I) term correcting cumulative deviations, and the derivative (D) term preventing overcorrection by accounting for MAP change rate. We selected PID constants (P=0.3, I=0.014, D=0.01) based on previously published work.

Results: The mean time from MAPinitial to MAPtarget was 67.7 s (± 38.3 s). Once MAPtarget was attained, the system maintained MAPtarget ± 2 mmHg for the duration of the simulation in 97% of test cases. In response to the simulated hypertensive event, the mean deviation from target was +17.7 mmHg (± 2.0 mmHg), with MAPtarget re-attained within 2.2 simulated-seconds (± 1.6s). In response to the simulated hypotensive event, the mean deviation from target was -16.4 mmHg (± 2.0 mmHg), with MAPtarget re-attained within 1.8 simulated-seconds (± 0.9 s). 10,000 simulations completed in 22.57 real minutes (0.135 s/simulation).

Conclusion: The simulation allowed exploration of MAP control across various conditions of hypertension and hypotension, without resource or time constraints. By running thousands of iterations, the computational model can allow refining of the mathematical parameters before incorporating them into the physical model, ensuring a seamless transition between computational predictions and real-world implementation. The current model assumed all patients to have the same physiological response to therapy, which may not capture individual variability, and tested only a single theoretical drug. Future models should incorporate variations in drug pharmacokinetics and pharmacodynamics, patient responsiveness to therapy, and time-to-target goals, which may be needed for differing clinical scenarios.

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No, authors do not have interests to disclose

407 Pre-Arrest Left Ventricular Ejection Fraction and Coronary Artery Disease Burden in Out-of-Hospital Cardiac Arrest Patients

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Introduction: Left ventricular ejection fraction (LVEF) is a key marker of cardiac function, yet its role in predicting coronary artery disease (CAD) burden in out-of-hospital cardiac arrest (OHCA) patients remains uncertain. Although significant CAD and acute coronary occlusion (ACO) are commonly observed in OHCA patients undergoing coronary angiography (CAG), the association between pre-arrest LVEF and these coronary pathologies is not well established.

Study Objectives: To evaluate the relationship between pre-arrest LVEF and the presence of significant CAD and ACO in OHCA patients undergoing CAG.

Methods: This multicenter retrospective cohort study included OHCA patients who achieved return of spontaneous circulation and underwent CAG from January 2017 to June 2023. Patients were categorized into reduced (LVEF $\leq$ 50%) and preserved (LVEF $>$ 50%) groups based on echocardiographic measurements within six months prior to arrest. Outcomes included significant CAD, defined as $\geq$50% stenosis in the left main or $\geq$70% in a major coronary artery, and ACO, defined as a complete coronary artery occlusion. Multivariable logistic regression was performed to adjust for confounders.

Results: Among 488 eligible patients, the mean age was 61 years, and 80.3% were male. A total of 305 patients (62.5%) had significant CAD, while 196 (40.2%) had ACO. Patients with preserved LVEF had a significantly lower likelihood of significant CAD compared to those with reduced LVEF (adjusted odds ratio [aOR] = 0.554, 95% confidence interval [CI]: 0.363–0.845, p = 0.006). However, no significant association was observed between pre-arrest LVEF and ACO (aOR = 0.800, 95% CI: 0.537–1.191, p = 0.271).

Conclusion: Pre-arrest LVEF is an important marker of underlying coronary pathology in OHCA patients, demonstrating an inverse association with significant CAD burden. Although no significant association was observed with ACO after adjustment, this may reflect the influence of peri-arrest hemodynamic factors rather than chronic myocardial dysfunction alone. These findings suggest that integrating LVEF assessment into post-resuscitation management may aid in risk stratification and guide cardiovascular care in OHCA survivors.

Table. Association of Pre-Arrest LVEF with Significant CAD and Acute coronary occlusion

Outcome	Group	OR (95% CI)	p	aOR (95% CI)	p
Significant CAD	LVEF ≤ 50%	Reference	-	-	-
	LVEF > 50%	0.440 (0.303 – 0.639)	<0.001	0.554 (0.363 – 0.845)	0.006
Acute coronary occlusion	LVEF ≤ 50%	Reference	-	-	-
	LVEF > 50%	0.665 (0.461 – 0.960)	0.029	0.800 (0.537 – 1.191)	0.271

Adjusting covariates: Age, Sex, BMI > 27, Hypertension, DM, previous CAD, Public arrest, Witnessed collapse, Initial shockable rhythm, Bystander CPR, Pre-hospital ROSC, CPR duration > 10mins
LVEF, left ventricular ejection fraction; CAD, coronary artery disease; OR, odds ratios; CI, confidence interval; aOR, adjusting odds ratios

No, authors do not have interests to disclose

408 Diagnosis of Pulmonary Embolism Based on a Single Question: Is It the Most Likely Diagnosis?

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Study Objectives: Validated diagnostic strategies for pulmonary embolism allow raising the D-dimer threshold to 1000 ng/mL in selected low-risk patients, but adherence in routine practice remains poor. Retrospective studies suggest that these rules could be replaced by a single clinical question: "Is pulmonary embolism the most likely diagnosis?" This simplified approach applies a 1000 ng/mL threshold when pulmonary embolism is unlikely, and an age-adjusted threshold otherwise including in high-probability cases.

Methods: We conducted a prospective interventional study in 13 French emergency departments. The intervention consisted of ruling out pulmonary embolism without chest imaging in patients in whom pulmonary embolism was not considered "the most likely diagnosis" and a D-dimer $<$ 1000 ng/ml. The age-adjusted D-dimer threshold (500 ng/ml, or Age x 10 for patients aged $>$ 50) was used for the other patients. The primary outcome was the failure rate, ie occurrence of a thromboembolic event at three-months among patients in whom pulmonary embolism was initially ruled out. The secondary outcomes was the need for chest imaging according to the conventional fixed 500 ng/ml D-dimer threshold Wells based strategy, the aged-ajusted D-dimer threshold based strategy, the YEARS rule, and the PEGeD rule.

Results: A total of 1221 patients were included, of whom 80 (6.6%) had pulmonary embolism at initial testing. No thrombo-embolic events was found at three months. The failure rate was 0% (95% confidence interval, 0.00 to 0.34%) and was 0.12% (95%CI 0.01 to 0.55%) after multiple imputation for the 33 patients with no available follow-up. In the pre-specified subgroup of the 796 patients in whom pulmonary embolism was ruled out without chest imaging, the failure rate was 0.0% (95%CI 0.00 to 0.46%). The strategy would have resulted in a 31.6% chest imaging rate, an absolute reduction of 18.5% (95% CI 16.3 to 20.7%) compared to the fixed 500ng/ml D-dimer threshold strategy. There was also a statically significant reduction in the proportion of chest imaging compared to the age-adjusted D-dimer threshold strategy and the YEARS rule (11.9% [95%CI 10.0% to 13.7%] and 2.3% [95%CI 1.5% to 3.1%] respectively), but not compared to the PEGeD rule (-0.4% [95%CI 1.3% to 0.5%]).

Conclusions: A global simplified strategy using a D-dimer threshold of 1000 ng/mL for patients in whom pulmonary embolism was not the most likely diagnosis, and an age-adjusted threshold for the others, safely excluded the diagnosis.

No, authors do not have interests to disclose

409 EMS Trainee Improvement in Identifying Lung Sliding on Ultrasound After a Brief Educational Video

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Study Objectives: Investigators have reported a variety of different uses for out-of-hospital point-of-care ultrasound. We sought to evaluate the effectiveness of a brief video training module to teach EMT/paramedic students to identify lung sliding on chest ultrasound images.

Methods: We enrolled a convenience sample of consenting EMT/paramedic students in a prospective, interventional study performed at a teaching hospital. Subjects were surveyed regarding demographic information and prior knowledge/experience of ultrasound. Before and after a 10-minute Sonosite video training module, respectively, each subject was asked to answer "yes/no" for presence of lung sliding for each of 20 randomly ordered clips of chest US videos taken from actual trauma patients (10 + slide clips). Subjects were asked to rate the video training module on a 5-point Likert scale. Categorical variables were analyzed by chi-square; continuous variables by ANOVA. Multivariate analysis included linear regression and logistic regression.

Results: 42 subjects were enrolled; 38% female, 95% paramedic students, and 35+/-12 weeks into their training program. With respect to some prior knowledge, subjects reported 100% for ultrasound, 45% FAST, and 95% aware of lung slide concept. In a clinical setting, 83% had seen ultrasound and 38% FAST exam. 74% strongly liked the training video. The mean % correct score was 42+/-11 pre-intervention vs 63+/-11 post-intervention ($p < 0.01$). There was a significant association between % change in correct scores and prior knowledge of lung slide

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concept (p=0.02) and having previously seen lung slide ($p < 0.01$). There were no significant differences between % change in correct scores and the following variables: gender (p=0.08), training type (p=0.2), weeks in training program (p=0.2), prior ultrasound knowledge (p=0.3), prior ultrasound clinical exposure (p=0.2), prior FAST knowledge (p=0.2), and prior clinical FAST exposure (p=0.2). Among the independent variables, only the number of weeks in their current training program was significantly associated with strongly liking the program (p=0.02) in the multivariate analyses.

Conclusion: EMS trainees showed significantly improved scores for identifying the presence or absence of lung sliding after a brief video training session, regardless of previous ultrasound exposure and experience.

No, authors do not have interests to disclose

410 Between the Crag and a Hard Place: How Prepared Are Outdoor Rock Climbers for Medical Emergencies?

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Study Objective: Outdoor rock climbing involves inherent risks, and the rise in search and rescue (SAR) missions highlights delays in medical care. The 2020 Olympics boosted the sport's popularity, bringing in many beginners. Little research exists on climbers' medical knowledge and emergency preparedness. This study aims to assess climbers' baseline medical knowledge, identify gaps in experience and preparedness, and inform educational strategies to reduce injuries in wilderness environments.

Methods: A national survey of outdoor climbers was conducted from June to November 2024. Participants were >18 years, U.S. residents, had completed at least one outdoor climb in the past year, and engaged in bouldering, sport, or traditional (trad) climbing. They completed a 10-question medical knowledge quiz and reported which of 11 emergency preparedness items they usually carry. Climbing experience was categorized as beginner (0–300), intermediate (301–1500), advanced (1501–5000), or expert (>5000 average lifetime climbs). Outcomes included medical knowledge (≥70% correct) and preparedness (under-prepared: ≤5 items; somewhat prepared: 6-8; fully prepared: 9+ items). Participants with advanced medical training (MD, NP, PA degrees) were excluded from the knowledge model. Descriptive statistics and 2×2 contingency tables compared participant characteristics across experience levels. Between-group differences were evaluated using Kruskal-Wallis rank sum test, Pearson's Chi-squared test, or Fisher's exact test. Multivariable logistic regression assessed predictors of medical knowledge, and multinomial regression assessed predictors of preparedness level, adjusted for medical training, climbing style, gender, and region.

Results: Of 1,085 climbers surveyed, 839 met the inclusion criteria. The sample was 64% male, 30% female, 5.4% transgender or non-binary and 78% white. Most were beginner (39%) or intermediate (38%) climbers. All participants with advanced medical training passed the quiz and were excluded from the model. Among the remaining participants, climbing experience did not significantly predict passing the medical quiz. Significant predictors included AEMT/EMT/Wilderness EMT training (OR 7.39, $p < 0.001$), WFR training (OR 3.90, $p = 0.006$), nursing/paramedic training (OR 4.96, $p = 0.004$), multi-pitch trad climbing (OR 2.44, $p < 0.001$) and living in the Pacific Northwest (OR 1.97, $p = 0.038$). Medical knowledge scores increased modestly with experience: 7.23 (Beginner) to 7.77 (Expert), $p = 0.026$, with an overall mean of 7.42/10. On average, climbers carried about two-thirds of the recommended emergency gear (mean = 7.15/11). Preparedness scores were similar across beginner, intermediate, and advanced climbers (~7.26/11), while expert climbers had lower scores (6.38/11), $p = 0.077$, suggesting a trend toward lower gear carriage (Fig. 1). Interestingly, experts were more likely to be "somewhat prepared" than "fully prepared" (OR 1.64, $p = 0.049$) and less likely to be "under-prepared" (OR 0.22, $p = 0.021$). Interest in further medical training significantly decreased with experience, from 90% of beginners to 65% of experts ($p < 0.001$).

Conclusion: Although medical quiz performance and emergency preparedness were moderately high overall, adjusted modeling revealed that expert climbers were more likely to be "somewhat prepared" and less likely to be "under-prepared." However, experts showed the least interest in further medical training, potentially making them less receptive to outreach. Despite being the least experienced, beginners were keen on medical training, indicating a critical audience for intervention. As outdoor climbing participation and SAR call volumes rise, educational strategies could be tailored to experience level, reinforcing foundational medical skills among beginners and encouraging gear completeness for seasoned climbers. However, wilderness medicine education must focus on skill-building across all experience levels to help prevent avoidable injuries and fatalities in remote settings.

Figure 1. Climber Characteristics by Experience Level

Outdoor Climbing Experience Level	Sample N (%)	Medical Knowledge Score (Mean, SD)	Emergency Preparedness Score (Mean, SD)	% With No Medical Training
Beginner	326 (39%)	7.23 (1.58)	7.26 (1.87)	17%
Intermediate	321 (38%)	7.45 (1.50)	7.15 (1.87)	9%
Advanced	140 (17%)	7.64 (1.51)	7.26 (1.76)	16%
Expert	52 (6%)	7.77 (1.42)	6.38 (2.42)	3.8%

No, authors do not have interests to disclose

411 Geographical Analysis of Trauma Center Access from U.S. Passenger Rail Stations and Routes

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Study Objective: This study aimed to assess access to level I trauma centers in the U.S. along passenger rail routes and stations.

Methods: This was a cross-sectional study that employed ArcGIS to conduct a network analysis of 30-minute and 60-minute drive and flight time polygons illustrating the overlap between Amtrak passenger rail stations and routes with all level I trauma centers. Data was pulled from the Trauma Center Association of America and Bureau of Transportation Statistics websites.

Results: Of 1,053 Amtrak bus and train stations, 495 (47.0%) were outside of a 60-minute driving radius of an American level I adult or pediatric trauma center, while 53 (9.8%) were outside of a 60-minute helicopter flight radius to the same facilities. Access was worst in the Mountain division of the West region, making them the highest-risk locations if traumatic incidents were to occur, while access was best in the New England division of the Northeast region.

Conclusions: Approximately 1 in 10 Amtrak stations, along with sizable portions of the rail routes connecting them, are medically vulnerable in the event of a derailment or mass casualty incident. To mitigate risk in these areas, EMS and air ambulance bases can be repositioned and security personnel, as well as non-level I trauma center personnel, can receive improved trauma care training. Future studies should aim to review access to non-trauma hospitals, study local resources, and evaluate vulnerabilities across freight train routes.

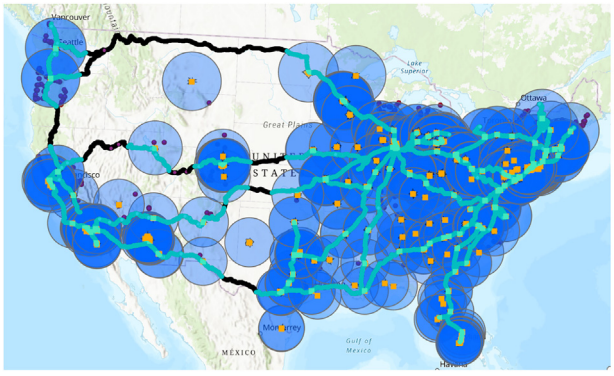


Figure 4: Amtrak Routes in 60-minute Flight Times of Pediatric/Adult Level I Trauma Centers

No, authors do not have interests to disclose

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412 Outdoor Automated External Defibrillator Setting Shortens Delivery Time of AED

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Study Objectives: Early defibrillation with an automated external defibrillator (AED) is important in the out-of-hospital cardiac arrest (OHCA) chain. However, AEDs in public places are usually installed indoors, making them difficult to find and access.The aim of this study is to determine whether placing AED outdoors shortens the AED access time and delivery time.

Methods: This was a randomized controlled simulation study. Participants were randomly assigned to either bystanders or responders and were also randomly assigned to either outdoor group or control group. Once the simulation started, the bystander was informed the nearby AED location and were asked to bring the AED back. On the other hand, the responder , who were stationed within 200 meters of AED place, would receive a signal notification from the smart phone application and were asked to carry the nearby AED to OHCA scene(**Figure**).The primary outcome was the total AED delivery time by either the bystander or responder.

Results: Sixty volunteers were enrolled and completed the protocol. The median time to access an AED was significantly different between the indoor and the outdoor group (254.0 sec, IQR 230.0-283.0 vs 151.5 sec, IQR 117.0-193.0, p <0.001). In addition, we also found statistically shorter total AED delivery time in the outdoor group (326.0 sec, IQR 232.0-377.0 vs 422.0 sec, IQR 353.5-457.5,p =0.005) (**Table**).

Conclusion: In this simulation study, setting AEDs outdoors contributed to reduce the AED delivery time. Further studies are needed to determine its validation in the real world situation in the future.

Figure 1 : Demonstration of simulation scenario

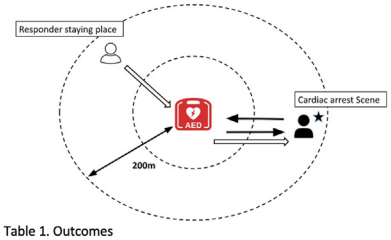


Table 1. Outcomes

Primary outcome	Indoor Group	Outdoor Group	P-value
Total AED delivery time	422.0(353.5-457.5)	326.0(232.0-377.0)	0.005a
Secondary outcomes			
The time to access AED, median (IQR)	254.0(230.0-283.0)	151.5(117.0-193.0)	<0.001a
The time to retrieve AED, median (IQR)	175.0(123.0-212.0)	156.5(122.0-187.0)	0.559a

a: Mann-Whitney U test

No, authors do not have interests to disclose

413 Older Adults Who Refuse Any EMS Assessment Differ From Those Treated and Released Against Medical Advice

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Study Objective: Many Emergency Medical Services (EMS) 911 activations result in older adult patients (aged ≥65) declining evaluation, treatment, or transport to the Emergency Department (ED). Among these, some refuse any EMS assessment or treatment, while others accept treatment but refuse transport and are released against medical advice (AMA). Little is known about differences between these populations. Our goal was to use a national database to compare older adults refusing any EMS assessment to those who were treated and released AMA.

Methods: We analyzed EMS 911 activations for patients aged ≥65 using the 2023 National Emergency Medical Services Information System (NEMSIS). We used disposition codes to identify populations of older adults refusing any EMS assessment and those who were treated and released AMA. We compared characteristics between these groups.

Results: In 2023, 1,558,737 older adults refused EMS care (12.5% of those offered transport). Among these, 872,015 (55.9%) refused any assessment and 686,722 (44.1%) were treated and released AMA. The populations did not differ meaningfully in age or sex. White older adults were much more likely to refuse any assessment than to be treated and released AMA (58.8% vs 41.2%), while Black older adults were only slightly more likely (53.5% vs 46.5%) and Hispanic older adults less likely (48.3% vs 51.7%). If any alcohol/drug use was involved, the older adult was much more likely to refuse any assessment (56.8% vs 43.2%). Older adults from rural or wilderness areas were much more likely to refuse any assessment (68.5% vs 31.5%), while those from urban or suburban areas were only slightly more likely (54.3% vs 45.7%). Older adults were only slightly more likely to refuse any assessment from ALS practitioners (54.2% vs 45.8%) but much more likely with BLS practitioners (62.4% vs 37.6%). Older adults were less likely to refuse any assessment or treatment from EMS practitioners from fire departments (48.9% vs 51.1%) but much more likely to refuse any care from practitioners from other agencies such as governmental or hospital organizations (62.3% vs 37.7%).

Conclusion: Older adults who refuse any EMS assessment or treatment differ in important ways from those who accept treatment but refuse transport and are released AMA. Future research is needed to improve understanding of the reasons behind and circumstances surrounding these different types of refusals among older adults and outcomes for each.

No, authors do not have interests to disclose

414 Shifting Political Violence and Civilian Targeting in South Korea: Tactical Medicine Implications

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Introduction: South Korea, long regarded as a stable democracy, has recently experienced mounting political unrest. These tensions were exacerbated by the COVID-19 pandemic, contested elections, and the impeachment of President Yoon Suk-yeol in December 2024. The unrest culminated in a violent riot at the Seoul Western District Court on January 19, 2025. Understanding how these political events influence patterns of civilian targeting and violence is essential to ensuring tactical medical preparedness.

Study Objectives: This study aims to assess temporal relationships between demonstrations, political violence, and civilian targeting, and to identify structural shifts in violence patterns following two major political disruptions: the December 2024 impeachment and the January 2025 court riot.

Methods: Monthly data from the Armed Conflict Location and Event Data Project (ACLED) were analyzed from January 2018 to March 2025, focusing on three categories: demonstrations, political violence, and civilian targeting. Statistical techniques included Granger causality tests for temporal associations, Locally Estimated Scatterplot Smoothing (LOESS) to visualize nonlinear trends, and rolling mean and variance analysis to detect volatility and instability. Two pre-post event comparisons were conducted to assess the impact of the impeachment (Dec 2024) and court riot (January 19, 2025), using independent-samples t-tests to compare monthly means.

Results: Granger causality analysis found no predictive relationship between demonstration activity and civilian targeting at either lag 1 ($p = 0.189$) or lag 2 ($p = 0.274$), indicating no temporal causality between demonstration activity and subsequent civilian harm (**Table**).

Trend analysis using LOESS showed recurring peaks in demonstration activity during spring, fall, and election years (2022) (**Figure 1**). Rolling variance increased notably in late 2024 and early 2025, coinciding with the impeachment and riot periods (**Figure 2**).

During the pre-impeachment period (January 2018–November 2024), the mean number of civilian targeting events was 0.19 per month. This dropped to 0.00 in the post-impeachment period (December 2024–March 2025), a statistically significant reduction (**Figure 3**), (t-test $p = 0.015$). Demonstrations increased from 458.65 to 503.50 events per month ($p = 0.566$), while political violence decreased from 0.44 to 0.33 events per month ($p = 0.760$), with neither change reaching statistical significance (**Figure 3**).

Following the court riot on January 19, 2025, similar patterns were observed. Civilian targeting fell from 0.18 events/month (pre-riot) to 0.00 (post-riot), again

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achieving statistical significance (Figure 4), ($p = 0.015$). Demonstrations rose slightly from 458.48 to 515.40 ($p = 0.553$), and political violence remained stable (pre: 0.44; post: 0.40; $p = 0.928$), both non-significant (**Figure 4**).

Conclusion: This study reveals a structural transformation in South Korea's political unrest: civilian targeting has virtually disappeared, while volatility and institutionally directed aggression have surged in the wake of two major political events. These findings indicate a pivot away from diffuse protest movements toward more asymmetric, ideologically driven, and tactically complex threats. The public health and emergency response systems must evolve in parallel. It is no longer sufficient to prepare only for spontaneous mass gatherings or generalized civil disorder. South Korea's national readiness framework must now incorporate the principles of Tactical Counter-Terrorism Medicine (TCTM), equipping medical personnel with the training, mobility, and coordination capacity needed to respond to targeted attacks on critical institutions. This includes the development and deployment of Tactical Medical Providers (TMPs), Counter-Terrorism Medicine experts, and Law Enforcement Medical Coordinators (LEMCs), with contingency planning for scenarios involving high-threat, low-probability events, including CBRNe hazards.

Table 1. Granger Causality Analysis Between Demonstration Activity and Civilian Targeting (2018–2025)

Dependent Variable	Predictor Variable	Lag	p-value
Civilian Targeting	Demonstrations	1	0.189
Civilian Targeting	Demonstrations	2	0.274

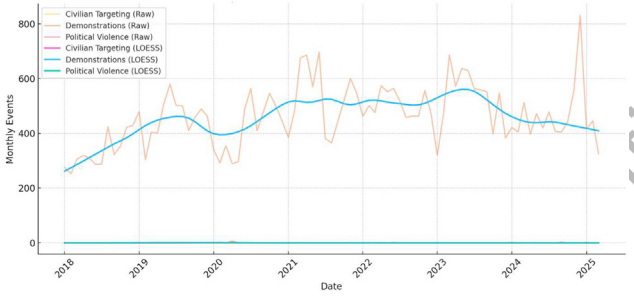


Figure 1. LOESS Trend Decomposition of ACLED Events in South Korea (2018–2025)

ACLED, Armed Conflict Location and Event Data

LOESS, Locally Estimated Scatterplot Smoothing

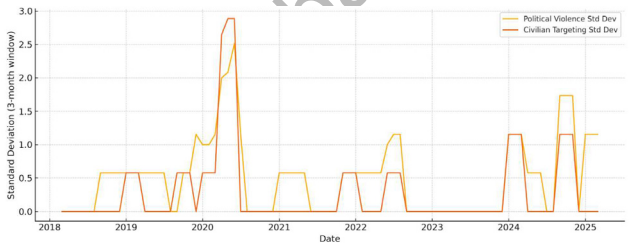


Figure 2. Rolling Standard Deviation of Political Events (January 2018– March 2025)

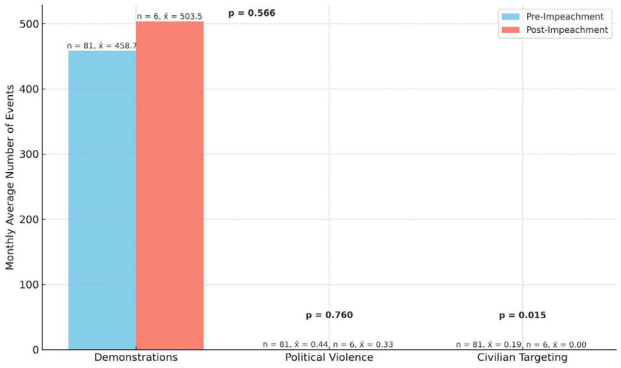


Figure 3. Comparison of Monthly Averages Before and After Impeachment: Pre-Impeachment (Jan 2018–Nov 2024) vs. Post-Impeachment (Dec 2024–Mar 2025)

n = Total number of events during the period; $\bar{x}$ = Average number of events per month

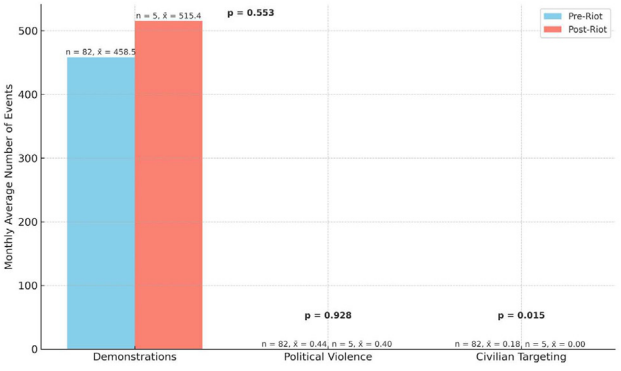


Figure 3. Comparison of Monthly Averages Before and After Court Riot: Pre-Riot (Jan 2018– 18 Jan 2024) vs. Post-Riot (19 Jan 2025–Mar 2025)

n = Total number of events during the period; $\bar{x}$ = Average number of events per month

No, authors do not have interests to disclose

415 EMS Clinician Perspectives on the Emergency Triage, Transport and Treat Deployment in New York State

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Study Objectives: The Centers for Medicare and Medicaid Services launched the Emergency Triage, Transport, and Treat (ET3) pilot in 2019 to enhance Emergency Medical Services (EMS) quality and reduce costs by enabling telehealth "Treat in Place" (TIP) services and alternative destinations for low-acuity cases. New York State (NYS) EMS clinicians experienced variable success with the program. This study aims to understand EMS clinician perspectives on the ET3 initiative and its rollout in NYS.

Methods: A RedCap survey was distributed to NYS-certified Emergency Medical Technicians (EMTs) and Paramedics through the NYS EMS Council by email. Additional reminders were sent to EMTs and Paramedics of the 25 NYS EMS agencies that participated in the CMS ET3 pilot. Responses were analyzed using descriptive statistics and binomial regression.

Results: 404 respondents completed the survey. 48% were EMTs and 52% were paramedics. There was no significant difference in the rate of offering a TIP visit between paramedics and EMTs ($p \leq 0.59$) but EMTs were significantly more likely to complete an ET3 encounter once offered (OR 3.07, $p \leq 0.014$). Respondents from suburban and rural areas were less likely to offer an ET3 encounter compared to those from urban regions (OR 0.23, $p < 0.001$ and OR 0.12, $p < 0.001$, respectively). However, there was no significant difference between urban, suburban, and rural EMS clinicians in rates of TIP completion if ET3 encounters were offered. Compared to those with no prior community paramedicine experience, EMS clinicians with limited or some experience

had no significant differences in rates of offering TIP encounters but did have higher rates of ET3 visit completion (OR 2.87, p ≤0.034 and OR 3.43, p ≤ 0.045, respectively). 66.3% of respondents agreed that patients are better served with ET3, but only 17.7% agree that patients are interested in participating in ET3 encounters.

Conclusion: Despite variable success in ET3 deployment in NYS, EMS clinicians remain optimistic about the program. ET3's TIP initiative is a stark contrast from the historical "load and go" precedent of EMS in the US. This initiative did not devote any resources to informing the public about the new program. Additional patient education may increase rates of ET3 participation and enrollment. ET3 visits were designed for lower-acuity calls, thus it is logical that EMTs had higher rates of TIP completion than paramedics. Surprisingly, suburban and rural EMS clinicians were less likely to offer ET3 visits, despite the more substantial potential time savings compared to their urban counterparts. The similar rate of TIP visit completion among these clinicians suggests that clinician awareness or training for ET3 visits may account for the difference in visits offered. An additional factor to consider is the impact ofEMSleadershipsupportof the ET3 initiative; ifEMSagency leaders are uncertain if they will receive the same or similar reimbursement for ET3 encounters, they may not advocate to individualEMSclinicians to offer ET3 visits. Based on this data, future initiatives in community paramedicine should ensure adequate training for EMTs, focus additional training on EMS clinicians in suburban and rural settings, and consider public-facing education and awareness campaigns.

No, authors do not have interests to disclose

416 Clinical Impressions that May Impact Capacity in Older Adults With Accepted Prehospital Refusals

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Study Objective: Many Emergency Medical Services (EMS) 911 activations result in patients declining treatment or transport to the emergency department (ED). Among refusals, patients aged ≥65 are at particularly high risk for poor outcomes. Certain emergency conditions and underlying diagnoses may also impact a patient's capacity to refuse. Little is known about the frequency of these conditions in older adults whose refusals are accepted by EMS. We examined this using a US national database.

Methods: We identified accepted refusals among EMS 911 activations for patients aged ≥65 within the 2023 National Emergency Medical Services Information System (NEMSIS). For each case, EMS practitioners have documented primary and secondary clinical impressions using International Classification of Diseases (ICD) 10th Revision codes. Based on existing literature, we developed a list of codes for: head injury, altered mental status, suicidal ideation, other acute psychiatric condition, intoxication, and dementia. We assessed the frequency of each of these clinical impressions among accepted older adult refusals.

Results: In 2023, 1,558,737 older adult patients refused transport to the ED after 911 activation (12.8% of those offered transport). Among older adults with accepted refusals, EMS clinicians documented at least one clinical impression that may impact capacity to refuse in 88,454 patients (5.5%). 37,363 patients (2.3%) were diagnosed with head injury, 21,757 (1.4%) with altered mental status, 14,818 (0.9%) with other acute psychiatric conditions, 13,510 (0.8%) with intoxication, and 921 (0.1%) with dementia. Suicidal ideation was documented in only 25 patients (<0.1%). Multiple clinical impressions that may impact capacity to refuse were documented in 2,207 patients (0.1%).

Conclusion: For a substantial fraction of older adults for whom EMS practitioners accepted refusal, they documented clinical impressions that may impact capacity to refuse. These findings highlight the importance of rigorous assessment of capacity to refuse, and future research is needed to examine outcomes of older adult patients who refuse.

Frequency of Clinical Impressions Among Accepted Refusals by Emergency Medical Services (EMS) Clinician in Adults aged ≥65, NEMSIS 2023 Database.

	Number of patients	% of patients refusing transport n=1,558,737
Clinical Impression		
Head Injury	37,363	2.3
Altered Mental Status	21,757	1.4
Other Acute Psychiatric Conditions	14,818	0.9
Intoxication	13,510	0.8
Dementia	921	0.1
Suicidal Ideation	25	<0.1
Any	88,454	5.5
Multiple	2207	0.1

No, authors do not have interests to disclose

417 Police Officers' Willingness as First Responders for OHCA: A Questionnaire Survey in Taiwan

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Study Objectives: The survival of out-of-hospital cardiac arrest (OHCA) patients relies on early emergency response, including immediate chest compressions and defibrillation. In several emergency medical systems worldwide, police officers serve as first responders to reduce time to CPR (cardiopulmonary resuscitation) and AEDs (automated external defibrillators) use. Inspired by Switzerland's success in this model, Taiwan has begun similar initiatives, with New Taipei City implementing a police-as-first-responder program in 2023. However, widespread adoption remains limited. This study aims to evaluate Taiwanese police officers' willingness to perform CPR and use AEDs and identify barriers to their participation.

Methods: A nationwide questionnaire survey was conducted, targeting police officers across Taiwan. The questionnaire, based on the Delphi method, assessed willingness to perform CPR and use AEDs under various scenarios. The five scenarios included: (1) performing chest compressions on an unconscious individual with no breathing or pulse during duty, (2) using an available AED on an unconscious individual during duty, (3) retrieving and delivering an AED from a nearby location when dispatched, (4) performing CPR at a designated location when dispatched, and (5) carrying an AED in a patrol vehicle and responding to dispatches for CPR and AED use. Additionally, the survey collected demographic data, medical training history,BLS(Basic LifeSupport) training status, and confidence in performingBLS. Statistical analyses, including chi-square and regression, explored correlations between willingness and factors such as BLS confidence.

Results: Seventy-seven valid responses were analyzed, with 77.9% male participants and a median age of 26 years (IQR = 3). Sixty-six percent of them had no prior medical training, while 34% had received BLS training within the last two years (**Table 1**). Higher confidence in CPR and AED use correlated significantly with willingness to act ($p < 0.05$) (**Table 2**). The highest willingness was observed in delivering AEDs (71.4%), while willingness to perform CPR was lower (64.9%). (**Table 2**, **Figure 1**) Major barriers included concerns about legal liability (42%) and lack of confidence in performing CPR correctly (25%). Logistic regression showed that BLS confidence significantly predicted willingness across multiple scenarios ($p < 0.05$), while job position, years of service, and prior healthcare experience were not strong predictors (**Table 3**).

Table 1, Demographic of Survey Population

	Category	N(%)
Sex	Male	60 (77.9)
Age	Median= 26	IQR=3
Year of Service	Median= 4	IQR= 3
Job Position	Patrol officer	55 (71.4)
	Sergeant or above	22 (28.6)
Health-care Related Experience	Yes	11 (14.2)
	No	66 (85.8)
Type of Health-care Related Experience	Lifeguard	2 (18.1)
	Emergent medical technician	9 (81.9)
Previous BLS training	Yes	68 (88.3)
	No	9 (11.7)
Last BLS training	Within 2 years	34 (50)
	Over 2 years	34 (50)
Level of BLS Confidence	Capable of CPR+AED (Level 4)	30 (44.1)
	Capable of CPR (Level 3)	17 (25.7)
	Capable of AED (Level 2)	5 (7.4)
	Capable of call for help (Level 1)	10 (14.7)
	Zero confidence for BLS (Level 0)	6 (8.8)

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Conclusion: Taiwanese police officers' willingness to act as first responders in OHCA scenarios depends strongly on their confidence in BLS skills. Concerns about legal responsibility and self-perceived inadequacy remain major barriers. Policy recommendations include mandatory BLS training, legal protections, and structured integration of police into prehospital emergency response to improve OHCA survival rates. This study has directly contributed to accelerating the police-as-first-responder policy in New Taipei City, highlighting its practical impact on public health and emergency care systems.

Table 2, Univariate Analysis of Factors Associated with Willingness to Perform CPR and Use AEDs Across Different Situations

	Situation 1	Situation 2	Situation 3	Situation 4	Situation 5
Sex (male)	0.4002	1	0.9909	0.6698	0.9053
Age (year)	0.4497	0.3675	0.3193	0.4346	0.4318
Year of Service	0.5104	0.3242	0.07758	0.466	0.1138
Job Position (Patrol)	1.000	0.6608	0.3761	1	0.971
Health-care Experience	0.8074	0.4972#	0.741	0.7437	0.7493#
EMT	0.05	1	0.109	0.1818	0.4909
Previous BLS training	0.79	0.43	0.46	0.49	0.72
BLS in 2 years	0.30	0.29	1	0.22	0.8
Level of BLS Confidence	**0.001***	**0.003***	0.74	**0.011***	0.07
CPR Confidence	**0.002***			**0.02***	0.1
AED Confidence		**0.0009***	1		

Table 3, Multiple Linear Regression of Factors Influencing Willingness to Perform CPR and Use AEDs Across Different Situations

	Coefficient	Odds Ratio	P-value
Situation 1	Last BLS Training	0.621	0.231
	Level of BLS Confidence	2.053	**0.002** **
Situation 2	Last BLS Training	0.624	0.072
	Level of BLS Confidence	2.703	**0.001****
Situation 3	Last BLS Training	0.980	0.955
	Level of BLS Confidence	0.895	0.610
Situation 4	Last BLS Training	0.977	0.947
	Level of BLS Confidence	1.581	**0.036** *
Situation 5	Last BLS Training	0.823	0.570
	Level of BLS Confidence	1.409	0.105

Finger 1, Comparison of BLS Confidence Levels Between Willing and Unwilling Participants Across Different Situations

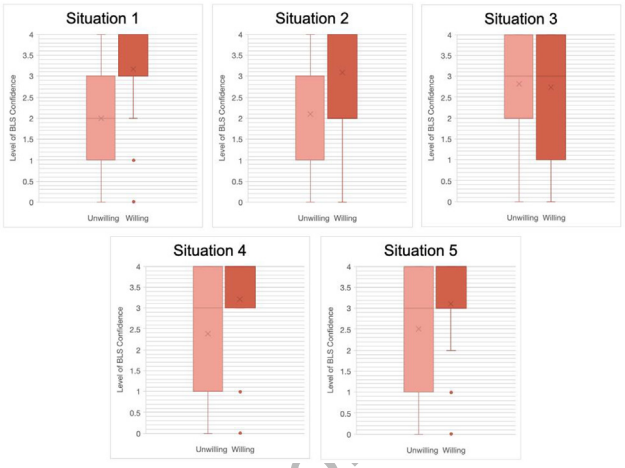
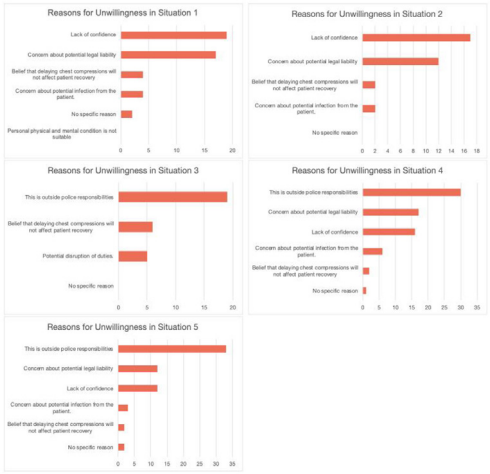


Figure 2, Reasons for Unwillingness to Perform CPR and Use AEDs Across Different Situations



No, authors do not have interests to disclose

418 Intravenous Push Ketamine for Post-Intubation Sedation in the Prehospital Setting

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Study Objective: The objective of this study was to evaluate cardiovascular outcomes in patients who received ketamine versus alternative sedative agents for post-intubation sedation in the prehospital setting.

Methods: This was a single-center, retrospective review at an academic medical center. Records of patients brought to the adult emergency department at Hackensack University Medical Center and intubated by emergency medical services with post-intubation sedation initiated prior to hospital arrival between October 2017 and October 2023 were reviewed. The primary outcome was a composite endpoint of cardiovascular adverse effects, defined as new electrocardiogram abnormalities, cardiac arrest within 24 hours of arrival, and abnormal troponin levels (> 0.03 ng/mL). Secondary endpoints included electrocardiogram abnormalities, changes in troponin levels, incidence of cardiac arrest in the first 24 hours, Riker Sedation-Agitation score upon arrival, additional sedatives administered in the first 24 hours, changes in

hemodynamic stability in the first two hours, emergency department length of stay, time to extubation, and in-hospital mortality.

Results: A total of 243 patients were included. The median age of patients in the ketamine group was 67 years and the median age of patients in the other sedative group was 63 years. Males represented 61% of the cohort. Out of 134 patients in the other sedative group, 29 also received ketamine as an induction agent (21.6%). Out of 109 patients in the ketamine group, 97 also received ketamine for induction (89%). Overall, patients who received ketamine for post-intubation sedation did not experience significantly more cardiovascular adverse effects (68 of 109, 62.4%) versus patients who received any other agent (83 of 134, 61.9%), P=0.9433. Patients in the ketamine group were more likely to experience cardiac arrest in the first 24 hours (21 of 109, 19.3%) compared to the other sedative group (11 of 134, 8.2%), P=0.0112. Univariate logistic regression analysis was performed on the cohort of 243 patients to investigate any potential risk factors associated with the composite cardiovascular adverse effect or incidence of cardiac arrest. Significant risk factors in cardiovascular outcomes included age $\geq$ 66 years versus $<$ 66 years (P=0.0017; OR 2.337; 95% CI 1.374, 3.976) and pertinent cardiac history (P=0.0030; OR 2.255; 95% CI 1.318, 3.860). Significant risk factors in outcomes for cardiac arrest within the first 24 hours included age $\geq$ 66 years versus $<$ 66 years (P=0.0007; OR 4.997; 95% CI 1.975, 12.639) and ketamine administration (P=0.0135; OR 2.668; 95% CI 1.224, 5.816). A multivariate logistic regression analysis is underway to build on the significant factors identified in the univariate analysis stage.

Conclusions: Results show that ketamine, when used for post-intubation sedation in the prehospital setting, may be associated with increased risk of cardiac arrest in the first 24 hours of emergency department arrival. Randomized controlled trials are needed to assess the safety of ketamine used in this setting.

No, authors do not have interests to disclose

419 Bingo! A Multiplayer Synchronous Serious Game to Increase Weekly Conference Engagement and Learning

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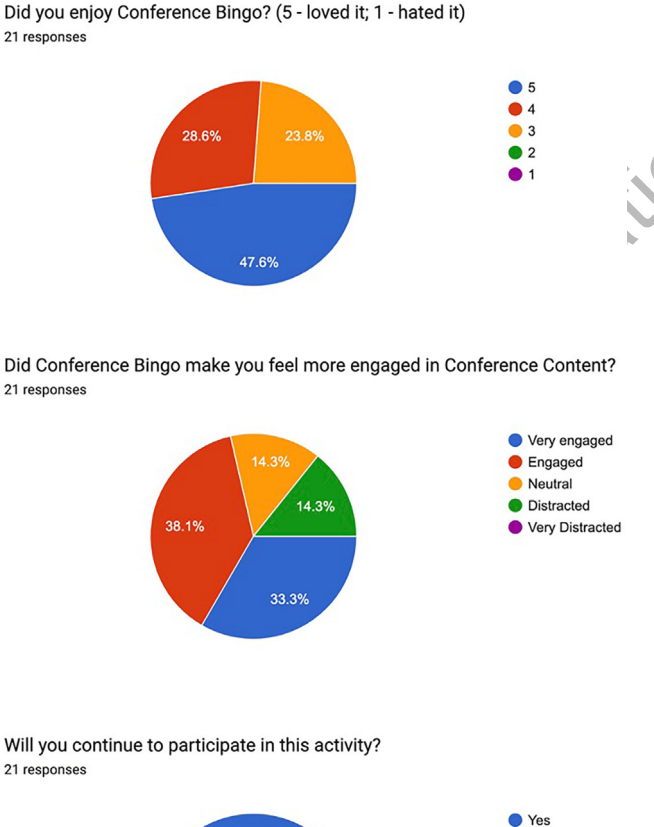
Introduction: Weekly conferences are a crucial component of medical residency education; however, maintaining consistent engagement among residents during these sessions can be challenging. We have implemented a novel intervention, content-related conference bingo, to address this issue, aiming to improve resident participation, satisfaction and knowledge retention.

Study Objectives: By participating in this serious game, EM residents will: 1. Actively listen to all didactics during weekly conference; 2. Identify teaching points related to their individual game boards; 3. Engage with their peers in a friendly competition; 4. Formulate a teaching point for every completed box on their game boards.

Methods: We introduced a conference bingo initiative at our weekly resident conference via an online platform that is easily accessible from mobile devices. Bingo cards are created with terms and concepts directly related to each week's specific content. Residents play throughout all conference sessions, and the winner of the bingo game is prompted to present one learning point about each crossed-off tile on their card, which reinforces the information and facilitates peer teaching. We assessed engagement levels through a post-intervention survey, direct observation, and participation rates.

Results: Following the implementation of conference bingo, we observed an increase in resident engagement. Post-implementation survey results (n=21) show a favorable reaction toward this novel activity with an average score of 4.24/5 on a bipolar Likert scale, demonstrating a Kirkpatrick Level I impact. In addition, 71.4% of participants report feeling "very engaged" or "engaged" in conference content with the incorporation of bingo, and 100% of learners expressed interest in future participation.

Conclusion: The unanimous desire to continue participating in conference bingo demonstrates its strong appeal among residents, giving us the opportunity to leverage their enthusiasm for further educational enhancements.



No, authors do not have interests to disclose

420 Transforming CPR Education: Effectiveness of a Standardized Video-Based High School Curriculum

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Study Objectives: Despite laws requiring cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) instruction in high schools, inconsistencies remain in the quality and delivery of current training programs. The objective of this study was to evaluate the effectiveness of a standardized, video-based CPR and first aid curriculum in improving high school students' emergency response knowledge and skills. The curriculum was designed to engage students through brief video clips, real-world scenarios, and guided practice, with a focus on enhancing comprehension and retention. By assessing changes in student knowledge, this study aimed to determine whether this approach could address gaps in traditional CPR and AED training programs.

Methods: A retrospective analysis was conducted on pre-test and post-test scores from high school students who completed a video-based CPR and first aid curriculum. The curriculum included 30 minutes of video content at an 8th-grade readability level and incorporated spaced repetition to enhance skill retention. The study received IRB approval. Inclusion criteria required students to be present for both test sessions, and those who were absent for any session were excluded. The intervention was delivered over six forty-minute class periods across seven high school classes. The assessment

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included 15 multiple-choice and scenario-based questions evaluating CPR/AED knowledge, recognition of cardiac arrest, and first aid intervention knowledge. Paired t-tests were used for statistical analysis. Student satisfaction was measured on a 5-point Likert scale.

Results: A total of 126 students completed both tests. General CPR knowledge significantly improved from 33.86% to 60.85% ($p < 0.05$). Recognition of cardiac arrest increased from 62.70% to 82.54% ($p < 0.05$). CPR performance improved from 49.21% to 77.51% ($p < 0.05$), and AED use rose from 55.56% to 76.98% ($p < 0.05$). Pediatric CPR knowledge increased from 64.29% to 88.89% ($p < 0.05$). First aid skills also showed gains, with choking relief improving from 23.02% to 52.38% ($p < 0.05$), bleeding control from 48.41% to 78.17% ($p < 0.05$), and stroke recognition from 32.54% to 73.81% ($p < 0.05$). Pre-training, CPR/AED literacy scores were significantly lower than first aid literacy scores ($t = -2.569$, $p < 0.05$), highlighting gaps in CPR knowledge. Post-training, students expressed high satisfaction with the curriculum, with a mean rating of 4.7/5.

Conclusions: This video-based CPR and first aid curriculum effectively enhances high school students' emergency response abilities. The program significantly improved students' knowledge and practical skills in CPR, AED use, and first aid interventions, providing a blueprint for scalable, classroom-based emergency preparedness education. Future studies should explore long-term retention and skill application in real-world settings.

No, authors do not have interests to disclose

421 Augmented Reality Immersive Learning Versus Face-to-Face Learning for Aerosol-Generating Procedures

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Study Objectives: Maintaining training in aerosol-generating procedures (AGPs) for medical students while insulating them from infection risks during the COVID-19 pandemic was challenging. The Microsoft HoloLens 2 is a head-mounted device that enables real-time augmented reality (AR) immersive learning, but its effect in learning AGPs in the emergency department (ED) is unknown. We aimed to evaluate the knowledge gain, cognitive load, and perceived learning effectiveness in medical students with AR immersive learning compared to face-to-face learning.

Methods: This was a pilot cluster randomized controlled trial in a university-affiliated ED conducted in July 2024 in Hong Kong. The study was approved by the institutional review board and registered (NCT06529276). Small groups of final year medical students were randomized in an 1:1 ratio using the sealed envelope method into two arms: AR group with the HoloLens vs control group with face-to-face learning. During the 90-minute learning sessions, the instructor, teaching content, which covered emergency airway management, and pre-reading materials were the same in both groups. Knowledge gain was assessed using pre- and post-session 20-item multiple choice questions (MCQs). Student cognitive load and perceived learning effectiveness were assessed based on the respondent agreement with individual statement measured using a 100 mm visual analogue scale (VAS). Paired and independent t-tests were used for intra-group and between-group comparisons, respectively.

Results: Four groups totaling 33 medical students were recruited after obtaining informed consent, with two groups (n=16) in the AR arm and the other two (n=17) in the control arm. Both groups had significant knowledge gain after the learning sessions (AR group: mean pre-session MCQ score 11.1 ± 2.7 vs post-session MCQ score 17.9 ± 2.1, $p < 0.001$; control group: mean pre-session MCQ score 9.5 ± 2.8 vs post-session MCQ score 17.7 ± 2.0, $p < 0.001$). The mean MCQ score increments, and student cognitive load did not differ significantly between the groups. However, student rating of the perceived learning effectiveness was significantly lower in the AR group compared to the control group (AR group 76.5 mm vs control group 96.0 mm, $p=0.02$).

Conclusion: The HoloLens-based AR immersive learning of AGPs resulted in a knowledge gain and cognitive load comparable to face-to-face learning, despite a lower student rating of its learning effectiveness. It has the potential to be an alternative to face-to-face learning for AGP training in case student exposures are restricted in future pandemics.

Yes, authors have interests to disclose

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Rex Pui Kin Lam
Grant Support
The University of Hong Kong Teaching Development Grant

422 Gamification to Improve EMS Knowledge of Medical Capacity Determination

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Study Objectives: As medical education evolves, innovative techniques are being explored to enhance learning and engagement. This approach aims to boost learners' motivation, potentially improving knowledge retention and understanding. While existing literature on gamification in medical education primarily focuses on graduate medical education, its application in other fields, such as nursing or emergency medical services (EMS), remains underexplored. This study evaluates the feasibility of using gamification to teach EMS personnel about patient capacity assessment and examines its impact on the frequency of prehospital transport.

Methods: A relay race activity with three stations was developed to teach capacity assessment. Each station challenged participants to accurately identify and recall key components of patient capacity through differing approaches. Points wereawardedand time until completion was recorded at each station to incentivize participation. Using a 5-point Likert scale and multiple choice questions, a survey was completed before and after the activity to measure each participants' comfort with and skill in accurately determining patient capacity. Data on patient volume and non-transport cases were analyzed from electronic patient care records between April 2023 and March 2024. Paired student t-tests and chi-square tests were used for statistical analysis.

Results: Fifty-seven paramedics participated, with 44 completing both pre- and post-activity surveys. Participants reported high satisfaction (average 4.65/5) and motivation (average 4.45/5). Post-activity surveys indicated an increase in confidence in determining patient capacity ($p = 0.07$). Over half of the participants improved their post-activity test scores, with an overall 12% increase in performance ($p < 0.05$). In the subsequent six months post-activity, there was a notable decrease in non-transport cases, despite an increase in patient encounters.

Conclusion: The study demonstrates that gamification is an effective and engaging method for improving EMS providers' ability to assess patient capacity. Participants showed significant improvement in knowledge assessments. Future studies should compare gamification with traditional teaching methods and explore its long-term impact and applicability to other medical topics and professionals. Limitations include the unequal, small sample size and focus on a single topic.

No, authors do not have interests to disclose

423 Gaps in Documentation Training Highlight Need for Multimodal Emergency Medicine Curriculum

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Study Objective: Documentation is one of the most time-consuming tasks performed by emergency physicians (EPs), with studies showing that up to 65% of a scheduled shift may be spent charting. Increasing patient volumes and departmental demands often force physicians to balance documentation with clinical responsibilities and teaching. While documentation was originally designed to enhance communication among providers, it has evolved into a means of legal protection and billing justification. Recent changes in billing regulations have placed greater emphasis on the medical decision-making (MDM) portion of the chart, further underscoring the need for EPs to be well-versed in documentation strategies. Beyond medical knowledge and procedural competency, emergency physicians must understand the components of effective documentation, principles of billing, and medicolegal considerations. Despite its importance, formal documentation training during emergency medicine (EM) residency remains limited. This study was conducted to assess current documentation education and inform the development of a structured curriculum for EM trainees.

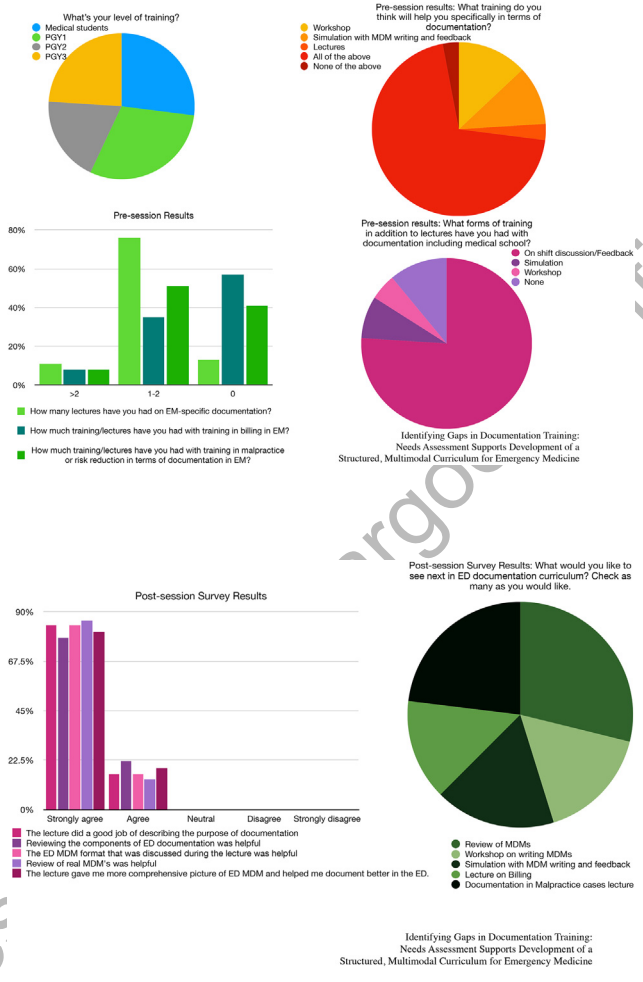
Methods: This study occurred at an urban academic center with 47 emergency medicine residents and rotating medical students. During a weekly conference, an EM faculty delivered a documentation lecture covering the history of documentation, key chart components, and real-world medical decision-making examples. Pre- and post-lecture surveys were administered via quick response (QR) code using Google Forms® to assess baseline exposure, preferred teaching methods, and the lecture's impact.

Results: Thirty-seven learners completed both surveys: 27% medical students, 30% PGY-1, 19% PGY-2, and 24% PGY-3 residents. Before the session, 13% had no prior documentation lectures, 76% had 1–2, and 11% had more than two. Prior training included on-shift feedback (76%), simulation (8%), workshops (5%), and

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none (11%). In billing, 57% had no training, 35% had 1-2 sessions, and 8% had more than two. For malpractice-related documentation, 41% had no training, 51% had 1-2 sessions, and 8% had more than two. Regarding preferred educational formats, 70% wanted a combination of lectures, workshops, simulation, and feedback; 13% preferred workshops, and 11% favored simulation with MDM writing and feedback. Post-survey results showed strong positive feedback. Regarding the lecture: 84% strongly agreed and 16% agreed it clearly described the purpose of documentation; 78% strongly agreed and 22% agreed the review of documentation components was helpful; 84% strongly agreed and 16% agreed the MDM format was useful; 86% strongly agreed and 14% agreed the review of real MDMs was helpful; and 81% strongly agreed and 19% agreed the lecture provided a more comprehensive view of MDM and improved their documentation. For future curriculum content, learners requested a review of MDMs (81%), workshops on MDM writing (46%), simulation with MDM writing and feedback (49%), billing lectures (41%), and sessions on documentation in malpractice cases (65%).

Conclusion: Despite the critical role documentation plays in emergency medicine, formal education on this topic remains limited and variable. This study demonstrated that even a single targeted lecture can enhance learners' understanding of key documentation principles. The results highlight a clear need and strong interest in developing a structured, multimodal curriculum that addresses clinical, billing, and medicolegal aspects of documentation. In response, we are actively engaging content experts and developing hands-on workshops and simulation-based experiences to furthersupportemergency medicine trainees in mastering effective documentation practices.



No, authors do not have interests to disclose

424 Improving Clinician Comfort and Knowledge With Facilitating Clinical Event Debriefs

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Study Objectives: Clinical event debriefing (CED) describes the process of rapid discussion among team members immediately following a critical event. Despite the benefits of these discussions, many clinicians feel ill-equipped to facilitate a CED. We developed a multimodal training process to provide formal instruction on facilitating a CED. Our primary objective in this study was to assess if participation in this multimodal training improved comfort with facilitating CEDs and knowledge on goals and duration of CEDs. Changes in beliefs around incorporating CEDs into daily clinical practice was also assessed.

Methods: Over a six month period, we delivered multiple training sessions for clinicians from the Adult and/or Pediatric Emergency Department and the Neonatal Intensive Care Unit (NICU) of an urban, tertiary care hospital, including attendings, residents, fellows, and nurses. The multimodal training consisted of a 25-minute interactive online module, which gave background on CED, followed by a one-hour, simulated practice session. During the simulation, clinicians practiced facilitating CEDs for four clinical scenarios. Anonymous pre- and post-surveys were completed immediately before and after the training that assessed comfort with facilitation of CEDs, knowledge on goals and duration of CEDs, and beliefs on incorporating CEDs into daily clinical practice. Levels of comfort and beliefs were self-reported on a Likert scale (1=strongly disagree to 5=strongly agree). Knowledge was assessed based on a multiple-choice quiz. The Wilcoxon signed rank test was used to evaluate changes before and after the training session.

Results: A total of 10/10 (100%) of clinicians who completed the training volunteered to participate in the study. Of these, 7 (70%) were fellowship trainees, and emergency medicine was the most highly represented specialty (60%). Following training, median comfort level of facilitating a CED reported by clinicians improved from 2/5 on the pre-survey to 4/5 on post-survey ($p = 0.004$). A change in beliefs around incorporating CEDs into their clinical practice was also observed for the statement, "All providers should incorporate CEDs into their clinical practice" with median agreement improving from 4 to 5 after training ($p = 0.025$). Clinicians demonstrated improved knowledge on the goals and duration of CEDs, with the median score on the quiz changing from 66% to 100% between the pre- and post-surveys ($p = 0.009$). On the post-survey, 90% of clinicians either strongly agreed or agreed that both the online module and simulation helped enhance their knowledge of CEDs (median =4).

Conclusion: This preliminary look at the impacts of participation in a multi-modal CED facilitator training may suggest the potential to improve clinician knowledge, beliefs, and comfort with facilitating CEDs following critical events through educational intervention. Future goals include expanding the study sample size and assessing if training completion leads to greater incorporation of CEDs in clinical practice.

No, authors do not have interests to disclose

425 Educational Impact of Physicians-in-Triage: Characteristics of Patients Seen and Dispositioned

Hill J, Thompson K, Boyer L, Brower C/University of Cincinnati, Cincinnati, Ohio

Study Objectives: Previously published studies found the implementation of physician-in-triage (PIT) models lead to decreased number of patients seen by residents and increased acuity of patients seen by residents. This would suggest that PIT models divert lower acuity patients away from resident physician care spaces. Previously published studies have not reported details of the acuity and clinical characteristics of patients seen and discharged through a PIT model. The objective of this study is to describe the acuity, complexity, and clinical impressions of patients seen and discharged following introduction of a PIT model.

Methods: We conducted a retrospective chart review of patients seen in the PIT process of an urban, academic emergency department (ED) between 7/9/2023 and 7/8/2024. We included only patients seen and dispositioned entirely in triage and internal waiting care spaces. Using an agreed upon data dictionary, two authors independently extracted data from a random sampling of charts recording: encounter duration; whether or not labs, imaging, advanced imaging, or procedures were performed on the patient; whether or not a consultant was involved; and the final clinical impression(s) given to the patients. Two authors correlated the final clinical impression(s) with disease categories as defined by the American Board of Emergency Medicine Model of Clinical Practice (ABEM MOCP). We calculated interrater

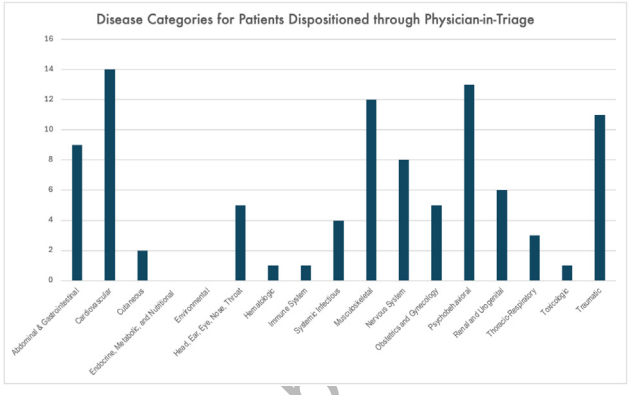
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reliability and raw agreement for the independently extracted data. Any disagreements in disease category assignments were resolved by the primary author.

Results: During the study period, 792 patients were seen and dispositioned through the PIT process. This represents 1.21% of all patients presenting to the ED (n= 65224) and 4.6% of patients receiving an MSE (n=17175) during the study period. The mean ESI of PIT dispositioned patients was not significantly different compared to all ED patients (2.75 vs 2.8, p=0.061). Of PIT dispositioned patients, 92.7% (n=734) were discharged, 2.9% (n=23) were transferred to a psychiatric facility, 2.9% (n=23) left AMA, and 1.5% (n=12) were admitted. In a random sample of 75 encounters, 2 were excluded from further analysis (1 seen by medical student and attending, 1 seen by off-service resident). Interrater reliability for performance of labs (κ=1), imaging (κ=1), procedures (κ=1), and consultants (κ=1) was excellent. Raw agreement for clinical impressions was 100% and for ABEM MOCP disease category assignment was 85%. Out of the 73 patients, 71.2% of patients (n=52) received labs, 39.7% (n=29) had plain film x-rays, 5.5% (n=4) of patients had CT scans, 6.8% (n=5) of patients had a consultant service involved in their care, and 1 patient had a procedure (laceration repair). The mean duration of stay was 328 min (sd=193 min). There were a total of 95 clinical impressions given to the 73 patients. Correlating clinical impressions to ABEM MOCP disease categories, patients seen and dispositioned most commonly had clinical impressions associated with Cardiovascular, Psychobehavioral, and Musculoskeletal disease processes.

Conclusion: From previously published studies into the educational impact of PIT, one could hypothesize that patients seen and dispositioned through PIT should have low acuity and complexity. In our single center, urban, academic ED, patients seen and dispositioned through a PIT process had an acuity similar to the overall ED population. The majority of these patients had diagnostic workups and final clinical impressions that suggest complexity of thought and decision making. These findings suggest that these patients have potentially significant educational value. For extremely boarded EDs, where inpatients occupy traditional bed spaces, it may be helpful for educators to work with operations to establish protocols and structures that allow for residents to be involved in the care of these patients.

Figure 1: Disease Categories for Patients Seen and Dispositioned through PIT



No, authors do not have interests to disclose

426 Development and Pilot Testing of a Novel Gamified Clinical Case Simulation Teaching Tool

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Study Objectives: The objective of this study was to develop and evaluate a novel gamified clinical simulation tool designed to teach complex pathophysiology and cognitive strategies for clinical problem solving in an environment mimicking the cognitive load features of practice in the emergency department (ED). Acid-base analysis was selected as a test-case core teaching topic due to its perceived difficulty among learners.

Methods: A web-based, interactive "choose-your-own-adventure" clinical case simulation game was developed using principles of inductive learning, active retrieval, immediate feedback, and spaced repetition. The simulation was structured to replicate an electronic medical record (EMR) interface, requiring learners to input orders rather than selecting multiple-choice responses, while also responding to real-time queries from healthcare team members. Cognitive load features included a soundtrack playing background ED noise, management of multiple patients simultaneously under time constraints, and distractor such as evaluating isolated ECG's for ischemia. The simulator was integrated into a structured four-hour workshop consisting of two rounds, each with a game block (GB) followed by a teaching block (TB). Learners would navigate the clinical cases during the GB, and the subsequent TB provided instruction on core mental models for understanding acid-base pathophysiology as well as specific cognitive strategies for clinical problem-solving. The second GB required participants to apply these learned principles in new clinical contexts. The participants were not informed in advance that acid-base would be a core teaching topic. Case performance was scored on a pre-defined 1- to-5-star scale based on execution of critical actions, and participants were provided with their score immediately upon completion of each case.

Results: There were 34 participants in the workshop, a majority of whom were emergency physicians at a junior resident level of training or higher. Participants did all cases individually on a computer. Each GB had four patient cases. Participants were given 55 minutes to complete GB-1, and 40 minutes to complete GB-2. All four patent cases were completed by 76% of participants in GB-1, and by 80% of participants in GB-2. Average performance scores on the completed cases in GB-1 were: 5-stars 10%, 4-stars 20%, 3-stars 36%, 2-stars 5%, and 1-star 29%. In GB-2, performance scores were 5-stars 45%, 4-stars 13%, 3-stars 33%, 2-stars 7%, and 1-star 3%. When categorized as above average (4- to 5-stars), average (3-stars), and below average (1- to 2-stars), the performance distribution was 30% above average, 36% average, 34% below average for GB-1, and 58% above average, 33% average, 10% below average for GB-2. A post-workshop survey was completed by 13 participants. Among respondents, the overall learning experience was rated as 10/10 by 7 respondents, 9/10 by 3 respondents, 8/10 by 2 respondents, and 7/10 by 1 respondent.

Conclusions: This study suggests a gamified web-based EMR simulation interface combined with targeted instruction on pathophysiologic and cognitive mental models has potential to improve performance on complex clinical case scenarios while managing cognitive load. Unlike traditional simulation, this approach is highly scalable and may easily be disseminated to large numbers of learners, especially if accompanied by pre-recorded teaching materials. In contrast to the structure of most case-based teaching and simulation - which involves learners working through cases in front of peers and instructors - the structure of this interface where learners individually manage cases while only interacting with the web-based simulator may promote psychological safety by providing a private environment for failure. Future research should evaluate this approach in larger cohorts of learners, as well as long-term knowledge retention and potential for integration into residency curricula.

Yes, authors have interests to disclose
Disclosure: Coffee Walk Inc
Ryan Ernst, Sara Crager
Board Member/Officer/Trustee
Coffee Walk Inc

428 Analysis of Proposed Emergency Medicine Program Changes in a Cohort of Special Operations Forces Medical Students

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Study Objectives: The recent recommendation by the Accreditation Council for Graduate Medical Education (ACGME) to extend Emergency Medicine (EM) residency training from 36 to 48 months is designed to deepen expertise and leadership skills among physicians. While this extension is likely to delay the entry of new physicians into the workforce, potentially intensifying the current physician shortage, it also presents an opportunity for the emergence of more comprehensively trained physicians. The mission of SpecialOperationsForces toSchool of Medicine(SOFtoSOM) is tosupportU.S. Special Operations Forces (SOF) Veterans and active-duty service members on their journey to becoming medical doctors. The goal of this study was to measure whether proposed changes to the ACGME would affect the specialty declaration of SOFtoSOM scholars.

Methods: This was a prospective cohort survey study using current SOFtoSOM scholars (n= 36). Survey data was collected using Qualtrics and compared to published NRMP Match Data. Additional analyses and graphs were made with Excel and SPSS, as needed.

Results: 86% (31/36) of SOFtoSOM scholars completed the full survey. Twelve are current MS1/OMS1-MS4/OMS4, while 19 are pre-medical school. Data from medical schools indicates that post-acceptance, approximately 28% of medical students

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remain with their initially chosen specialty throughout their education. Specifically, EM maintains a higher continuity, with 43.8% of students consistently preferring this specialty. In contrast, initial interest in EM was reported by only 6.7% of the 15,757 respondents across all U.S. medical schools in 2024. Of the 19 SOFtoSOM pre-medical scholars, 47% reported initial interest in EM compared to 58% of the current SOFtoSOM medical students. 6 remained with EM throughout their education. The choice of specialty is predominantly influenced by the "fit with personality, interests, and skills" as indicated by 98.3% of students in the AAMC's Graduation Questionnaire (GQ). Furthermore, the "length of residency" was a significant factor for 53% of Match applicants. Consistent with national averages, 93.5% of scholars reported selection based on "fit with personality, interests, and skills" and 45% reported "length of residency." After reviewing proposed ACGME EM residency changes, 11 scholars had negative feelings towards the changes, compared to 11 positive and 9 neutral. Possibly indicating difficulty with attracting future EM declarations, from within Special Operations Forces of the military specifically, due to the proposed changes. Additional research is needed to determine if these changes could negatively impact emergency physician shortages in the future.

Conclusion: SOFtoSOM scholars are uniquely positioned to contribute to the emergency medicine workforce despite potential deterrents posed by extended training requirements. Evaluating SOFtoSOM internal survey data alongside national trends suggests that while the ACGME's proposed changes may influence specialty declarations—particularly for the graduating classes of 2027–2028—a strong alignment with personality, interests, and skills remains the primary driver of specialty choice. Given their demonstrated interest in EM and the alignment of their operational backgrounds with the demands of the specialty, SOFtoSOM scholars are likely to maintain or exceed national averages in EM selection. This continued interest could play a pivotal role in mitigating physician shortages as the new ACGME training guidelines are implemented.

No, authors do not have interests to disclose

429 How I Met Your EMR: A Resident-Led EMR Training Session Pilot Study

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Study Objectives: Emergency Medicine (EM) interns have varying levels of experience with electronic medical records (EMR) from their medical school training, leading to various levels of comfort. Much of the initial learning curve on clinical shifts is due to workflow inefficiencies and unfamiliarity with the EMR. Traditionally, our program's EMR training sessions have been led by attending physicians. This study aimed to evaluate the perceived benefits of a specialty-specific, resident-led EMR training session at the onset of residency. We hypothesized that a resident-guided training session would increase interns' comfort with the EMR, thereby enhancing efficiency during clinical shifts.

Methods: Fourteen EM interns completed a multiple-choice survey assessing their prior EMR training and comfort levels using a 5-point Likert scale. Questions evaluated comfort with placing orders, navigating pop-ups and decision tools, and completing notes. Interns then participated in a training session using the EMR system they will routinely use as residents. The session covered placing orders, clinical decision tool utilization, note writing, accessing external records, and Dragon medical software dictation. A post-intervention survey was conducted utilizing the Likert scale and adding an open-ended question for feedback on future training sessions.

Results: All interns had used at least one EMR system, such as Epic, Cerner, Athena, Allscripts, and Meditech, with some having experience with multiple systems. However, only 42.9% (6 of 14) had received formal EMR training during medical school, and among those, 66.7% (4 of 6) were dissatisfied with their training. All fourteen interns believed that greater EMR proficiency would enhance patient care. Post-training, interns showed a mean improvement of 28.6% in comfort with order placement, 43.4% in navigating pop-ups/decision tools, and 43.6% in writing notes with Dragon software. Interestingly, competence in gathering medical data decreased slightly (3.79 to 3.71), despite increased comfort in other areas. Feedback for future training sessions suggested the development of a handbook, electronic note templates, and instructions for accessing external medical records.

Conclusion: The resident-led training session improved EM intern comfort with EMR tasks crucial for daily practice, such as order entry, note writing with Dragon software, and navigation of pop-ups/decision tools. The immediate pre-and-post session surveys reduced confounding factors, and survey responses indicated the session's efficacy in enhancing EMR navigation comfort. The one area where improvement was not observed was in data gathering, suggesting a focus area for future training sessions. The study's limitations include a small sample size, necessitating further research to assess the broad applicability of resident-led, specialty-specific EMR training. Nevertheless, our pilot study demonstrates the effectiveness of resident-led training in increasing EMR competency among incoming emergency medicine interns.

No, authors do not have interests to disclose

430EMF Perspectives on Coaching Among Emergency Medicine Faculty and Key Stakeholders: A Qualitative Analysis

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Study Objectives: There is abundant research demonstrating the beneficial effects of coaching, including improved self-reflection and teaching effectiveness, goal-setting and reflective capacity, professional identity formation and career planning, development of adaptive expertise, and burnout. These effects are heterogenous and can have various impacts on different coaching participants based on their individual needs. To date, no one has determined what coaching outcomes truly matter to relevant stakeholders in academic medicine. Our primary goal is to conduct a qualitative study of key stakeholders (EMfaculty consumers of coaching and department/institutional leaders potentiallysupportingcoaching) to identify meaningful outcomes for future coaching research. Specifically, we aim to identify impactful professional coaching outcomes for emergency medicine faculty and assess the practicality of those outcomes for emergency department leaders.

Methods: A two-stage qualitative study was undertaken to answer these questions. The first stage ascertained impactful professional coaching outcomes fromEMfaculty who have been coached, and the second stage investigatedsponsorperspectives (EMchairs/vice chairs) of the practicality, feasibility, and cost effectiveness of coaching outcomes identified in Phase 1. The Phase 1 Cohort (Coached Faculty) was recruited by emailing potential recipients of coaching, and then, using snowball sampling to further identify other potential subjects who have been coached. Cohort 2 (departmentalsponsors) will be recruited through email solicitation of Department Chairs/Vice-Chairs who are members of AACEM andSAEMVice Chairs Listserv. Data consists of approximately 30 minute semi-structured 1-on-1 qualitative interviews. Data was analyzed in a constructivist approach via thematic analysis in Dedoose 9.2.22.

Results: While recruitment participation is currently ongoing, we have conducted seven Cohort 1 interviews and nine Cohort 2 interviews. Current participant demographics include 3 males and 4 females in Cohort 1 and 7 males and 2 females in Cohort 2. Early analysis suggests coaching provides EM faculty with a valuable space for reflection, goal-setting, and career development. Participants consistently highlighted the importance of having a trusted, non-judgmental partner to help them gain clarity, build confidence, and stay accountable to their heterogenous professional goals. Many contrasted coaching with traditional mentorship, appreciating its objectivity, peer-likesupport, and psychological safety. While themes like burnout and emotional wellbeing were less frequently named outright, coaching was often described as a tool to navigate stress,supportgrowth, and create space for personal and professional alignment. More formal findings are forthcoming when all recruitment and analysis is complete.

Conclusion: In conclusion, while coaching has helped many people anecdotally progress in life and careers, there is minimal formalized research on what outcomes are consistent amongst participants in coaching. Initial (and ongoing) analysis shows that coaching was beneficial for helping with career stress, aligning personal and professional goals, and moving toward career advancement.

No, authors do not have interests to disclose

431 Improving Patient-Centered Communication of Incidental Findings in the Emergency Department

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Study Objectives: Incidental findings are common on emergency department (ED) imaging studies. However, communication of these results to patients remains inconsistent. This study explored ED patients' preferences regarding how incidental

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findings should be communicated—including preferred terminology, urgency, and guidance on next steps.

Methods: We conducted a cross-sectional survey of adult ED patients at a single urban academic hospital (volume >100K) from November 2023 to October 2024, assessing patient preferences for communicating incidental findings. Respondents ranked seven terminology options (eg, "additional results" vs "incidental findings") as well as preferences for disclosure and follow-up. Demographics, health literacy using Newest Vital Sign (NVS) measure, and prior experience with incidental findings were evaluated along with awareness of common incidental findings (eg, lung nodule). Results were analyzed using descriptive statistics.

Results: A total of 290 respondents were approached; 226 completed the survey. The respondents were 62% female, with a median age of 44 years (IQR 30-58), and 56% identified as White. The majority (83%) had at least some college education, and 74% demonstrated good health literacy (NVS score 4-6). Nearly half (41%) had personal experience being notified of an incidental finding. Ovarian cysts (58%) were the most familiar finding, whereas microvascular changes (15%), adrenal nodules (18%) and hepatic steatosis (21%) were the least familiar terms. Respondents preferred the term "Additional Findings" (60%), followed by "Unrelated Findings" (8%) and "Incidental Findings" (8%). Most patients (65%) preferred immediate notification by the emergency physician, whereas 22% prefer to hear from their own doctor. Key priorities included receiving information about the findings' seriousness and recommended next steps. Patients desired plain-language explanations in discharge paperwork, alongside access to detailed radiology reports.

Conclusion: Respondents preferred the term "Additional Findings" over the more commonly used "Incidental Findings" to describe incidental radiology results. This preference aligns with similar findings in the genetic testing literature. As incidental findings increase, incorporating patient perspectives will be essential to improving patient-centered communications.

No, authors do not have interests to disclose

432 Gender-Coded Language in Advertising Influences Emergency Physicians' Choices in Job Application

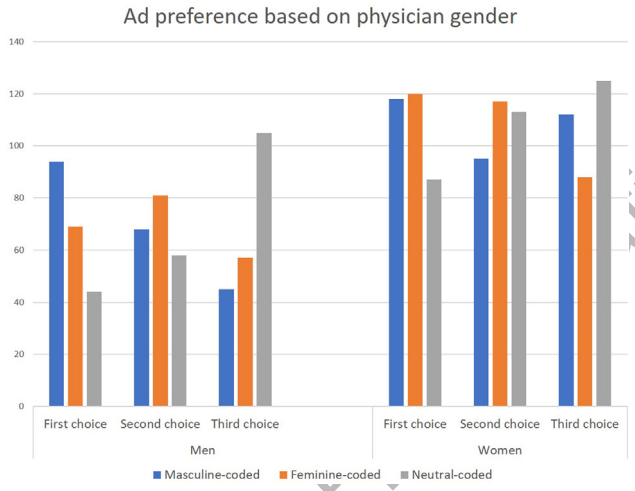
Jeanmonod C, Facchiano A, Baker K, Pester J/Lafayette College, Easton, Pennsylvania

Study Objectives: Research in technology and finance has shown that gender-coding in advertisements impacts the gender make-up of the application pool. We have previously shown that emergency physician job recruitment materials are frequently masculine-coded. We sought to determine whether gender-coded language in job descriptions influences physician choice during the application process.

Methods: This is a cross-sectional observational study of practicing attending emergency physicians. An advertisement for an emergency medicine position was generated using artificial intelligence and modified to include gender-coded language as per Gaucher's prior research on gender-coded words, creating highly masculine-coded, highly feminine-coded, and neutral-coded ads. Emergency physicians were recruited via closed social media groups specific to EM (EMDocs and emergency physician forum). Participating physicians completed an anonymous survey during which they provided demographic data including gender identity, geographic region, and practice type. They then ranked the three coded advertisements according to preference for application. Intergroup and intragroup differences were assessed with Friedman test, Mann-Whitney, Chi square, and Kruskal-Wallis. The study was reviewed by the IRB and found to be exempt.

Results: Five hundred fifty-seven emergency physicians were enrolled. Twenty-two participants did not complete the survey and were excluded from further analysis. Three participants identified as gender queer, gender fluid, or non-binary, and were excluded due to a paucity of data from which to draw conclusions. Three hundred twenty-five women and 207 men completed the survey in entirety. Ranking for masculine-coded, feminine-coded, and neutral-coded ads for men and women are shown in the table below. Both groups showed statistical differences in their intragroup responses ($p=0.02$ for women, $p<0.0001$ for men), with men showing ranking preference for masculine-coded ads and women showing ranking non-preference for neutral-coded ads. In direct comparisons between men and women, men and women ranked feminine-coded ads similarly ($p=0.57$, Mann-Whitney), but had differences between their rankings for masculine-coded ads (with men showing masculine-coded preference) ($p=0.0006$) and neutral-coded ads (with men showing neutral-coded non-preference relative to women) ($p=0.016$).

Conclusion: Gender-coding in job recruitment materials may influence the gender make-up of the recruitment pool.



No, authors do not have interests to disclose

433 Crash Course: A Critical Care Curriculum for PGY-1 Emergency Medicine Residents

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Introduction: The hallmark ability of the emergency physician (EP) is to quickly assess a patient in extremis and deploy interventions to save lives. However, there is a lack of formal training in resuscitation for early trainees. To address this, we developed a structured, four-session curriculum with a combination of individualized interactive didactics and simulation to standardize resuscitation training for emergency medicine interns.

Study Objectives: By the end of the course EM interns will: 1. Describe the pathophysiology of shock; 2. Prescribe the correct hemodynamic agent for a patient in shock; 3. Identify a physiologically difficult airway; 4. Intubate a patient with normal airway anatomy; 5. Describe the modes of invasive and non-invasive ventilation; 6. Define reversible causes of cardiac arrest; 7. Describe indications to cease a resuscitation; 8. Conduct a basic goals of care discussion.

Methods: The curriculum consists of four 2-hour, 1-on-1 sessions. Prior to the course, interns take a pre-test with Likert scale and short-answer questions. Each session includes a 15-minute simulation followed by a 15-minute debrief, leading into a 90-minute interactive lecture related to the simulation topic. The remaining time is dedicated to supervised procedure practice and addressing questions. The 1-on-1 format promotes psychological safety for intensive learning, while the use of interactive didactics and simulation aligns with learner preferences in emergency medicine. The sequence of cases is scaffolded, building on knowledge from previous sessions. A post-test is administered immediately after the course.

Results: The course effectively transferred the knowledge, skills, and attitudes needed for EPs in resuscitation, achieving success at Kirkpatrick Levels I and II. To date, 19 learners (n=19) have successfully completed the course. Pre- and post-test results show subjective confidence in critical care increased from 2.47 to 4.13 ($p < 0.001$) on the Likert scale, and average written exam scores improved from 49% to 74% ($p < 0.001$). Learners provided overwhelmingly positive feedback.

Conclusion: With the addition of this structured four-session resuscitation curriculum, emergency medicine interns demonstrated significant improvements in both subjective confidence and objective knowledge, suggesting its effectiveness in addressing the critical need for formal training in early emergency medicine education. Though time-intensive, the curriculum represents a valuable investment in a crucial skill for EPs.

No, authors do not have interests to disclose

434 Training Efficacy for a Hands-on Infant Lumbar Puncture Model: A Resident-Guided Educational Study

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Introduction: Acquiring proficiency in infrequently performed procedures, such as lumbar punctures in neonates, poses significant challenges for resident physicians.

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Providing hands-on instruction while addressing parental apprehensions regarding their child's safety is difficult. To mitigate these challenges, we developed a high-fidelity simulation model allowing residents to practice ultrasound-guided lumbar punctures in a controlled, safe environment.

Study Objectives: This study aims to enhance the confidence and competence of resident physicians in performing pediatric lumbar punctures.

Methods: Participants learn to identify relevant anatomy using sonography and apply a static approach to optimize procedural success rates. Curricular Design: Our educational program consists of a structured two-part session: Didactic Session (10 minutes): Overview of key indications and contraindications; Detailed review of pertinent anatomy; Procedural techniques for executing pediatric lumbar punctures. Hands-On Simulation (20 minutes): Participants engage with the high-fidelity simulation model, providing the opportunity to refine their skills in a realistic yet safe environment.

Results: Following the session, residents completed an anonymous post-conference survey utilizing a 5-point Likert scale. Key findings included: Understanding of Ultrasound Utilization: 100% of participants felt that ultrasound guidance would enhance their first-attempt success rates. Increase in Procedural Confidence: Pre-session: 60% of residents reported being "not confident" 33.3% were "neutral" and only 6.7% felt "confident." Post-session: only 9.1% remained "not confident" 18.2% were "neutral" and a remarkable 72.7% reported feeling "confident" or "very confident." Indicating a 66% increase in confidence among participants. Additionally, 100% of respondents rated the session as "educational" or "very educational" and 81.8% expressed intent to utilize ultrasound guidance for their next neonatal or pediatric lumbar puncture.

No, authors do not have interests to disclose

436 An Analysis of the Impact of Financial Incentives on Faculty Attendance at Resident Didactics

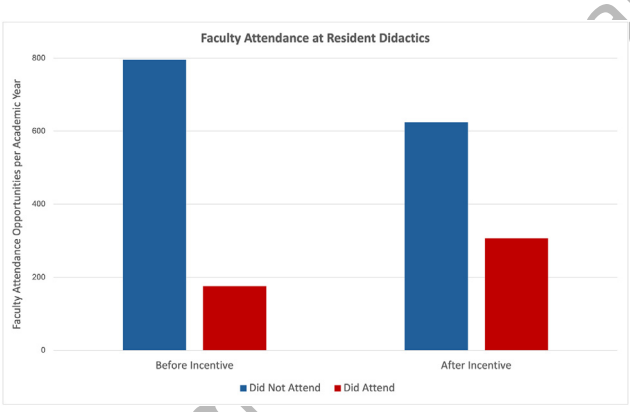
Howard A, McKittrick J, Twal C, Gregoski M, Krywko D, Jennings L/Medical University of South Carolina, Charleston, South Carolina

Study Objectives: Faculty attendance at the didactic sessions of emergency medicine residency programs is an area that often offers opportunity for improvement. The Accreditation Council for Graduate Medical Education Program Requirements in Emergency Medicine require faculty attendance at resident didactics, and increased faculty attendance has been shown to have a positive effect on the learning experience of residents. The purpose of this study is to determine whether the addition of financial incentives via bonus pay structures increased the number of faculty members present at resident didactics.

Methods: Data was collected from a single emergency medicine residency program at a tertiary academic medical center where faculty pay has three components: 1) base pay that is guaranteed, 2) "at-risk" pay for meeting certain requirements quarterly, and 3) an end of year bonus pay that is variable by year. Amount of compensation per didactic day attended was not known prior to or during implementation. Starting July 1st, 2024, a point system was created to determine faculty bonus pay. Points were provided for attendance at resident didactics above any already specified requirements (ie for core faculty that were already required to attend 20% of lectures). Additionally, a requirement was built into the "at-risk" pay for giving 2 lectures/year for each faculty member and any additional sessions above this were also included in the bonus pay point structure. The number of faculty members present at resident didactics for the academic year (AY) before and after this incentive was implemented were compared. Retrospective data was collected for each AY, including the total number of faculty present at each didactic day as well as the total number of faculty who could have attended each didactic day. The number of faculty who could have attended each didactic day was calculated by the number of non-PRN faculty employed by the department on that didactic day minus three to adjust for the number of faculty members working clinical shifts during the didactic time. The total number of faculty that did or did not attend for each didactic day was summed over the year to provide the number of faculty that attended didactic days (and did not attend) over the academic year. Each didactic "day" consists of four to five hours of educational experiences. Attendance for a portion of the didactic day was count as "attended." Attendance before and after the financial incentive was introduced were examined using a Chi-Square test of independence. This study was determined to be quality improvement by the site's Institutional Review Board.

Results: There was a significant relationship between financial incentive and attendance. $\chi 2(1, N=1903) = 55.51$, $p < .001$. Before the financial incentive, 18.1% (176/972) of potential faculty attended didactic days were attended by faculty in the 2022-2023 AY as compared to 33.0% (307/931) in the 2023-2024 AY after the financial incentive was introduced. A possible limitation to this study is the variability in didactic attendance record-keeping, given didactic attendance was self-reported by faculty during the 2022-2023 AY and recorded in-person by chief residents during the 2023-2024 AY. Additionally, didactic attendance records were reported by day only and were not broken down by hourly attendance for either year, thus actual attendance rates at each resident didactic session is likely less than reported.

Conclusion: The addition of a financial incentive resulted in a statistically significant increase in the number of faculty members present at resident didactics. Financial incentives appear to be an effective strategy to motivate faculty to become more involved in resident education.



No, authors do not have interests to disclose

437 Improving Retina Disorder Identification and Referral in the Emergency Department via Education

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Study Objectives: Emergency physicians frequently encounter patients with ocular complaints, including central retinal vein occlusion (CRVO) with or without macular edema (ME)—a vision-threatening condition affecting approximately 16.4 million people globally. However, diagnosing CRVO and macular edema from retinal vein occlusion (MEfRVO) in the emergency department (ED) is challenging due to their rarity, nonspecific symptoms, and lack of specialized diagnostic tools. Many emergency physicians also lack confidence and training in ophthalmic assessments, including fundoscopy, advanced slit-lamp examination, and ocular ultrasound. A 2023–2024 educational needs assessment revealed that most emergency physicians recognize the need for, and are open to education focused on, conducting effective eye exams, optimizing specialist referrals, and raising awareness among patients and hospital staff about the importance of prompt retina specialist follow-up. These gaps were addressed through targeted educational interventions to improve diagnosis and referral practices for CRVO/MEfRVO in emergency medicine settings.

Methods: To improve emergency physicians' knowledge and skills, a series of educational interventions was conducted from November 2023 to March 2025, targeting US-based emergency physicians. The program included:

- Two webinars with on-demand enduring materials
- Supportingresources: Podcasts, slide sets, and practice aids for clinical translation
- Expert faculty: An emergency medicine specialist and a retina specialist
- Engagement techniques: Slide-supporteddidactics, live Q&A, and interactive polling
- Outreach methods: Direct email campaigns, social media, and online physician education platforms

The first educational activity (2023) addressed broad knowledge gaps, while the second activity (2024) focused on ongoing challenges identified in the initial session.

Results: Over 2,400 emergency physicians participated, with 51% practicing in community settings. Among 422 respondents to post-activity assessments:

- 26% absolute improvement ($P < .05$) in recognizing CRVO/MEfRVO clinical signs and symptoms
- 14% absolute improvement ($P < .05$) in differential diagnosis skills
- 54% absolute increase ($P < .05$) in care coordination for retina disease patients after ED discharge

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Despite these gains, many physicians reported low confidence in using diagnostic tools (eg, fundoscopy) and cited limited access to such equipment, particularly in rural and community hospitals. Ongoing challenges included determining the urgency of referrals, securing ophthalmology transfers, differentiating eye pathology from neurological conditions, and coordinating care within time constraints.

Conclusion: Emergency physicians face significant barriers in diagnosing and referring retina disease patients due to limited training, non-specific symptoms, poor equipment access, and specialist availability constraints. Targeted education can enhance knowledge, diagnostic skills, and adherence to best practices, while also highlighting ongoing gaps that require further training and system-level improvements.

Yes, authors have interests to disclose

438 Hemp Legalization and Pediatric Cannabis Exposures in Texas: A 10-Year Retrospective Study

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Study Objectives: Pediatric exposures to cannabis have increased in US states and Canadian provinces after legalization of cannabis (marijuana). This study seeks to document the age-stratified relative risk of pediatric cannabis exposures reported to the Texas Poison Control Network in periods before and after enactment of Texas legislation permitting retail sales of cannabis and establishment of licensed cannabis retail vendors in Texas.

Methods: This is a statewide, retrospective, cross-sectional comparison of exposures to cannabis products reported to the Texas Poison Center Network from 2015-2024 in children and teenagers from 0-19 years of age. Exposures were evaluated by age group, clinical effects, and hospitalizations. Secondary analysis of exposures relative to the number of licensed hemp retailers was also conducted.

Results: Comparison of the periods prior to (2016-2019) and after (2020-2024) legalization of hemp retail sales in Texas demonstrate in increase in cannabis exposures in all pediatric age groups. The greatest increase in relative risk was in the 6-12 year age group (8.85%), followed by the 0-5 year age group (5.84%), and lastly the 13-19 year age group (1.39%). Intensive care unit admissions increased 10.3 times in the 6-12 year age group, 5.6 times in the 0-5 year age group and 1.05 times in the 13-19 year age group. Exposures having a major effect of toxicity increased 12.1 times in the 0-5 year age group and 4 times in the 6-12 year age group and 1.43 times in the 13-19 year age group. The Pearson correlation coefficient of cannabis exposures: hemp retailers was 100% in 2020 and 97.2% in 2021, thereafter, the correlation coefficient decreased in years 2022-2024.

Conclusion: In 2020, Texas began permitting retail sale of cannabis products. This has been associated with a significant increase in pediatric cannabis exposures and an increase in children requiring treatment at healthcare facility and hospitalizations, including intensive care unit admissions. There is correlation between the number of licensed hemp retailers and incidence of pediatric cannabis exposures.

No, authors do not have interests to disclose

439 The Impact of Urinalysis Turnaround Times on Patient Disposition in an Emergency Department Setting

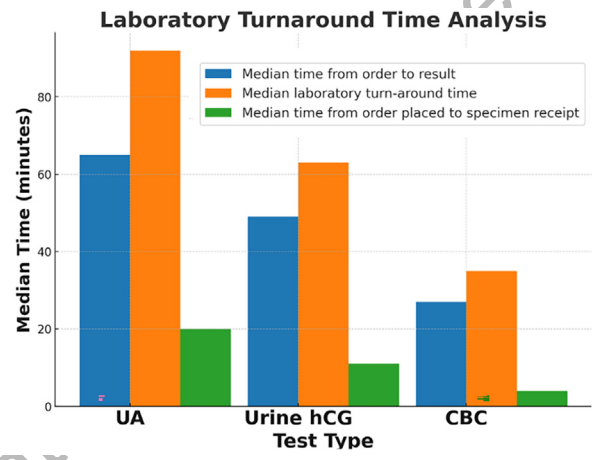
Hernandez P, Baymon D, Chen P, Bukhman A, Im D, Sanchez L, Joseph J /Massachusetts General Hospital; Brigham and Women's Hospital | Harvard Affiliated Emergency Medicine Residency Program, Boston, Massachusetts

Study Objective: The efficiency of diagnostic processes in the emergency department (ED) is crucial for optimal patient outcomes and operational workflow. Among these, urinalysis (UAs) are important diagnostic tests used for complaints including dysuria, hematuria, and abdominal pain. Prolonged UA turn around times (TATs) can extend patient stays and impact overall satisfaction, highlighting the need for improved diagnostic efficiency. This study explores the relationship between UA turn around times and time to patient disposition, aiming to identify potential improvements in ED operations.

Methods: We conducted a retrospective analysis of discharged patients with abdominopelvic complaints who had a UA order while in the ED from January 2022 to August 2022. Data were extracted from electronic medical records (EMR), including UA test order to result time and patient time to disposition. We included urine hcg tests and analyzed them separately. Time to fulfillment of CBC orders was used as a comparator to tests obtained via venipuncture. Spearman correlation coefficients were computed to assess the relationship between lab processing times and time to patient disposition.

Results: The study included 6,708 discharged patients. The median times from UA order to specimen receipt and result were 65 (IQR 29-138) and 92 (IQR 53-168) minutes. A modest positive correlation (Spearman's rho = 0.455) was observed between the time from order to result and time to patient disposition, relative to the interval from order to result of CBC (rho = 0.294). The relationship was slightly weaker for urine hCG tests (rho = 0.348). There was little to no correlation between any laboratory turn-around times and total length of stay.

Conclusions: Time to acquisition and processing of urinalysis samples is modestly correlated with length of stay for patients with abdominopelvic complaints. Systematically and proactively reducing time to collection for urinalysis and urine hCG tests could improve throughput for this significant patient cohort, potentially improving ED throughput and patient satisfaction.



No, authors do not have interests to disclose

440 Physician Assistant and Nurse Practitioner Utilization in U.S. Emergency Departments, 2018 to 2022

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Study Objectives: Physician Assistants (PAs) and Nurse Practitioners (NPs) are part of the emergency care workforce in the United States (US). Of 58,641 emergency medicine clinicians identified in 2014 Medicare data, 24% were PAs and NPs. We sought to characterize emergency department (ED) PA/NP utilization and practice characteristics in United States EDs from 2018 to 2022.

Methods: A retrospective, secondary analysis of the 2018 to 2022 National Hospital Ambulatory Medical Care Survey was performed. National estimates of ED visits involving PA/NP alone (PA/NP), PA/NP with physician involvement (PA/NP+), or physician only (PHYS) were analyzed for patient, visit, and hospital characteristics. Descriptive statistics and 95% confidence intervals were calculated and compared.

Results: Between 2018 to 2022, over 700 million US ED visits occurred. 11.6% (95% confidence interval [CI] +/-3.7%) of visits were seen by PA/NP, and 14.7% (+/-4.1%) by PA/NP+; 70.8% (+/-4.5%) by PHYS. No linear trends by year were identified in PA/NP or PA/NP+ visits. PA/NP acuity was highest for semi-urgent/nonurgent (41.1%, +/-10.9%) visits. Ambulance arrival only accounted for 6.1% (+/-2.5%) of PA/NP visits while hospital admission only accounted for 1.4% (+/-1.7%) of PA/NP visits. Less laboratory [72.3% (+/-8%) vs 78.5% (+/-4.9%)] and radiographic [43.7% (+/-5.4%) vs 53.8% (+/-3.7%)] studies were performed during PA/NP vs PHYS visits. PA/NP visits were most common for patients 25-44 years old (yo) [31.4% (+/- 4.9%)] and 0-15 yo [22.3% (+/-8.0%)]. For ED visits greater than or equal to 3 hours, PA/NP visits account for 31.4% (+/-3.3%) when compared to PA/NP+ [58% (+/-3.1%)] and PHYS [47.6% (+/- 2.1%).

Conclusion: From 2018 to 2022, no linear trends in PA/NP and PA/NP+ visits were identified. 2018 to 2022 experienced a nearly 20% increase in ED volume while PA/NP visits decreased by 20% during this time. PA/NP are seeing younger patients, less immediate or emergent complaints, and ordering fewer diagnostic tests compared to PHYS visits. PHYS continue to see the majority of patients in the ED.

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441 Fluid Conservation: A Systematic Emergency Department Approach to Fluid Shortages

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Study Objectives: Tropical Storm Helene, a category 4 hurricane, reached landfall on the evening of September 26, 2024, causing significant property damage in North Carolina. The function of the Baxter manufacturing plant, which produces 60% of intravenous fluid (IVF) solutions in the U.S., was severely compromised, leading to widespread fluid shortages that threatened healthcare operations and patient care. In response, our emergency department (ED) quickly deployed conservation measures to ration fluid supplies, with a goal of achieving at least a 25% reduction in total IVF utilization.

Methods: This project was conducted in a single-site academic ED with a combined annual adult and pediatric volume of 57,000 visits. Our first plan-do-study-act (PDSA) cycles consisted of education around fluid stewardship and best practice promotion. Our second iteration deployed a tiered framework of progressively stringent conservation measures based on real-time hospital stock levels. Guidance was developed locally and included modification of nursing delegated protocols, promotion of enteral hydration routes for non-critical conditions, early maintenance fluid discontinuation, prioritization of oral and intramuscular antibiotics, and centralization of fluid stock. The third intervention deployed interruptive electronic medical record (EMR) system alerts tosupportenteral hydration use in clinically appropriate contexts and the addition of an oral rehydration order set. We used descriptive analysis to evaluate fluid conservation utilization.

Results: Total IVF volume usage was assessed between September 2024 and November 2024 (approximately 1 month before and 1 month after the full implementation of fluid conservation interventions). The baseline fluid utilization volume for all ED patients was an average of 56.3 liters/ day. The volume of fluid utilized fell to achieve a total average fluid utilization volume of 24.8 liters/ day in the post-interventional period, a 56.0% ($p < 0.001$) reduction from baseline. To ensure a comparable analysis cohort, we compared ED volume pre- and post-intervention, which remained stable.

Conclusion: Through education, a structured utilization strategy, and EMR clinical decisionsupporttools, we reduced global fluid utilization in theEDbut more than 50%. Our approach could serve as a blueprint for other organizations challenged by unstable fluid supplies.

No, authors do not have interests to disclose

442 Leveraging Alternatives: An Emergency Department's Response to Catastrophic Flooding

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Study Objectives: Emergency department flooding is a rare but significant event that has a profound impact on operations, patient treatment, and patient safety. Effective healthcare systems strategize and plan to minimize the impact of disruptive events, with a key focus on alternative care centers to maintain logistical flow. Such an event occurred at an urban emergency department (ED) in Chicago, IL in December 2024, when a water sprinkler pipe malfunction resulted in gallons of water flooding the primary ED patient care area. To ensure continuity of operations, the emergency department's alternative care center was activated to allow clinician assessment as well as continuity of patient care and treatment. Our goal is to describe the response of this ED to the flooding event, assess the impact on patient care and retrospectively analyze patient presentation, triage, chief complaints and final disposition.

Methods: During a four day period in December 2024, the Rush University Medical Center Alternative Care Center was activated and contained sixteen patient spaces. The Epic (Madison, WI) EMR system was used to extract data which was retrospectively reviewed for all patients who were evaluated and treated in this area during this time. Analysis was done using Microsoft Excel and focused on basic patient demographic information, chief complaint and disposition.

Results: A total of 167 patients ($n = 167$) were evaluated and treated in the alternative care center with 97.6% of patients arriving via non-EMS methods. Of those patients, 15.5% of patients were triaged with an estimated severity index (ESI) of 2, 73.1% with an ESI 3 and 11.4% with an ESI of 4. Of presenting patient chief complaints, 25.8% were cardiopulmonary in nature while 22.8% were gastrointestinal. Other common complaints include musculoskeletal complaints at 20.4% while neurological complaints were at 8.9%. No adverse outcomes were reported due to alternative care center evaluation. Final dispositions of patients included 71.9% being discharged and 25.2% being admitted.

Conclusion: The flood which occurred in the early hours of a December morning necessitated activation of the alternative care center in order to continue with adequate patient care. On our preliminary analysis, continuity of patient care and treatment continued unabated without increased morbidity or mortality. The majority of patients presented with cardiopulmonary chief complaints and the majority of patients were discharged.

No, authors do not have interests to disclose

443 Emergency Department-Hospital Leadership Partnerships Reimagine Spaces to Safely Improve Patient Throughput

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Study Objective: Service line growth in specialties (transplant, oncology) and physical plant renovations are key factors driving boarding in our academic system. The main emergency department (ED) has 55 spaces operating 24 hours representing 1,320 hours/day of care spaces (but functions as the largest admission unit). From 2023-2024, hold hours increased from a mean of 753 hours/day (57% ED capacity) to a mean of 1,273 hours/day (96% capacity). Our C-suite worked with ED leaders to ensure patient safety and control of ED metrics, including left without being seen (LWBS %) and the length of stay of patients discharged from the ED (ED LOS D/C).

Methods: ED leaders instituted a series of PDSAs to improve front end process, including a modified physician in pivot system that involves "keeping" algorithmic patients with binary decision points. Process iterations led to team approaches with ARNP/PAs that could follow triage care plans, disrupting the vertical/horizontal split flow model. Hospital nursing trialed a float team to care for admitted patients while hospitalists, and consultants, initiated care progression in any location. The C-suite team began working with theEDin January 2024 in aCEOled process that maintained hospital widesupportforEDefforts, as well as new transition of care options. Facilities reimagined the prior waiting room as treatment spaces and improved comfort of boarding patients.

Results: Decreases in ED patient experience scores slowed while negative comments decreased. Median door to doctor time stayed less than 20 minutes for 2 years while ED arrival volume was flat and hold hours rose. LWBS % dropped and stayed $< 2\%$ while the ED LOS D/C is improved compared to historical (< 280 minutes). There was no significant increase in patients leaving against medical advice (AMA) or with treatment incomplete (LWTI %). The physician first model guided advanced practitioner care pathways promoting the American Medical Association concept of physician-led team-based care.

Conclusion: ACEP and HHS demonstrated there is no easy fix to the ongoing boarding crisis. Slim margins for operational efficiencies drive healthcare system decisions that may not prioritize creation of ED capacity. Close partnerships between ED and Hospital C-Suite are needed to control ED throughput metrics and maintain patient safety, requiring constant innovation. Physician led teams promote wellness and best practice collaboration with ARNPs/PAs.

No, authors do not have interests to disclose

444 Impact of Performance Feedback on Emergency Department Laboratory Test Utilization and Cost Savings

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Study Objectives: Overutilization of emergency department (ED) resources can amplify patient care inefficiencies and healthcare costs. To address potential overutilization, a de-identified performance feedback tool (DPFT) was implemented to allow providers to regularly compare their individual laboratory test ordering trends against those of their peers. This study aims to demonstrate the impact of the DPFT on ED laboratory testing and the associated effects on healthcare costs.

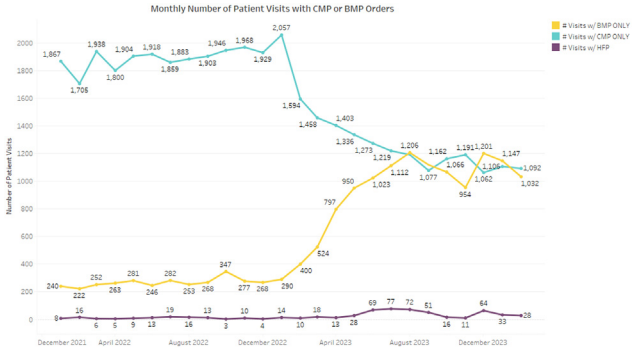
Methods: A single institution, prospective analysis on utilization trends of basic and comprehensive metabolic panels (BMP and CMP), prothrombin time/ international normalized ratio (PT/INR), partial prothrombin time (PTT), and type

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and screen (TS) was conducted. From January 2022 to March 2024, the number of tests ordered, normalized for patient volume, pre- and post-implementation of the DPFT were compared. Wilcoxon signed-rank testing was used for analysis and potential cost savings to the institution and its patients were estimated.

Results: The median number of patient visits per month with PT/INR, PTT, and TS orders from the pre- to post-implementation periods decreased from 1010 to 716 (29.1%), 1004 to 713 (29.0%), and 364 to 306 (15.9%) visits respectively ($p < 0.05$). The median number of patient visits per month with BMPs alone increased from 268 to 1032 (285%) visits and the median of those with CMPs alone decreased from 1,904 to 1,191 (37%) visits ($p < 0.05$). There was a statistically significant correlation between implementation of the DPFT and the number of patient visits per month with lab tests ordered. Institutional cost difference between BMP and CMP orders (Δ = \$0.846) was used to estimate institution-facing savings of \$6,644.43 in the 13-month post-implementation period. Institutional charge variance between BMP and CMP orders (Δ = \$118) was used to estimate annual patient-facing savings of \$1,053,858.

Conclusion: Implementation of a de-identified performance feedback tool significantly reduced the number of patient visits with CMP, PT/INR, PTT, and TS ordered and led to meaningful cost savings at a single institution.



No, authors do not have interests to disclose

445 Physician Orders Associated With an Emergency Department Telehealth Transitions of Care Program

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Study Objectives: In the face of overwhelming crowding and inpatient boarding, there is growing focus on post-discharge transitions of care (TOC) initiatives as an alternative to inpatient admissions for patients seen in the emergency department (ED). The objective of this study was to evaluate the services provided through an ED telehealth TOC for patients discharged from the ED.

Methods: We conducted a retrospective, two hospital ED study (ED 1= urban, trauma center and ED 2= academic quaternary center; combined annual census approximately 100,000 patients/year) following the initiation of a telehealth ED TOC program for ED discharged patients insured through value-based contracts (commercial and Medicare). This program has previously been shown to increase access to primary care physicians and decrease ED revisits. Eligible TOC patients are provided TOC services within 72 hours of ED discharge. For all patients, services include physician telehealth visit(s) with or without supportive home nursing and case management. The most frequent physician orders as part of this TOC are for ancillary and specialty service referrals, imaging (advanced imaging, ultrasound and plain films), laboratory work, and cardiac studies, specifically electrocardiogram (EKG) or echocardiogram. For this study, included were patients enrolled in the ED TOC from July 22, 2022 to March 31, 2024 and who were >/= 55 years with at least one order for imaging, laboratory work, cardiac studies and ancillary or specialty services referral. Data collected included patient demographics, disposition including 30-day ED return visit rate, number of imaging orders, laboratory orders, EKG or echocardiogram orders, and referrals to ancillary and specialty services. Patients were grouped into two cohorts, those who did or did not have a 30-day ED revisit within 30-days of their index ED visit. Outcomes were compared between the ED 30-day return group and the no ED 30-day return group and stratified by age: <65 years, 66-80years, >80 years. Comparisons were done using a chi square test or a Fisher's Exact Test, as appropriate, significance was defined as a $p < 0.05$.

Results: During the 20-month study period, there were 1203 patients enrolled in the telehealth ED TOC program. 165 (13.7%) patients had a 30-day ED revisit and 1038 (86.3%) patients did not. The total number of orders were as follows: laboratory studies = 461, imaging studies = 139, EKG or echocardiogram = 64, referral to specialty services = 260, referral to ancillary services = 146. Overall and for patients 65 to 80 years, patients with a return visit were more likely to have an order (51.5% vs 41.3%, p=0.014) and 53.3 vs 39.5, respectively. Rates of laboratory orders were significantly different between the two cohorts overall and for each age group except for those >80 years (p's <0.05). There were no significant differences between specialist or ancillary referrals, imaging studies, EKG or echocardiograms overall or by age group (p's >0.05).

Conclusion: The initiation of an emergency physician-directed telehealth TOC program for this select population was associated with frequent types of services. Follow-up laboratory testing was the most represented followed by referrals to specialty services. Laboratory testing obtained as part of this ED TOC was associated with lower 30-day ED revisits.

No, authors do not have interests to disclose

446 Equity-Driven Qualitative Evaluation of Emergency Department Discharge: Preliminary Insights from Patient Perspectives

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Study Objectives: Effective emergency department (ED) discharge communication is essential for ensuring patient comprehension of their acute care episode and adherence to their post-discharge care plan. Despite its critical role, patient comprehension of discharge information is frequently inadequate, leading to poor adherence and increased rates of return visits. These challenges are particularly pronounced among non-English Language preferring (NELP) patients. Transforming the ED discharge process is a critical patient safety priority that requires a patient-centered approach to address diverse needs, enhance post-ED outcomes and reduce avoidable care. While prior research has examined patient perspectives on discharge, it has rarely engaged patients as active participants in redesign efforts, and the voices of NELP patients remain underrepresented. To address this gap, we conducted qualitative interviews to capture diverse patient insights on existing challenges and potential strategies towards ED discharge re-design.

Methods: We conducted semi-structured interviews with recently discharged adult ED patients (≥21years) ensuring diversity in age, gender, race/ethnicity, medical acuity, and preferred language, with a focus on English, Cantonese, and Spanish speakers. Interviews were conducted in the participant's preferred language and incorporated cognitive walkthroughs of the discharge process, addressing information content and quality, comprehension, and barriers and facilitators to a positive discharge expereince. Interviews were audio recorded, translated, and transcribed using Notta.AI, with interviewer review to ensure accuracy. Data were analyzed using directed content analysis and the constant comparative method. A structured codebook was developed by four coders, with at least two coders independently applying consensus coding to each interview.

Results: From October 2024 to the present, 22 patients have been interviewed, including 11 English speakers, 10 Spanish speakers, and 5 Cantonese speakers. Data collection and analysis will continue until thematic saturation is reached. Preliminary findings highlight two primary domains(1) inclusion of core discharge information and (2) self-reported comprehension of discharge instructions. Higher-level themes include areas for improvement, recommendations for change, and suggestions for supportive activities (**Table**). A representative patient perspective underscored the importance of information clarity: "The more information you get, I think the better you feel, the more relief you feel."

Conclusion: A comprehensive understanding of patient needs is essential to ensuring that ED discharge effectively fulfills its intended purpose. Preliminary findings highlight the need for improved communication of key discharge information, with an emphasis on enhancing patient comprehension and allowing for patient-led clarifications. Patients identified family involvement and enhanced written documentation as key strategies for improving the discharge experience. These findings will inform an implementation science framework aimed at developing targeted interventions to optimize future ED discharge processes.

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Emerging Category	Emerging Theme
Challenges / Areas for Improvement	Unclear or missing at-home care instructions (e.g., over-the-counter versus prescription medications and nonpharmacologic management).
	Unclear plan or difficulties in following up with other clinicians.
	Poor communication or lack of clarity in explanations.
	Uncertainty regarding diagnosis and prognosis.
	Difficulty recalling discharge details or if they asked follow-up questions.
	ED crowing affecting patient mood or perceptions.
Recommendations for improvement	Enhancing discharge documentation.
	Addressing insurance or payment-related questions.
Helpful activities:	Comprehensive explanations about the discharge care plan.
	Actively involving family members in discharge discussions.

Table1: Key these and higher-level categories identified to date.

No, authors do not have interests to disclose

447 Impact of Insurance Network Narrowing at a Neighboring Health System on Emergency Department Volume

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Study Objectives: In January 2025, one of the major hospital systems in our geographic region was removed from the insurance network of a large commercial payor, Commercial Payor A (CPA). This abrupt change left many patients without access to their usual medical providers, compelling them to seek care at alternative institutions still contracted with the insurer. Our institution, an urban academic medical center, remained within the CPA network. The primary objective of this study was to quantify the effect of this insurance network modification on weekly emergency department (ED) patient volumes at our facility. Additionally, we sought to assess whether this shift had differential impacts across other payors, indicating potential secondary changes in care-seeking behavior.

Methods: This retrospective observational study examined ED patient volumes by insurance payor from May 2024 to March 2025. Weekly patient visits across our institution's three EDs for the top ten payors for our institution were extracted from hospital records. The payors analyzed included self-pay, Medicare, Medi-Cal, and Commercial Payors A through G. Average patient volumes were calculated for the period before (5/22/2024-12/31/2024) and after (1/1/2025-3/18/2025) the insurance network change. For each payor, we calculated the ratio of post- to pre-change averages for weekly visits. A t-distribution was used to compute a 95% confidence interval (CI) for the overall average of these ratios. This CI was used to identify significant trends in patient volume by payor.

Results: There was an overall trend toward increased patient visits across most payors during the study period. For CPA patients, an increase in ED visits was observed following the insurance network change, with average weekly volumes rising from 184.03 patients to 223.73 patients (ratio 1.22, t-score 6.19). The calculated overall 95% CI for post/pre ratios was [1.003, 1.119] with the CPA ratio notably above this range. Additionally, Commercial Payor C (ratio 1.11) and Commercial Payor G (ratio 1.11) were near the upper bound, while self-pay (ratio 0.94) and Medi-Cal (ratio 0.97) were below the lower bound. Other payors exhibited minor changes within the CI range. Detailed data for each payor, including pre- and post-change averages, ratios, and t-scores, is summarized inTable 1. The temporal trends in patient volumes are visualized in Figure 1.

Conclusion: The removal of a competing hospital system from the CPA network had a demonstrable and statistically significant impact on our ED, specifically increasing CPA patient volumes by over 20%. The trend for all payors showed a general increase in patient visits across the measured time period. However, the change in visit volume for CPA was much greater than what was observed among the other payors. Given the recent nature of this network modification, it is also likely that the full impact may not yet be apparent. Such influxes of patients have operational implications, affecting wait times, staffing needs, and resource allocation. As insurance network configurations continue to evolve, similar abrupt changes should be anticipated. These findings highlight the need for health systems to develop adaptive operational strategies to accommodate sudden fluctuations in patient volumes to mitigate downstream effects on their ED and health system operations.

Table 1: Summary of ED Visit Volume Trends by Payor

Payor	Average Visits (Pre)	Average Visits (Post)	Post/Pre Ratio	t-score
Self-pay	635.06	599.82	0.94	-4.714
Medicare	388.22	411.64	1.06	-0.039
Medi-Cal	118.59	114.45	0.97	-3.545
Commercial Payor A	184.03	223.73	1.22	6.195
Commercial Payor B	345.69	354.64	1.03	1.208
Commercial Payor C	273.56	303.09	1.11	1.909
Commercial Payor D	266.78	285.55	1.07	0.351
Commercial Payor E	106.00	116.18	1.10	1.519
Commercial Payor F	51.63	51.64	1.00	-2.377
Commercial Payor G	38.56	42.64	1.11	1.909

Table 1: Average weekly patient volumes by payor before and after network coverage change by nearby health system for top ten most frequent payors.

Figure 1: Number of Weekly Patients by Insurance Payor

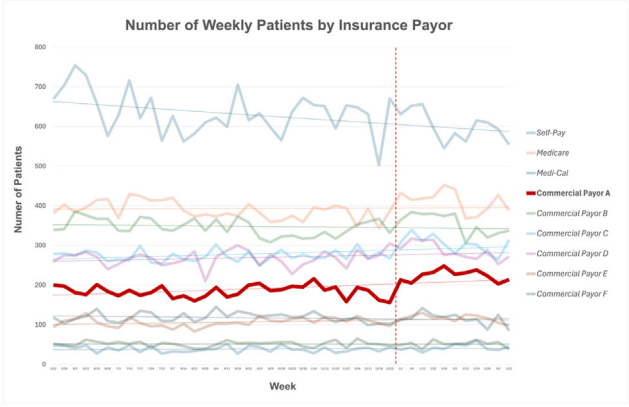


Figure 1: Comparison of weekly ED visits by payor for top ten most frequent payors. Vertical line indicating date of network coverage change by nearby health system.

No, authors do not have interests to disclose

448 Electronic After Visit Summary Decreases Emergency Department Length of Stay in Rural Hospital

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Study Objectives: Overcrowding in emergency departments (EDs) leads to longer wait times, provider strain, and delayed patient care. A significant contributor is low-acuity patients who remain in the ED waiting for discharge paperwork. The electronic After Visit Summary (e-AVS) helps expedite discharges by delivery of after visit summaries electronically, potentially reducing emergency department length of stay (ED-LOS) and improving overall efficiency, yet no research studies have examined the association between use of e-AVS and ED-LOS. This study assessed characteristics associated with the use of e-AVS and examined its association with ED-LOS in a rural community hospital.

Methods: Eligible adults (18+) were those seen and discharged from an ED in the Southeastern U.S. between 1/1/2024 and 12/31/2024. Those admitted or who left against medical advice were excluded. Use of e-AVS was defined as an ED encounter which utilized e-AVS during discharge. ED-LOS was defined as the time from arrival at the ED to the time of discharge. A pediatric encounter was defined as an ED encounter for a patient 17 years or younger. Chi-square and T-tests assessed differences in the distribution of demographic and clinical variables by e-AVS use. Quantile regression determined differences in the median ED-LOS by e-AVS use. Adjusted quantile regression evaluated differences in the median ED-LOS after accounting for patient age, race, and acuity. Unadjusted and adjusted quantile regression also assessed the relationship between median ED-LOS and e-AVS stratified by pediatric encounters.

Results: Of 14,521 eligible patients the majority were female (56.9%) and White (56.2%) with an average age of 42.4 years (STD=23.8). The e-AVS was utilized by 175 (1.2%) patients, and most often occurred during patient encounters that were urgent, less urgent, or non-urgent (96.6%), and among those who were also enrolled in MyChart (62.9%). Median ED-LOS for the entire population was 169 minutes

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(IQR=155). Individuals utilizing e-AVS had a median ED-LOS of 108 minutes (IQR=99) compared to those who did not utilize e-AVS who had a median ED-LOS of 169 minutes (IQR=156). Unadjusted quantile regression showed that individuals who utilized e-AVS had a median ED-LOS that was 61 minutes shorter compared to individuals who did not use the e-AVS ($p < .0001$). After adjusting for age, race, and acuity, individuals who utilized e-AVS had a median ED-LOS that was 25.3 minutes shorter than individuals who did not utilize the e-AVS ($p=0.0003$). Pediatric encounters (16.5%) had an average patient age of 7.9 years (SD=5.5). Compared to those not utilizing e-AVS, pediatric encounters with e-AVS had a 9-minute reduction in the median ED-LOS in the adjusted model ($p=0.0008$). The adjusted model with adult encounters with e-AVS showed a decrease of 34.2 minutes in the median e-AVS compared to adult encounters without e-AVS ($p=0.0002$).

Conclusion: Utilization of e-AVS was significantly associated with a shorter median ED-LOS in a rural community hospital. This suggests that e-AVS utilization may optimize ED efficiency and patient throughput in similar settings. Patients may be more willing to utilize e-AVS if aware of the advantages, such as a potentially decreased wait time or a convenient work note, as e-AVS can be used in lieu of waiting for a traditional work note. Emergency physicians should consider implementing e-AVS as a strategy to streamline discharge and reduce ED-LOS, ultimately improving patient experience and operational efficiency.

No, authors do not have interests to disclose

449 Civil Monetary Penalties from EMTALA Violations Where EMS Responded to Patients Outside an Emergency Department

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Study Objectives: In 1986, the Emergency Medical Treatment and Labor Act (EMTALA) established a duty for hospitals to screen and stabilize patients presenting to emergency departments (EDs) regardless of condition or ability to pay. Outside of the ED, EMTALA duties additionally apply to individuals presenting to a hospital property requesting or appearing to need evaluation or treatment for an emergency medical condition (EMC). Emergency medical services (EMS) personnel are often involved in these scenarios. This study describes the characteristics of civil monetary penalties (CMPs) resulting from negligent violations of EMTALA, involving incidents in which EMS responded to patients on hospital property.

Methods: Descriptive summaries of EMTALA-related CMPs from 2002-2024 were reviewed for mention of patients transported by EMS using keywords and stems. CMPs involving scenarios where EMS was noted to respond to incidents on hospital property, outside of the ED (eg, in the ED parking lot) and characteristics were extracted and described.

Results: Of 270 EMTALA-related CMPs between 2002-2024, 60 (22.2%) involved patients transported via EMS. Among these, four involved EMS responding to patients on hospital property outside the ED. Two CMPs involved patients who were seen in an ED and released without adequate medical screening exam (MSE) or stabilizing treatment; in both cases, 911 was called, and EMS transported the patients from parking lots of the presenting hospital to other facilities. One involved a patient escorted out of an ED waiting room after discharge and reported uncooperative behavior. The family called 911, and EMS transported the patient to another ED, where they were diagnosed with bacterial meningitis, intubated, and admitted to the intensive care unit. The second involved a pregnant patient who, after presenting to an ED stating her water broke, was escorted to her car without MSE and instructed by staff to call 911. EMS transported the patient to another hospital.

Two CMPs involved EMS responding to patients found down by EMS on hospital property. In one, a patient experiencing an asthma attack tried to gain entry to an ED via an entrance that was locked and unattended and called 911 to alert the dispatcher that she could not enter the ED. The dispatcher notified the ED, and a staff member briefly peered out from the ambulance bay door but did not see the patient. EMS later found the patient adjacent to the ambulance bay door in cardiac arrest. The patient subsequently died of hypoxic brain injury. The hospital's failure to conduct a reasonable search for the patient was noted to result in the failure to provide an appropriate medical MSE.

In another, EMS responded and found a deceased individual near the hospital's parking lot after staff called 911. The patient was discharged from the hospital's ED the prior day after receiving treatment for alcohol withdrawal. The next morning, the hospital was reportedly notified several times of an individual lying on campus, possibly in need of medical assistance, but reportedly failed to respond, resulting in a citation for and subsequent CMP related to failure to MSE and stabilize the patient.

Conclusion: Under EMTALA, EDs must provide an MSE and stabilizing treatment to any individual presenting to a dedicated ED seeking evaluation for an EMC. If an individual who is not a hospital patient arrives elsewhere on hospital property, an EMTALA obligation may be triggered if the individual requests exam or treatment for an EMC or if a prudent layperson observer would believe that the individual is suffering from an EMC. The term "hospital property" refers to the entire main hospital campus, including the parking lot, sidewalk, and driveway or hospital departments, including any building owned by the hospital within 250 yards of the hospital. Additionally, EMTALA requirements apply to hospital owned and operated ambulances. Findings suggest that hospital staff and EMS personnel may benefit from enhanced education surrounding EMTALA requirements to advocate for patients needing evaluation for EMCs on hospital premises outside of the ED.

No, authors do not have interests to disclose

450 Characteristics of Civil Monetary Penalties Resulting From Violations of EMTALA Involving EMS

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Study Objective: The Emergency Medical Treatment and Labor Act (EMTALA) requires hospitals to screen and stabilize patients presenting to emergency departments (EDs) regardless of condition or ability to pay. EMTALA has many implications that impact emergency medical services (EMS) clinicians responsible for transporting patients to EDs or for transferring patients requiring higher level of care services for stabilization. This abstract describes the general characteristics of civil monetary penalties (CMPs) resulting from negligent violations of EMTALA involving patients who were noted to arrive or depart by EMS from the inciting visit at the cited hospital.

Methods: Descriptive summaries of EMTALA-related CMPs from 2002-2024 were manually reviewed for mention of patients transported by EMS using keywords and stems (eg, ambulance, paramedic, fire department). Characteristics of CMPs found to involve patients transported via EMS during the citation-related visits were extracted and described.

Results: Of 270 CMPs during the study period, 60 (22.2%) were specifically noted in descriptive summaries to involve patients arriving or departing by EMS. Overall, 52 involved patients arrived at the ED or hospital campus by EMS. Specific interactions between EMS and hospital staff were described in 22 of these cases. Among CMPs involving patients arriving via EMS, there were 24 in which patients were additionally noted to depart with EMS, including 19 where EMS was turned away by ED staff. Among the 52 cases involving patients arriving by EMS, specific deficiency types involved failures related to Medical Screening Exams (MSE) in 45 (86.5%), stabilization in 39 (75%), appropriate transfer in seven (13.5%), and on-call responsibilities in three (5.8%). Deaths were reported in 15 CMPs (28.8%) involving patients arriving via EMS.

Among five CMPs involving patients departing by EMS without described EMS arrival, two involved the transfer of unstable patients from one ED to another, and three involved EMS transporting unstable patients from the grounds of one hospital to the ED of another. Referenced deficiencies included failures related to MSE in 5 (100%), stabilization in four (80%), inappropriate transfer in 2 (40%), and on-call responsibilities in 1 case (20%). Deaths were reported in 2 (40%) of these cases.

Among three CMPs involving individuals not arriving or departing from hospital with EMS, two (66.7%) involved EMS evaluating individuals found down on hospital grounds, and one (33.3%) involved staff from a hospital-owned ambulance off hospital premises. All of these cases involved a death.

Conclusion: CMPs resulting from EMTALA violations frequently involve patients arriving or departing from hospital premises by EMS, and often, specific interactions between EMS personnel and ED staff are referenced. These findings suggest that ED providers and EMS personnel may benefit from enhanced education about EMTALA requirements pertaining to MSE, stabilization, and transfer to ensure compliance and facilitate better patient advocacy and care. Future studies are needed to investigate common causes for these violations in order to inform education and promote patient safety.

No, authors do not have interests to disclose

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451 Airway Outcomes and High-Dose Nitroglycerin in Prehospital Decompensated Heart Failure

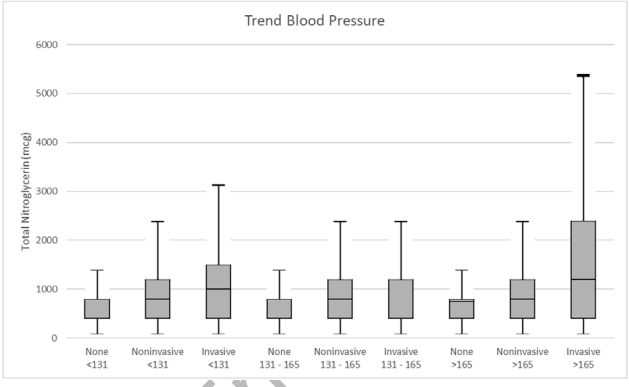
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Study Objectives: To assess the association between total prehospital nitroglycerin dose and the need for noninvasive or invasive airway interventions in patients with acute decompensated heart failure (ADHF).

Methods: We conducted a retrospective analysis of the 2022 National Emergency Medical Services Information System (NEMSIS) Public Release Research Dataset. We included adult patients with a primary or secondary EMS provider impression of heart failure who received nitroglycerin. Patients without recorded systolic blood pressure (SBP) values were excluded. Total doses of intravenous and sublingual nitroglycerin were calculated per run. Airway interventions were categorized as none, noninvasive, or invasive. Multivariable logistic regression was used to evaluate the relationship between nitroglycerin dose and airway intervention, controlling for age, gender, initial and trended SBP, initial heart rate, oxygen saturation, alertness, and EMS run duration. Subgroup analyses were conducted based on initial, average, and trended SBP.

Results: Among 13,858 qualifying EMS runs, the median nitroglycerin dose was 800 mcg (range 80–15,000 mcg), and the mean initial SBP was 176.9 mmHg. In patients receiving ≤800 mcg of nitroglycerin, 5,818 had no airway intervention, 3,882 received noninvasivesupport, and 175 required invasive airway. Among those who received >800 mcg, 1,688 had no airway intervention, 2,084 received noninvasivesupport, and 210 required invasive airway. Logistic regression revealed that each additional milligram of nitroglycerin was associated with a 21% increase in odds of requiring advanced airway intervention (OR 1.21; p <0.000001). Across all SBP strata (initial, average, trended), higher nitroglycerin dosing correlated with increased airway management, likely reflecting illness severity.

Conclusion: Higher nitroglycerin doses in the prehospital management of ADHF are associated with increased use of both noninvasive and invasive airway interventions, likely reflecting severity of illness rather than direct causality. These results highlight the need for prospective studies to define optimal dosing strategies and clarify the causal relationship between nitroglycerin use and airwaysupportin prehospital care.



No, authors do not have interests to disclose

452 Insurance Status and Emergency Department Length of Stay for Psychiatric Patients With Involuntary Detention Orders

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Study Objectives: Regulatory, Hospital, and Emergency Medicine organizations are increasingly focused on the growing problem of psychiatric (psych) patients held in U.S. EDs for prolonged stays. We sought to evaluate the association of insurance status on length of stay (LOS) for patients brought to the ED under involuntary detention orders.

Methods: This was a retrospective study at an urban ED involving consecutive patients during 2023 under an involuntary emergency psychiatric detention order for psych concerns. Patients were identified via police logs/EMR. Authors reviewed EMR to gather demographic/insurance/clinical data. A blinded study author reviewed 25 records to assess for interrater reliability (kappa, κ) and intraclass correlation (ICC). Continuous data analyzed by t-tests or ANOVA. Multivariate analysis performed to control for confounding.

Results: 240 patients in the study group; 65% male, mean age 41+/-15 years, 57% Hispanic, 46% uninsured, 29% Medicare/Medicaid, and 25% private insured. The most common primary specific ED diagnoses (dx) were suicidal ideation 53% and psychosis (12%). 74% were seen by telepsych at least once. 68% of patients were ultimately transferred to an in-patient psych facility, 20% were discharged from the ED, and 12% had other dispositions (e.g medical admission, arrested). Within bivariate analysis, LOS was significantly associated with insurance status (uninsured 2207+/-1892 min vs Medicare/Medicaid 1364+/-1401 min vs private insurance 1235+/-1234 min; $p < 0.01$), disposition (discharge 3154+/-2073 min vs transferred to in-patient psych facility 1318+/-1185 min vs other 1622+/-1995 min; $p < 0.01$), and telepsych consultation (yes 2086+/-1766 min vs no 676 +/-609 min. Both Medicare/Medicaid ($p < 0.01$) and private insurance ($p=0.001$), respectively, were associated with shorter LOS than uninsured patients. There was no association between LOS and the following: gender, race and ED dx. Within multivariate analysis, Medicare/Medicaid ($p=0.01$), private insurance ($p=0.01$), and no telepsych consultation ($p < 0.01$) were associated with shorter LOS. ICC for LOS was very good (0.82). Interrater reliability (κ) was almost perfect for primary dx (0.93) and perfect (1.0) for number of telepsych consultations.

Conclusion: Within our study group of psych patients brought to the ED under involuntary detention, uninsured patients had longer LOS.

No, authors do not have interests to disclose

453 Mortality of Patients Presenting With Heat Stroke in Phoenix, Arizona: A Retrospective Review

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Study Objectives: Summer heat waves in Phoenix, Arizona, are increasingly more severe and prolonged, with pronounced deleterious effects on patient health. Observing patterns of mortality among patients presenting to a single health center in Phoenix, Arizona has provided a unique opportunity to better understand resuscitation in heat stroke. The exact mechanisms behind the deleterious effects of heat are not entirely understood. In part, the direct cytotoxic effect of heat on cells likely triggers a systemic inflammatory response, coagulopathy, and, ultimately, multi-organ failure. The primary objective of this study is to describe the presentation, treatment, and outcomes among patients who died after presentation for heat stroke between 2021 and 2024.

Methods: This is a retrospective observational study of heat stroke presentations to a single hospital system among patients who did not survive cardiopulmonary arrest during the pre-hospital, emergency department, or inpatient course. Heat stroke presentations between June and August 2021 and 2024 that resulted in cardiopulmonary arrest and death were described using patient demographics and clinical course collected through chart extraction. A descriptive analysis was performed.

Results: During the study period, of 195 heat stroke presentations, 61 patient encounters (31.3%, 24.9%-38.3% 95% CI) resulted in cardiopulmonary arrest and death. Affected patients were primarily male (65.6%, 52.3-77.3% 95% CI), middle-aged (median age 49 years), Medicaid insured (37.7%, 25.6-51.0% 95% CI), and presenting via emergency medical services (98.4%, 91.2-100.0% 95% CI) with a median emergency severity index (ESI) at presentation of 1.0 (1.0-1.0 IQR). The average initial core temperature was 41.8°C (37.6-43.4 IQR), with an average maximum temperature of 41.9°C and an average minimum temperature of 38.1°C after cooling. Patients received pre-hospital cooling, including conductive (36%) and cold-water immersion (16%). Patients arriving at the emergency department received cooling, including conductive (6.6%, 1.8-15.9% 95% CI) and cold water immersion (52.5%, 39.3-65.4% 95% CI), with an average change of 4° C; and most were intubated (70.5%, 57.4-81.5% 95% CI) in the emergency department. Patients' urine drug screen or serum ethanol results were positive for methamphetamines (23.0%, 13.2-35.5% 95% CI), Fentanyl (21.3%, 11.9-33.7% 95% CI), and ethanol (9.8%, 3.7-20.2% 95% CI). Patients first experienced cardiopulmonary arrest resulting in death during the pre-hospital course (55.7%, 42.4-68.5% 95% CI), in the emergency department (8.2%, 2.7-18.1% 95% CI), and during the inpatient admission (36.1%, 24.2-49.4% 95% CI).

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Conclusions: Cardiopulmonary arrest was observed in 31.3% of heat stroke presentations during the summers of 2021-2024 in a single health system. Death occurred most in the prehospital, with death during inpatient course and emergency department course occurring at about half the rate. Some patients receiving cardiopulmonary resuscitation prehospital received no cooling in the pre-hospital or emergency department course (32%). Patients suffering cardiopulmonary arrest represent the most severely affected among those presenting with heat stroke during increasingly prolonged and frequent extreme heat events. An improved understanding of predictive clinical features for cardiopulmonary arrest in heat stroke will better inform the application and timing of multiple and often competing resuscitative efforts.

No, authors do not have interests to disclose

454 Housing Status Data in EMS Patients: Accuracy of Emergency Department Electronic Medical Records and Self-Report

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Study Objectives: Persons experiencing homelessness (PEH) are among the highest utilizers of emergency care and emergency medical services (EMS). Accurate identification of housing status in these patients is essential but often inconsistent and inaccurate in emergency settings. Universal screening for social determinants of health, including housing instability, can guide interventions but faces challenges in implementation and variability in sensitivity and specificity. It is essential to describe the population utilizing 9-1-1 so that care pathways and resources can be designed to meet their needs. This study compares the sensitivity and specificity of housing status data from emergency department (ED) electronic medical records (EMR) versus self-report of EMS patients.

Methods: This is a cross-sectional survey conducted in tertiary care, safety-net ED from July-August 2024. Subjects were identified by block randomization. Inclusion criteria required patients to be $\geq$ 18 years old, arrive via 9-1-1 ambulance, and speak English or Spanish. Patients were excluded if they were altered, intoxicated, critically ill, in law enforcement custody, or on a psychiatric hold. Trained research assistants administered the survey of validated tools and standardized questions. Patient self-reported housing status, obtained using the Accountable Health Communities living situation screening question, was considered the gold standard. ED EMR housing data was abstracted from the EMR. Descriptive statistics are presented.

Results: 130 participants were included. The mean age was 51.4 years, 53.4% were male and 60.9% spoke Spanish. 62.4% were Latinx, 16% African American, 16% other, and 5.6% White. Prevalence of homelessness in the ED EMR versus self-report was 10.6 % and 14.5%, respectively. The sensitivity of EMR documentation for identifying homelessness was 69.2% (95% CI: 38.6–90.9). Specificity was 90.9% (95% CI: 83.9–95.6). The positive predictive value (PPV) of documented homelessness in the ED EMR was 47.4% (95% CI: 24.4–71.1).

Conclusion: ED EMR documentation of housing status of EMS patients has limited sensitivity and positive predictive value. Improvements in housing screening are essential to enhance accuracy in identifying PEH and to improve both prehospital and hospital based clinical care pathways and resources . Limitations include the small sample size and single ED.

No, authors do not have interests to disclose

455 Evaluation of Mental Health Co-Response Models: A Scoping Review

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Study Objectives: Currently, the standard protocol for handling patients enduring a mental health crisis outside of clinical settings usually involves a police response, particularly if the individual is exhibiting violent or antagonistic conduct . Emergency Medical Services (EMS) also are often activated alongside law enforcement to help manage the patient's symptoms. Co-response models with a tandem of law enforcement and mental health professional response have recently been implemented in some locations. However, due to the heterogeneity of these programs, the best structural practices and how these system-level characteristics relate to the outcomes of these models are inconclusive in the literature. This scoping review seeks to assess the history, operational aspects and outcomes of the varied mental health/law enforcement co-response models utilized in the pre-hospital setting.

Methods: A systematic search strategy was developed with a medical librarian to query Medline (PubMed), PsycInfo, Embase, Cochrane CENTRAL, the Criminal Justice Database, and the ProQuest Dissertations and Theses Database from 2015 to 2025 for publications referencing patient populations who experienced a mental health crisis outside of the clinical setting which was initially addressed with a co-response including both a law enforcement and mental health component. Randomized, nonrandomized studies, before and after studies, interrupted time-series studies in addition to analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies were eligible for inclusion. The reviewer team utilized Covidence software to organize prospective publications for abstraction and analysis. Three independent reviewers including medical students screened abstracts. After this process was completed, senior faculty reviewed full-text manuscripts. Both of these assessments were done in compliance with *a priori* eligibility criteria, with conflicts resolved by consensus. Risk of bias assessment was performed using the Quality in Prognostic Studies (QUIPS) tool. Five independent reviewers independently abstracted study characteristics and data with a standardized instrument.

Results: Of a potential 3,721 relevant publications, full-text abstraction consisted of 85 publications. The initial results included over 250 programs across 5 countries. Types of study design methodologies were 27% qualitative, 19% mixed-methods, 19% quantitative, 13% systematic/scoping reviews, and 22% other methods (descriptive, editorial, implementation science). For individual program-specified publications (18 programs, 44 publications) the range of dates of co-response establishment was 2004 to 2023, with majority established in the last decade (67%). Community-based program structure is a specific area of interest for this review. This is defined by those programs which include involvement of community-based mental health agency. In this respect, reports from Canada, United Kingdom, Australia and New Zealand noted national and community level initiatives for program initiation and management, where US programs are based on state or municipality levels. For all publications, 56% were noted to be community-based programs, 8.2% were non-community based, and publications with multiple programs which included at least some community-based programs were 31%. About 6% of the publications did not indicate if the program(s) were community based.

Conclusion: The preliminary results of this scoping review provide a foundational overview of the myriad of structures of co-response programs. The vast myriad of diverse model structures and overlapping nomenclature surrounding other types of law enforcement and mental health partnerships indicate the need for distinct analysis of each program type to determine more accurate assessments of efficacy and optimal techniques for co-response models.

No, authors do not have interests to disclose

456 Evaluating Junctional Tourniquet Training in Civilian Medical Personnel: A Quasi-Experimental Study

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Study Objectives: The objective of this study is to evaluate whether civilian medical personnel (eg, EMTs, firefighters, police, and health professional students) can be effectively trained in junctional tourniquet (JT) application to control severe hemorrhage. We compare JT effectiveness to traditional methods (wound packing with direct pressure) and assess training challenges across professional demographics.

Methods: In a classroom setting, participants (N=13) were randomized into two groups: Group A (direct pressure with wound packing) and Group B (JT training). All participants first attended a 30-minute didactic session covering both techniques, followed by hands-on practice and assessment of their initially assigned method using pelvic hemorrhage simulation models. Participants then switched stations to train in the alternative method and underwent another assessment. Outcomes included successful application according to manufacturer guidelines, time to bleeding cessation (defined as $\leq$ trickle for 30 seconds), and participant confidence. Data was recorded via direct observation and video review.

Results: Thirteen medical students (69% male, 31% female; all age >18 years; 8% military background) participated. Post-training confidence significantly increased by 33% for JT (p=0.04) and 45% for wound packing (p=0.05). In simulated arterial

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hemorrhage control, JT showed significantly higher efficacy (100%) compared to wound packing (46%, p=0.008). Accuracy of procedure steps was similar between JT (85%) and wound packing (88%; p=0.004). JT application was significantly faster, averaging 81 seconds to complete all steps versus 123 seconds for wound packing (p=0.0008).

Conclusion: Preliminary results indicate civilian medical personnel can effectively and rapidly apply junctional tourniquets after structured training, outperforming wound packing in efficacy and speed for severe hemorrhage control. This suggests JT training could significantly enhance civilian first-responder preparedness, although larger-scale research is warranted to confirm these findings.

No, authors do not have interests to disclose

457 Stop the Bleed®: A Resident-Run, Community Engagement Workshop Impacting Spanish Speaking Population

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Study Objectives: Trauma is the leading cause of death in patients under 45 years old. Hemorrhagic death after traumatic injury accounts for more than sixty thousand (60,000) deaths yearly in the United States (US), and more than 1.5 million worldwide. Annually, more than twenty five (25%) of those 60,000 hemorrhagic deaths could have been prevented if the bleeding was controlled earlier. The Spanish-speaking population in the United States face language barriers and socioeconomic factors that hinder community readiness when adverse events occur. We aimed to assist in the education of hemorrhage management for Spanish-speaking individuals by providing native-language, culturally sensitive stop the bleeding training to workers of a landscaping company.

Methods: Two sessions of Stop the Bleed® seminar were coordinated with Spanish-speaking participants from Berks Latino Workforce for education and training in bleeding assessment and control methods. Each session consisted of twenty participants. Spanish-speaking emergency medicine residents who are also certified as Spanish interpreters led the sessions and translated for the English-speaking residents who assisted in the training sessions. Participants were educated in scene safety assessment, recognition, and management of bleeding with multiple Stop the Bleed® techniques. Culturally sensitive training models facilitated the workshop to enable practice of bleeding tamponade with simple pressure, packing and tourniquet application. Participants were also involved in case-solving discussions to further engage their learning experience.

Results: Forty Spanish-speaking participants attended the workshops, ranging from ages between eighteen to mid-sixties, led by two bilingual emergency medicine residents and English-speaking residents that assisted with the practical portions of the workshop sessions. All participants were trained in skills of direct pressure, packing and tourniquet application to stop hemorrhage, and received a Stop the Bleed® tourniquet kit with a certificate of completion.

Conclusion: This Spanish-speaking Stop the Bleed® workshop achieved three primary results. First, we trained landscapers who are at risk of injury with life-saving techniques. Second, the Spanish-speaking community had the opportunity to become empowered while being able to ask questions and communicate with on-site native speaking emergency physicians. Finally, each Spanish speaking participant who completed the course is now a certified provider in hemorrhage control techniques, broadening the health care influence on our Spanish-speaking community. We have seen the impact of this training firsthand, after a participant from one of our educational sessions implemented their trained skills by placing a tourniquet after a traumatic extremity injury in the community. That patient was received by our trauma team with limb salvage treatment and a life saved.

No, authors do not have interests to disclose

459 Identifying Demographic and Diagnostic Characteristics of High-Risk Patients in Emergency Departments

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Study Objectives: Patient aggression and workplace violence in healthcare settings are a well-documented problem. Emergency departments (EDs) are one of the settings in which this is a particularly salient issue (Phillips, 2016). ED nurses reported the highest rates of victimization, with 100% reporting verbal assault and 82.1% reporting physical assault within the year of survey (May, 2002). Although EDs have been identified as high-risk settings, little has been written about these patients, descriptively or diagnostically. We aimed to identify characteristics of these patients to better understand them, and to more appropriately direct and tailor prevention and de-escalation techniques.

Methods: In this simple descriptive study, we examined hospital security reports at a large Midwestern university-affiliated hospital over 3 years. Fourteen patients with the highest levels of aggression were selected for description. Aggression levels were determined using the total number of incidents.

Results: These 14 patients, while making up 0.0093% of the ED patient population, accounted for 0.28% of total patient presentations, and 12% of patient aggression incidents that resulted in security involvement. With a risk index of 46.3781 ($P < 0.0001$), the high-risk group is 46 times more likely to engage in aggressive behavior than the non-high-risk patients within this population. Upon comparison, common traits were identified. Patients were found to have common demographics: male, with an average age of 38, single, unstable housing, a history of drug use (primarily amphetamines), and diagnosed psychiatric disorder(s). These patients were also found to have previous incidents of aggression and restraint use within the hospital, as well as a recorded history of law enforcement involvement per medical record documentation. Social work records indicate these patients also have a history of abuse (physical, sexual, or unspecified).

Conclusion: This information may assist in development of staff training programs tailored to respond to these high-risk patients in a specialized, trauma-informed manner. Using this information, hospitals may be able to greatly reduce violence and aggression within the emergency department, and better protect our patients, employees, and visitors.

No, authors do not have interests to disclose

460 Emergency Physician and Nurse Estimates of Weight for Patients With a High Prevalence of Obesity

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Study Objectives: There is a paucity of data evaluating the ability of emergency physicians and nurses (RN) to estimate weight (wt) for patients with high BMI. We conducted an investigation to assess the accuracy of wt estimates by emergency physicians and RNs for patients within a population with a high prevalence of obesity.

Methods: This was a prospective, observational study at an inner-city ED. We enrolled a convenience sample of consenting, alert, stable, adult patients who initially filled out a structured survey collecting demographic/clinical data. Research assistants recorded actual wts and BMI from the EMR. Patient's treating physician and RN were asked to estimate the patient's wt blinded to each other's assessment and the patient's wt measurement. We defined accuracy as within +/- 10% of measured wt. BMI subgroups were < 25, 25-29.99, 30-34.99, > 35. Categorical data were analyzed by chi-square or z-tests; continuous data analyzed by t-tests. Multivariate logistic regression was utilized to control for confounding.

Results: 141 patients participated; mean wt 196+/-60 lbs., 66% ages 40-64, 48% female, 64% Hispanic, 42% household income < $20k, 67% obese (BMI > 30), 73% < high school education. They had prior diagnosis of CHF (14%), diabetes (34%), kidney disease (15%), and hepatic disease (15%). Within bivariate analysis, patients were significantly more often accurate in wt estimates than physicians (92% vs 48%;$p < 0.001$) and RNs (92% vs 49%;$p < 0.001$), while there was no difference between physician and RN accuracy. Patient, physician, and RN wt estimate accuracy, respectively, did not significantly differ between BMI categories. RNs were more accurate in wt estimates for patients with CHF (78% vs 46%; p=0.01). There was a significant difference in mean patient height for patients with accurate vs not accurate wt estimates (169+/-11 cm vs 155+/-14 cm; p=0.01). Multivariate analysis found no association for any of the independent variables with respect to RN and patient wt estimate accuracy, respectively. However, physician accuracy was associated with age > 65 years (p=0.03), private insurance (0.03), and recency of wt measurement (0.04).

Conclusion: Within our study group with a high proportion of obese patients, we found that physicians and RNs were frequently inaccurate when estimating patients wt irrespective of BMI category.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

461 A Pilot Study: Using a Novel Behavioral Assessment to Predict Agitation

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Study Objectives: Agitation is defined as any activity that may disrupt care, lead to violent behaviors or delay care. High rates of multispecialty activation for agitation, called a Code Violet, of arrival were observed in our emergency department (ED) within 2 hours of patient arrival. Early pharmacological management may prevent escalation of agitation, but data is lacking regarding its efficacy in the ED. A multispecialty group was convened to develop an assessment tool to identify agitated behaviors early and predict escalation and code violet risk. The aim of this study was to assess the implementation of an agitated behavior score tool and its impact on the clinical course of agitated patients.

Methods: This was a prospective convenience evaluation of a novel agitated behavior score tool in agitated adult patients presenting to the ED. The tool is comprised of three sections – altered mentation, verbal, and motor agitation and incorporates an objective and subjective evaluation of Code Violet risk into a 25-point scale. Medical records were reviewed for demographic details, relevant past medical history, ED encounter details, and medication administration. Categorical variables are presented as frequencies and percentages and compared using chi-squared tests. Continuous variables are presented as mean with standard deviation or median with interquartile range and compared using t-tests or Wilcoxon Rank Sum tests depending on their distribution.

Results: An agitated behavior scale (ABS) assessment was completed for 83 adult patients. A multitude of psychiatric medical histories were found in the patients assessed. Of these patients in the study, a Code Violet occurred in 27 patients (33%), with 11 having ≥2 Code Violet's (13%). Patients with ≥1 Code Violet had an average initial ABS of 10.9, compared to 4.6 in patients without a Code Violet. Psychotropic medication was administered to 57% of patients. There was no difference in the rate of psychotropic medications administered between CV and no CV groups, however, the average time to medication administered was longer in patients with a CV (4h) compared to no CV (2.7h). The most common parenteral (IV/IM) medication was inapsine (52%) and most common oral medication was olanzapine (50%). Patients with a CV frequently received IV/IM inapsine (56%) or haloperidol (17%) with or without IV/IM midazolam (19%) or lorazepam (11%), while patients without a CV received PO olanzapine (30%).

Conclusion: Agitation in the ED can negatively impact patient care. An objective assessment score is a useful tool for early evaluation of agitated behaviors which may allow early medication administration, prevent escalation and subsequent CV activation.

No, authors do not have interests to disclose

462 Fear and Uncertainty: Along the Path to Deimplementation

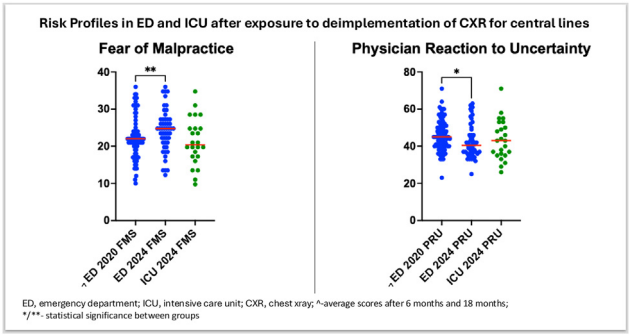
Suarez D, Rosenzweig T, Pham V, Hagberg L, Griffey R, Ablordeppey E/Washington University in St. Louis School of Medicine, Saint Louis, Missouri

Study Objectives: Acute care providers, including emergency department (ED) and intensive care unit (ICU) physicians, have varying decision-making thresholds, but the factors behind these differences are unclear. Tools like Fear of Malpractice (FMS) and Physician Reaction to Uncertainty (PRU) help assess these behaviors. High FMS scores indicate fear of malpractice, reducing efficiency, while high PRU scores show low tolerance for uncertainty, and can lead to unnecessary testing. While previous research has explored these tools, little is known about how responses change over time or across specialties, especially in relation to interventions. This study examines whether FMS and PRU scores change over time with awareness and use of a clinical innovation—de-implementation of chest X-rays for ultrasound-guided central line confirmation. We aim to assess if FMS or PRU shift after exposure to the intervention, helping tailor strategies to address malpractice fear and uncertainty tolerance, such as fostering a learning culture and increasing simulation opportunities.

Methods: Surveys with FMS and PRU assessments were created in REDCap and distributed to emergency physicians (faculty and trainees) at a large academic institution in 2020. Surveys were administered at two time points: 6 months (Time 0) and 18 months (Time 1) after a deimplementation initiative replacing chest X-ray (CXR) with ultrasound for central line confirmation. After introducing the deimplementation effort in the surgical ICU (SICU), surveys were re-administered in 2024 to both ED (Time 2, post-4 years) and SICU physicians (post-6 months). Data were analyzed using GraphPad Prism (version 10.4.1). FMS scores, initially out of 30, were converted to a 6.0 scale for comparison with the PRU scale, with new scores out of 36. A composite PRU score was used to reflect uncertainty and facilitate group-level analysis. FMS-PRU score correlation was assessed with paired t-tests, and group comparisons were made using the Mann-Whitney test.

Results: Survey response rates in 2020 were 85/88 (97%) at Time 0 and 71/91 (78%) at Time 1. In 2024, 51 responses (68%) were from ED providers and 24 (32%) from ICU providers, with most responses (77%) coming from faculty members. Among ED providers, the median FMS score was 22 at Time 1 and increased to 25 at Time 2 ($p = 0.008$). ED trainees showed a similar increase, from 22 at Time 1 to 27 at Time 2 ($p = 0.012$), while faculty scores rose from 21 at Time 1 to 24 at Time 2 ($p = 0.145$). All FMS scores indicated high fear across groups. On the PRU assessment, ED providers' median score was 45 at Time 1 and decreased to 41 at Time 2 ($p = 0.014$). Trainees scored 48 at both time points ($p = 0.548$), while faculty scores dropped from 44 at Time 1 to 39 at Time 2 ($p = 0.009$). In 2024, ED providers had a significantly higher FMS score (25) than ICU providers (20, $p = 0.041$), but lower PRU (41 vs 43, $p = 0.776$). The ICU group exhibited moderate fear (FMS), compared to high fear in the ED group. ED and ICU trainees had higher FMS scores than faculty (27 vs 24, $p = 0.004$), and slightly higher PRU scores (48 vs 40, $p = 0.090$). A significant, moderate correlation between FMS and PRU scores was observed in both groups. In 2020, the correlation for ICU providers was $r = 0.52$ ($p < 0.0001$) and for ED providers was $r = 0.42$ ($p < 0.0001$), with a similar correlation in 2024 (ED: $r = 0.44$, $p < 0.0001$; ICU: $r = 0.52$, $p < 0.0001$).

Conclusion: ED providers, particularly trainees, experienced an increase in malpractice fear (FMS) over time, while uncertainty tolerance (PRU) remained unchanged compared to ICU providers. Contrary to expectations, exposure to a specific deimplementation effort did not reduce malpractice fear nor improve uncertainty tolerance. Qualitative research may be needed to better understand these results. These findings highlight the importance of developing tailored strategies to address malpractice fear and foster uncertainty tolerance, which could enhance the adoption of innovative practices, such as substituting ultrasound for central line confirmation, and reduce unnecessary interventions, ultimately improving patient care through deimplementation.



No, authors do not have interests to disclose

463 Prescription Antipyretics to Decrease Unscheduled Return Visits in a Pediatric Emergency Department

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Study Objectives: Outside of patients with chronic and complex conditions, studies have shown that the majority of return visits to the emergency department are due to acute infectious conditions presenting with fever. Due to weight-based dosing requirements, rather than age or height based dosing, of antipyretics in children, up to 50% of caregivers have been shown to administer incorrect doses, highlighting a need for improved discharge education and planning. There is currently no standardization

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for antipyretic prescribing versus standard instructions at time of emergency department (ED) discharge nationally or at our institution. There is currently very limited literature looking at whether appropriately weight based antipyretics decrease the rate of unscheduled return visits. The study aims to evaluate whether unscheduled return visits within one week for similar complaints are impacted by ensuring parents have access to the appropriate doses of acetaminophen and ibuprofen. We hypothesize that prescribing appropriately dosed acetaminophen and ibuprofen will decrease the rate of unscheduled return visits.

Methods: This study is a randomized control trial in a safety-net pediatric ED. With caregiver consent, children ages 6-36 months old who presented to the emergency department with a subjective or confirmed fever with disposition to home were enrolled in our study. Exclusion criteria included previous enrollment in the study, parental request for prescription, trauma patients, orthopedic complaints, other painful indications for ibuprofen or acetaminophen, or allergy to one of the medications. Patients were randomized and blinded to either a control group, consisting of standardized weight-based dosing of acetaminophen and ibuprofen, or the intervention group, receiving a prescription for the same weight-based dosing of acetaminophen and ibuprofen. Seven days after ED discharge, a follow-up phone interview was conducted to determine if there had been any unscheduled return visits for the same or similar febrile illness, as well as to identify the reasons for any additional visits or complications that arose. In addition, caregivers had the opportunity to offer feedback on their child's emergency room visit.

Results: As of March 2025, 95 patients have been enrolled in our study. 18 patients have been excluded due to lack of response to follow-up phone interviews. The current sample size is relatively small compared to our goal. In result, data has not been analyzed at this time due to risk of skewed and biased results. Data collection is anticipated to be completed prior to September 2025 with a goal of 440 total patients (n=220 in the control group and n=220 receiving the intervention) and will be analyzed at that time.

Conclusion: Our results will indicate if appropriately weight based prescription antipyretics make a significant difference in the rate of unscheduled return visits. This study can inform future quality improvement initiatives aimed at standardization of antipyretics in children, potentially improving health outcomes and decreasing unnecessary emergency room visits.

No, authors do not have interests to disclose

464 What Factors are Associated With Short-Term Revisit to Hospital Following Giving Birth?

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Study Objectives: Serious pregnancy complications impact approximately 8% of all pregnancies (1). It is widely known that intrapartum complications can result in devastating outcomes for both the mother and the neonate. It is not widely studied which complications are most likely to result in rehospitalizations after discharge. This study, we aimed to explore maternal intrapartum complications and demographics associated with short term hospital returns after discharge. Specifically, we aimed to investigate which factors are associated with 72-hour revisit to Laber and Delivery (L&D) or the Emergency Department, and which factors predicts 72-hour admission to hospital following giving birth.

Methods: This is a single center retrospective study at a tertiary academic hospital. We used electronic medical record data to identify patients who are discharged after giving birth between May 31, 2023 and May 31, 2024. We chose this timeline to reduce the possible impact of federal COVID pandemic emergency response on hospital visits and discharges. Demographic data, time to giving birth, length of stay in the first hospital visit, blood transfusion, eclampsia or preeclampsia, were collected for all patients. We used t-test and Fisher's exact test for bivariable analysis factors with P <0.10 in bivariate analysis were entered into a multivariable logistic regression. A P-value < 0.05 is considered statistically significant. All statistical analysis were done using STATA V.18.

Results: During study period, 3295 women were discharged from L&D. The average age was 30.11 years (SD: 5.96). There were 57 revisits to L&D or ED within 72 hours of discharge after giving birth of which 13 cases lead to hospitalization. Blood transfusion and increased time to delivery were associated with 72 hours revisits to L&D or ED (table 1). Moreover, blood transfusion and increased length of stay during L&D admission were significantly associated with 72-hour hospital readmission (table 2). In multivariable regression model, when adjusting for possible confounders, only blood transfusion increased odds of 72 hours revisits to L&D or ED by 210% (OR: 3.10, CI: 1.37 – 7.01, $p < 0.01$). Similarly, blood transfusion was the single factor associated with of 72-hour readmission to hospital with OR of 9.03 (2.61–31.29) $p < 0.01$.

Conclusion: In this single center retrospective cohort, only blood transfusion was associated with increased risk of 72 hours revisits to L&D or ED and ultimately rehospitalization. This can be further studied to account for other possible factors and design interventions to prevent hospital revisit following giving birth for those patients who are at increased risk of unfavorable outcomes.

Tabel 1. Factors associated with 72-hour ED or L&D revisit

		No (3,238)	Yes (57)	P value
Age	Mean years (SD)	30.10 (5.97)	30.75 (5.44)	0.41
	White	2071	32	
	Black	303	11	
	Asian, or Pacific Islander	130	2	
	American Indian or Alaska Native	34	0	
Race	Other	681	12	0.2
	Not Hispanic	2574	41	
	Hispanic	605	15	
Ethnicity	Other	59	1	0.25
	No	3035	53	
Preeclampsia	Yes	203	4	0.78
	No	3102	50	
Blood transfusion	Yes	136	7	**0.01**
Time to delivery	Mean hours (SD)	7.56 (5.74)	9.23 (7.55)	**0.03**
Total length of Stay	Mean days (SD)	2.38 (2.31)	2.57 (2.22)	0.42
	1	3200	57	
Number of new born	2	38	0	0.79
	NVD	2516	42	
Delivery Method	C-Section	721	15	0.52

Tabel 2. Factors associated with 72-hour in-patient readmission

		No (3,282)	Yes (13)	P value
Age	Mean years (SD)	30.10 (5.96)	32.36 (6.18)	0.17
	White	2094	9	
	Black	313	1	
	Asian, or Pacific Islander	131	1	
	American Indian or Alaska Native	34	0	
Race	Other	691	2	0.78
	Not Hispanic	2605	10	
	Hispanic	617	3	
Ethnicity	Other	60	0	0.78
	No	3,076	12	
Preeclampsia	Yes	206	1	0.57
	No	3,143	9	
Blood transfusion	Yes	139	4	**<0.01**
Time to delivery	Mean hours (SD)	7.58 (5.75)	7.00 (5.26)	0.72
Total length of Stay	Mean days (SD)	2.38 (2.31)	3.69 (3.09)	**0.01**
	1	3245	12	
Number of new borns	2	37	1	0.14
	NVD	2549	9	
Delivery Method	C-Section	732	4	0.5

No, authors do not have interests to disclose

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465 Characterization of Latent Safety Threats from a Multidisciplinary In Situ Simulation Program

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Study Objectives: Latent safety threats (LSTs) refer to hidden problems within healthcare systems that can contribute to adverse events if not identified and mitigated. Identifying LSTs is crucial as these threats are often difficult to detect during routine operations but can have significant implications for patient outcomes. In situ simulation (ISS), which involves conducting simulation exercises in the actual care clinical environment, has emerged as a powerful tool for uncovering these concealed hazards. We sought to analyze the frequency and severity of LSTs identified over the course of a year-long multidisciplinary in situ simulation program and assess the interrater reliability of patient safety and quality experts in scoring these LSTs using the Survey Analysis for Evaluating Risk (SAFER) matrix utilized by the Joint Commission.

Methods: This was a cross-sectional descriptive analysis of LSTs identified over one year in an academic ED at a quaternary referral center. Over 40 ISS scenarios were conducted during this time with over 350 participants and involved 6 services including: neurology, trauma surgery, newborn medicine, maternal medicine, pediatric emergency medicine, and toxicology. Using the SAFER Matrix described by the Joint Commission, major LSTs were scored according to frequency and severity of harm by members of the ED Patient Safety and Quality Improvement team[CG1] . SAFER scores (scored 1-6) were calculated by adding the frequency of event (scored 1-3) to the severity of harm of the LST (scored 1-3), with 1 being the lowest and 3 being the highest degree of frequency/severity of harm. Interrater reliability was assessed using the intraclass correlation coefficient (ICC). Graph Pad Prism and Excel were used for statistical analysis.

Results: A total of 22 major LSTs were included in the survey. LSTs were classified into 5 categories. The distribution of LSTs and their SAFER scores for frequency of harm, severity of harm, and total score were as follows: 8 equipment (1.7, 2.5, 4.2), 6 process (1.6, 2.2, 4.1), 5 communication (1.5, 2.1, 3.6), 2 education/training (1.7, 1.8, 3.5), and 1 people/staffing/teams (1.7, 3, 4.7). The intraclass correlation coefficient for the 3 raters was fair-moderate at 0.45.

Conclusions: These findings demonstrate how an interprofessional in situ simulation program can be used to identify and quantify potential patient safety issues in accordance with Joint Commission standards. In this analysis, equipment, process and staffing were major LSTs with a high degree of potential harm. These findings can be used to address threats to patient safety before they cause harm. The intraclass correlation in our study indicates that there may be significant variability in how patient safety experts perceive the potential for harm for LSTs.

No, authors do not have interests to disclose

466 A Novel Electronic Health Record-Integrated Clinical Pathway for Nephrolithiasis

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Study Objectives: Acute renal colic from nephrolithiasis is a common condition in emergency departments. Variation in clinical management contribute to unnecessary opioid use, inadequate discharge planning, and repeat visits. To address these challenges, we implemented an electronic health record-integrated clinical pathway to standardize management. We aimed to enhance pain control, streamline discharge practices, and optimize overall emergency department patient care. This study evaluates the impact of this pathway on important nephrolithiasis management process measures.

Materials and Methods: This retrospective cohort study examined patients presenting with renal colic or ureteral stones at nine emergency departments in a Northeast health system between January 1 and December 31, 2023. Outcomes analyzed included utilization of opioid alternatives (eg lower-dose ketorolac and IV lidocaine), 28-day tamsulosin prescription at discharge, and time to urology follow-up. Statistical methods included Mann-Whitney U tests, Pearson chi-squared tests, and logistic regression.

Results: Of 5,733 patients, 585 (10.2%) were managed through the nephrolithiasis pathway, while 5,148 received standard care. Pathway use increased administration of the recommended ketorolac dose (33.2% vs 26.8%, p=0.006), intravenous lidocaine use (5.6% vs 0.8%, p <0.001), and 28-day tamsulosin prescriptions (22.7% vs 6.8%, p <0.001). Multivariate analysis identified pathway utilization as a significant predictor for each intervention (ketorolac 15 mg dose: OR 1.37, 95% CI 1.10–1.71, p = 0.004; IV lidocaine: OR 6.54, 95% CI 4.09–10.46, p < 0.001; tamsulosin: OR 3.78, 95% CI 2.97–4.79, p < 0.001).

Conclusions: The electronic health record-integrated nephrolithiasis pathway effectively promoted evidence-based pain management promoting non-opioid pain control, and appropriate medical expulsive therapy.

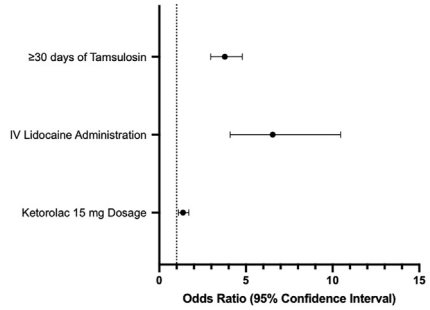


Figure 1| Forest Plot of Odds Ratios for Low-Dose Ketorolac, IV Lidocaine, and 28-Day Tamsulosin Prescriptions in Patients Managed with the Nephrolithiasis Pathway Compared to Standard Care

No, authors do not have interests to disclose

467 Emergency Department Vital Sign Trajectories to Predict Revisits: Development and Validation Study

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Study Objectives: Return visits to the emergency department (ED) pose a significant challenge for both patients and clinicians. Vital sign trajectories from an initial ED visit may offer critical insights into the likelihood of return visits, including high-risk cases. This study aimed to develop and validate predictive vital sign trajectories for overall and high-risk ED revisits.

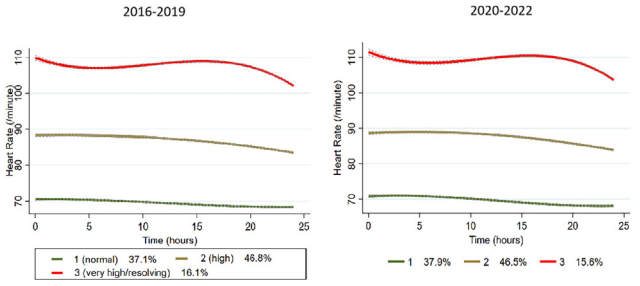
Methods: This retrospective cohort study analyzed electronic clinical warehouse data from a tertiary medical center. The development cohort included 333,365 adult ED visits from 2016 to 2019, while the validation cohort comprised 260,098 visits from 2020 to 2022. Data extracted included patient demographics, computerized triage information, and vital signs (systolic and diastolic blood pressure, heart rate, body temperature, respiratory rate, and oxygen saturation). High-risk return visits were defined as revisits within 72 hours requiring intensive care unit admission, emergency surgery, or experiencing in-hospital cardiac arrest. Group-based trajectory modeling was used to identify vital sign trajectories, and multivariable logistic regression assessed factors associated with return visits.

Results: Among 45,083 index ED visits in the development cohort, 3,138 (7.0%) resulted in revisits, including 107 (0.2%) classified as high-risk. A trajectory of very high but resolving heart rate was associated with increased odds of both overall revisits (adjusted odds ratio [aOR], 1.31; 95% confidence interval [CI], 1.16-1.47) and high-risk revisits (aOR, 3.53; 95% CI, 2.03-6.15), findings confirmed in the validation cohort. Additionally, chronic major disease (primarily cancer) was linked to both overall (aOR, 1.33; 95% CI, 1.23-1.43) and high-risk revisits (aOR, 2.60; 95% CI, 1.72-3.93). Abdominal pain as a chief complaint correlated with overall revisits (aOR, 1.21; 95% CI, 1.09-1.34), while older age was associated with high-risk revisits (aOR, 1.20 per 10-year increase; 95% CI, 1.06-1.35). These associations were also validated in the independent cohort.

Conclusions: Older age, chronic major disease, and a very high but resolving heart rate trajectory during an index ED stay are predictive of high-risk revisits. Clinicians

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should carefully reconsider discharge decisions for these high-risk populations to improve patient outcomes.



No, authors do not have interests to disclose

468 Pregnancy Hypertension Alert System to Reduce Morbidity From Hypertensive Disorders of Pregnancy

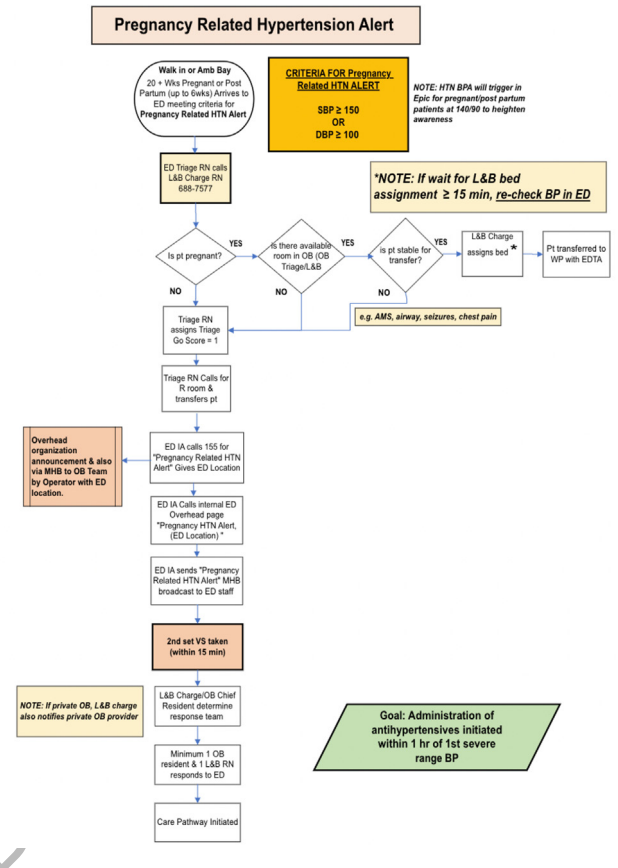
Amoako J, Fonteh A, Haggan J, VanHouten C, Hyland T, Coffey C, Sangal R, Campbell K/ Yale New Haven Hospital, New Haven, Connecticut

Study Objectives: To create a Pregnancy-Related Hypertension Alert to trigger a timely assessment, diagnosis, and management of hypertensive disorders of pregnancy (HDP) in the Emergency Department (ED).

Methods: A retrospective cohort study. Emergency Medicine (EM) and Obstetrics (OB) teams collaborated to develop and implement the Pregnancy-Related Hypertension Alert. Patients with an elevated blood pressure (BP) defined as a systolic BP of $\geq$ 150 mmHg and or a diastolic of $\geq$ 100 mmHg at $\geq$ 20 weeks gestational age or within 6 weeks postpartum, met criteria for the alert. When triggered, an OB resident, OB nurse, and EM team immediately evaluated the patient using a standardized HDP care pathway. Treatment according to the pathway includes the use of oral IR nifedipine, IV labetalol, IV hydralazine, and patients with mildly elevated BP received oral antihypertensive.

Results: 80 patients (17 pre-alert; 63 post-alert) were included in the study. BP recheck within 15 minutes was noted in 41% of patients' pre-alert and increased to 86% post-alert. Median time for patients to receive antihypertensives was 72 minutes [IQR 37.5-195.5] in the pre-alert period and improved to 23.5 minutes [IQR 15- 67 minutes] with the alert. Pre-alert the ED median length of stay was 219 minutes [IQR 182-297 minutes] and reduced to 147 minutes [IQR 73-231 minutes] with the alert. Patient disposition was to Inpatient Obstetrics Unit (pre-alert: 41%; post-alert: 52%), IR/SICU (pre alert: 0%; post alert: 3%), Labor & Birth/Triage (pre alert: 6%; post-alert:13%), transfer from satellite ED to main ED for additional management (5%), home (pre-alert: 53%; post-alert: 25%), other (2%).

Conclusion: After alert implementation, more patients achieved guideline-recommended care, including BP checks and delivery of antihypertensives. Future directions include ongoing optimization of the HDP alert and expanding coverage of the program across the health care system.



No, authors do not have interests to disclose

469 Sepsis Resuscitation: Uncovering Patterns, Identifying Barriers, Driving Ultrasound Adoption

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Study Objectives: Septic shock is a leading cause of hospital mortality, responsible for up to 50% of critical care deaths, highlighting the need for early detection and effective management. Resuscitation during septic shock is a time-sensitive process where accurate diagnosis and rapid intervention are crucial. Ultrasound is a key tool in guiding resuscitation, offering insights into shock etiology, cardiac function, and fluid status, yet it remains underused despite its potential to improve patient outcomes and reduce complications. This study aims to assess current sepsis recognition and resuscitation practices in the Emergency Department (ED) with a focus on identifying barriers to ultrasound use. By first understanding these challenges, we aim to develop strategies to improve ultrasound adoption and enhance sepsis management.

Methods: A 12-question survey was distributed to ED faculty and residents at an urban academic medical center, informed by expert input, literature, and prior studies. It included a vignette of a hypotensive patient with altered mental status, asking participants to rank physical symptoms (lower extremity edema, mental status, capillary refill, temperature and lung/cardiac auscultation), lab values (lactate, troponin, basic metabolic panel, pro-BNP, hepatic function, urinalysis, blood gas, white blood cell count), and ultrasound (US) exams (IVC collapsibility, LVEF, lung exam, TAPSE, hepatic/portal vein assessment, other), in their evaluation and treatment of shock. A rank of 1 was most important, while the lowest possible ranking varied by number of items ranked (6 for physical, 8 for labs). Total responses were averaged for comparison. Mann Whitney U was used to compare groups on the highest-ranking practices. Qualitative questions explored preferred US exams, barriers to use, and current practices.

Results: 49 ED clinicians responded: 71% were faculty (n=35), and 29% were residents. Faculty with more than 5 years of experience provided most responses

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(52%). Temperature was ranked as the most important of 6 factors for shock etiology by both groups (residents 2.31, faculty 2.17), while mental status ranked highest for shock severity (1.00, 1.46). When deciding to give a fluid bolus, faculty primarily relied on lung auscultation (2.26), while residents considered lower extremity edema (2.08) first, followed by lung auscultation (2.69). For the 8 lab values, urinalysis was highly ranked for etiology (residents 3.00, faculty 3.09). Both groups ranked lactate highest for severity (1.00, 1.83) and to guide fluid resuscitation (2.08, 1.94). The role of lactate in severity represented the only statistically significant difference between groups in any of the top-rated practices (p=0.003). Regarding US, IVC assessment (96%), LVEF (86%), and lung exams (80%) were most common, but only 38% of clinicians used US "most of the time" in the first hour of resuscitation. Key barriers to US use included time (73%) and equipment availability (38%). Qualitative responses highlighted US's value for real-time assessment of cardiac function, lung congestion, and fluid responsiveness, while operational barriers such as machine cleanliness, documentation burden, and managing multiple critically ill patients were also mentioned.

Conclusion: Our findings highlight the variability in how sepsis is recognized, with clinicians prioritizing different signs and lab values, such as lactate, which offers limited insight into severity. While ultrasound is valued for its ability to rapidly assess critical parameters, its use remains suboptimal, with time constraints and equipment issues identified as key barriers. To increase US adoption in early shock resuscitation, an implementation science approach is needed to optimize strategies to improve its integration into routine clinical practice. Next steps involve evaluating the impact of streamlined US workflows to address time constraints, improving equipment availability, and providing targeted training to boost clinician confidence in using US during early shock resuscitation to enhance outcomes in sepsis management.

Table—Highest ranked variables for septic shock etiology, severity, and resuscitation guidance

Practice pattern	Rank Range	Faculty		Residents	
		Mean	Variables	Mean	Variables
Diagnosing shock etiology (physical)	1-6	2.17	Temperature	2.31	Temperature
Diagnosing shock etiology (lab)	1-8	3.09	Urinalysis	3.00	Urinalysis
Diagnosing shock severity (physical)	1-6	1.46	Mental Status	1.00	Mental Status
Diagnosing shock severity (lab)	1-8	1.83	Lactate	1.00	Lactate
Determining need for fluids (physical)	1-6	2.26	Lung Auscultation	2.08	Lower Extremity Edema
Determining need for fluids (lab)	1-8	1.94	Lactate	2.08	Lactate

No, authors do not have interests to disclose

470 The Impact of an Assigned Primary Care Physician on Return Visits to the Emergency Department

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Study Objectives: As Emergency Department (ED) visits rise nationwide and boarding remains a crisis, it is of increasing importance to prevent unnecessary ED return visits and maximize care that can be delivered safely in the primary care setting. Previous studies suggest that patients with an assigned Primary Care Physician (PCP) often do not visit that provider before returning to the ED, citing convenience and expedience of care in the ED as reasons to come back or struggling to get into their PCP, with over 60% being unable to get a visit within one week. However, these studies were conducted at a single site or with narrow patient populations. Thus, we aimed to compare the proportion of returns within 7 days for all discharged ED patients for those with and without an assigned PCP over a multi-state catchment area.

Methods: This retrospective study took place at an urban quaternary care center, leveraging a pre-existing dataset of over 3000 patients. This dataset was obtained during a separate study evaluating the rate of ED return visits among patients receiving a phone call after initial ED discharge from March to May 2024. Return visits to EDs in Oregon and Washington were captured. Utilizing this dataset, we assessed the return rate at one week among those with an assigned PCP along with 95% confidence intervals (CI). All adults discharged from the ED during this three-month period were included.

Results: Patients with an assigned PCP at the time of their initial ED visit had a one week return rate to the same ED of 7.9% (189/2383; 95% CI: 6.9, 9.1), while those without an assigned PCP had a return rate of 4.9% (52/1052; 95% CI: 3.8, 6.4). When looking more broadly at return rates to any outside hospital, these differences resolved: those with a PCP returned at a rate of 13.5% (322/2383; 95% CI: 12.2, 14.9) and those without a PCP returned at a rate of 10.6% (112/1052; 95% CI: 8.9, 12.7). There was also no difference between PCP assignment and return visit rates in those patients receiving a call back after discharge (6.5% [95% CI: 4.9, 8.6] with assigned PCP vs 4.1% [95% CI: 2.2, 7.3] with no PCP), which would have directed them to follow-up with their assigned PCP in most cases.

Conclusion: PCP assignment was not associated with lower ED return rates after discharge from initial ED visit for patients in our study and there was no difference in rates when more complete ascertainment of returns was assessed. This finding challenges a common belief in Emergency Medicine that patients with assigned PCPs will be more compliant with follow-up visit instructions and less likely to return to the ED. While our study did not determine reasons for this finding or adjust for possible confounders in analyses, we postulate that this is potentially due to difficulty accessing PCP appointments in a timely manner after discharge from the ED, and may indicate a need for more resources to be devoted to the primary care system or for dedicated appointment slots to be reserved for ED follow-up. Further studies are needed to better understand patients' challenges with PCP follow-up after ED discharge.

	OHSU ED returns			Regional ED returns		
	n	N	Proportion (95% CI)	n	N	Proportion (95% CI)
Overall						
PCP	189	2383	7.9 (6.9, 9.1)	322	2383	13.5 (12.2, 14.9)
No PCP	52	1052	4.9 (3.8, 6.4)	112	1052	10.6 (8.9, 12.7)
Patients with callback						
PCP	44	677	6.5 (4.9, 8.6)	72	677	10.6 (8.5, 13.2)
No PCP	10	245	4.1 (2.2, 7.3)	19	245	7.8 (5.0, 11.8)
Patients without callback						
PCP	145	1706	8.5 (7.3, 9.9)	250	1706	14.7 (13.1, 16.4)
No PCP	42	807	5.2 (3.9, 7.0)	93	807	11.5 (9.5, 13.9)

No, authors do not have interests to disclose

471 Impact of Order Changes on Utilization of Lactated Ringer Solution in an Urgent Care Network

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Study Objectives: Patients are increasingly utilizing urgent care services as a primary access point to hospital-based care within integrated health care delivery systems. Recent literature has highlighted the clinical benefits associated with the administration of lactated Ringer (LR) compared to normal saline (NS) in emergency departments, demonstrating improved patient outcomes through optimized fluid management. This study aimed to assess the impact of electronic health record (EHR) order modifications on intravenous fluid utilization patterns of LR versus NS within an urgent care network in an integrated health system.

Methods: We performed a retrospective cohort study of a quality improvement implementation in which we enrolled all patients 18 years or older who received 1 liter or more of intravenous fluids while visiting any one of 26 urgent care sites in Idaho and Utah between April 1, 2021, and March 31, 2024. We employed a pre-post implementation design with the intervention initiated in April 2023. We utilized a combination of order set modification, electronic order entry alters, and sequential clinician-targeted education to encourage providers to proscribe LR instead of NS. The primary outcome was the proportion of patients' index encounters that received LR before versus after the implementation, with a sensitivity analysis on all encounters. Descriptive statistics, proportions, and Chi-square tests were conducted to evaluate changes in fluid utilization patterns

Results: Over the three-year study period, we identified 12,547 patients, median age 31, (IQR 23-46), 70.1% female, across 15,978 urgent care encounters who were eligible for enrollment. This included 8,110 patients in the pre-implementation phase and 4,437 post-implementation. Prior to the intervention, patient-level analysis revealed an increase in LR use from 25% pre-intervention to 92% post-intervention ($p < 0.001$). Encounter level data showed nearly identical results where providers utilized LR in 24% of encounters pre-implementation and 92% of encounters post-implementation ($p < 0.001$).

Conclusion: EHR order modifications substantially increased LR utilization over NS across a multi-site urgent care network. These findings underscore the effectiveness

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of targeted EHR interventions in aligning clinical practices with evidence-based fluid management strategies, consistent with the outcomes demonstrated in prior studies. Given the increasing role of urgent care settings in accessing health system resources, implementing evidence-based EHR strategies may be a strategy to further enhance patient outcomes.

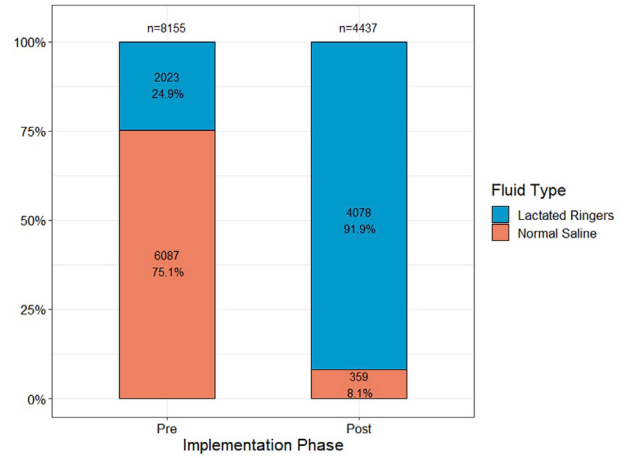


Figure: Fluid type ordered based on the patient index encounter.

No, authors do not have interests to disclose

472 Implementing an Opt-Out HIV and Hepatitis C Screening Program in the Emergency Department: Early Lessons and Strategies

Sizemore E, Pendley A/Emory University School of Medicine, Atlanta, Georgia

Study Objectives: Routine opt-out screening for HIV and hepatitis C in the emergency department (ED) provides an opportunity for early detection of these infections among those who may not otherwise regularly seek healthcare. This project aims to implement an opt-out screening program in an academic ED in Atlanta, GA, a city with a growing HIV epidemic, through collaboration across several departments, electronic medical record (EMR) modifications, and establishing linkage-to-care protocols and networks.

Methods: We designed an opt-out HIV and hepatitis C program integrated into the EMR of our tertiaryEDthroughsupportby an externalFOCUSGrant, whichfundspersonnel and testing costs for self-pay patients. Key implementation steps included: 1) Identifying stakeholders and allies across our laboratory, infectious disease (ID), and hepatology departments, 2) collaborating with our lab to determine screening capabilities and processes, 3) modifying our EMR to include opt-out consent language for triage nurses, developing of a newly labeled procedure for the routine test, and creating a best-practice advisory to recommend routine testing if patients meet certain criteria, 4) engaging ED providers and staff through training sessions, and 5) establishing a protocol for linkage to care of positive individuals. Working alongside stakeholders, we addressed the anticipated barriers of testing turnaround-time and positive result notification through collaboration.

Results: With screening to begin in summer 2025, early implementation efforts have identified key challenges, including stakeholder and staff buy-in, lab capabilities, EMR optimization, and workflow integration. Solutions such as automated test ordering for patients who are eligible, the addition of a lab technician, real-time testing alerts to our linkage-to-care navigators, and the creation of additional appointment availability within our ID department have been developed to streamline the process. We hope to increase our current testing by nearly 40-fold, detecting an additional 90 HIV and nearly 300 hepatitis C infections in our first year of testing, with the goal of linking around 75% of those patients into care. Data collection and process evaluation will begin in the coming months.

Conclusion: The development of an ED-based opt-out screening program requires significant interdisciplinary collaboration and careful planning. Early implementation efforts highlight critical factors for success, including stakeholder buy-in from the roots-up, interdepartmental collaboration, provider engagement, seamless EMR integration, and linkage-to-care pathways. Our experience provides a framework for other institutions seeking to adopt similar screening programs. Future studies will assess the program's impact on infection detection and patient outcomes. Externalfundinghas facilitated the initial implementation with the opportunity for expansion across out healthcare system and future plans for institutional sustainability

Yes, authors have interests to disclose

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473 Impact of the "Sepsis Timer" EPIC Alert on Emergency Department Triage and Resuscitation

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Study Objectives: Early intervention, including timely antibiotic administration, is crucial for improving sepsis outcomes. Our hospital implemented the "Sepsis Timer" EPIC alert, which flags patients meeting two of four Systemic Inflammatory Response Syndrome (SIRS) criteria (tachycardia, tachypnea, leukocytosis, or fever). This study evaluates the impact of the "Sepsis Timer" on triage processes and resuscitation timelines in the Emergency Department (ED).

Methods: This retrospective cohort study analyzed ED patients over a three-month period before and after the alert's implementation. Inclusion criteria were patients meeting SIRS criteria at triage who subsequently required antibiotics for an infectious etiology. Exclusion criteria included SIRS-positive patients without infection and those transferred to our facility after prior sepsis workup. The primary outcome was in-hospital mortality. Secondary outcomes included time to antibiotic administration (from arrival and room placement), time to fluid resuscitation (from arrival and room placement), ED rooming time post-triage, need for intubation, ventilator duration, need for tracheostomy, vasopressor use, and acute kidney injury development.

Results: A total of 468 pre-implementation and 505 post-implementation patients met SIRS criteria at triage, regardless of infectious etiology. Of these, 149 pre- and 176 post-alert patients required antibiotics and were included. There was no significant difference in in-hospital mortality. Lactic acid levels remained unchanged pre- and post-implementation. However, vasopressor use increased post-implementation (pre: 18.8%, post: 29.0%; Chi-square 4.491, $p = 0.034$). Significant improvements were observed in ED rooming time from initial triage (pre: 1.31 hours [95% CI: 0.95-1.68]; post: 0.41 hours [95% CI: 0.29-0.53], $p < 0.05$) and time to fluid resuscitation from arrival (pre: 7.81 hours [95% CI: 2.01-13.61]; post: 2.13 hours [95% CI: 1.74-2.51], $p < 0.05$). Time to fluid resuscitation once roomed and overall time to antibiotic administration showed no significant change.

Conclusion: While "Sepsis Timer" implementation did not reduce mortality among SIRS-positive patients in the ED, it significantly improved rooming time and fluid resuscitation initiation. A substantial proportion of SIRS-positive patients did not require sepsis treatment, highlighting the challenge of false positives. The largest change was in the time to be roomed after initial vitals, with the post-implementation group being roomed significantly faster. This suggests that the alert system influenced nursing decision-making by prioritizing flagged patients for ER evaluation, though workflow adaptations may have also contributed. The change in time to fluid resuscitation can also be attributed to improvement in nursing response to patients presenting with septic vitals. However, the lack of change in antibiotic timing and time to fluid resuscitation once the patient was already roomed suggests that Emergency physicians had already been trained adequately on appropriate sepsis treatments. This also aligns with the unchanged mortality rate, as literaturesupportstimely antibiotics as the key mortality-reducing intervention. Future research should assess the hospital-wide impact of the "Sepsis Timer" and explore the resource burden associated with SIRS-based sepsis alerts.

No, authors do not have interests to disclose

474 Can an Emergency Department-Led Acute Care Clinic Increase Primary Care Access and Improve Crowding?

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Study Objectives: Primary care and Emergency Medicine are both often under-resourced and subject to demand surges that challenge efficiency. As a collaborative solution, we established an Acute Care Clinic (ACC) which sees patients referred directly from the Emergency Department. Our clinic consists of one patient scheduling

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representative, two medical assistants, a nurse practitioner and two physician assistants, and is located across the street for the Emergency Department in our outpatient Clinical Services Center. Patients are able to schedule 24 hours in advance of their visit via RN telehealth, or are referred directly to the ACC from ED triage by an Emergency physician screening all arrivals to the ED.

Methods: This is a retrospective review of patients seen in the Acute Care Clinic between (10/1/2024-10/31/2024). Charts were reviewed for age, chief complaint, billing level, and system encounters with primary care providers that occurred or were scheduled in 30 days after the ACC visit. Data are described with descriptive statistics.

Results: Over the 30-day trial period, 357 patients were seen in the ACC. The age range was 5 months to 83 years (median age 34, 49% female). Approximately half of visits (160 visits and 45%) were billed as level 3 (E/M codes 9920300 and 9921300, new and established visits) visits and half of visits (180 visits, 50%) were billed as level 4 visits (E/M codes 9921400 and 9920400), with several level 2 visits (9 visits and 3%, code 9920200 was billed). 95 (26.6%) pts had a visit scheduled in primary care at their ACC visit, and 53 pts had seen a primary care provider within the following 30 days (including PharmD in ID clinic) (14.8%).

Conclusion: As primary care remains in an under-resourced, crisis state, this represents an ED-based solution which was able to improve patient access to primary care and mitigate some of the effects of ED and system overcrowding.

No, authors do not have interests to disclose

475 Calibrating Diagnostic Errors: The Emergence of a Diagnostic "Gray" Zone

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Study Objectives: The study aims to assess the limitations of traditional quality improvement (QI) methods in detecting missed diagnoses and to propose structured adjudication frameworks to improve diagnostic error classification and standardization.

Methods: Diagnostic errors are a growing patient safety concern, yet traditional quality improvement (QI) methods, such as 72-hour returns and mortality reviews, incompletely capture missed diagnoses. We evaluated a "look-back" approach, retrospectively reviewing prior emergency department (ED) treat-and-release visits for patients diagnosed with appendicitis, traumatic subdural hemorrhage (SDH), or subarachnoid hemorrhage (SAH), over a defined "look back" period to identify potential diagnostic errors. When measuring our results, a new phenomenon emerged, where there was disagreement on whether a diagnostic error was present that we dub as the "gray" zone. This retrospective study analyzed adult patients diagnosed with appendicitis, SDH, or SAH from 01/2022 to 05/2024 that had prior ED treat-and-release visits at a large Northeastern healthcare system over a two-week or week-long period, respectively. Two emergency physicians with quality and safety expertise scored cases using the modified SaferDx framework (IRR=0.70) to assess for potential diagnostic errors.

Results: The look-back approach identified 17 cases of potentially missed appendicitis and 28 cases of missed traumatic SAH/SDH, compared to 3 and 1 cases, respectively, using traditional QI methods. Of these, 7 appendicitis and 1 SAH/SDH cases were classified as definitive diagnostic misses by both reviewers. However, there was disagreement among the reviewers on whether there was a diagnostic error in 2 cases of appendicitis and a case of traumatic SAH/SDH. Further thematic analysis of these disagreements revealed a diagnostic "gray zone," where diagnoses were over-ruled by downstream decision-makers. These findings highlight challenges in standardizing diagnostic error measurement.

Conclusion: The look-back approach identified significantly more diagnostic errors than traditional QI methods. However, the emergence of a diagnostic "gray zone" underscores the challenges in calibrating diagnostic errors, as disagreements arose regarding whether an error had occurred due to complexities in clinical decision-making, interdisciplinary collaboration, or system-level constraints. These findings highlight the need for structured adjudication frameworks and consensus-driven methodologies to standardize diagnostic error classification, ensuring more accurate and meaningful assessments of diagnostic performance across specialties.

No, authors do not have interests to disclose

476 In-Person Interpreters Associated With Decreased Computed Tomography Utilization for Spanish-Speaking Patients

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Study Objectives: We hypothesize that patients with a Spanish-language preference (SLP) presenting to the emergency department with a chief complaint of abdominal pain may undergo imaging at higher rates than those with an English-language preference (ELP). Increasing the availability of in-person professional medical interpreters (PMIs) may help physicians order fewer imaging studies due to addressing language barriers.

Methods: A retrospective chart review was performed on adult patients with a primary language of Spanish presenting to a level 1 academic emergency department with a chief complaint of abdominal pain during 2022. Documentation of language assistance, imaging studies performed, medications given, and disposition were obtained. Regular staffing of the ED by professional medical interpreters by March 2023 resulted in a large increase in availability of in-person PMIs; a second SLP cohort was reviewed for March-December 2023. There was no change in availability of video and phone interpreter services already in place, which were available to physicians throughout the time period.

Results: In 2022, CT scans were significantly more likely to be ordered in SLP patients (66%) than ELP patients (48%). IV narcotics were also more likely to be ordered for SLP patients (55%) than ELP (35%). Between 2022 and 2023 there was a total increase from 32.5 hours to 516.25 hours of Spanish-language PMIs present in the ED. In 2023, the rate of CT imaging and IV narcotic ordering significantly decreased (to 46% and 40%, respectively) for SLP patients. There was not a significant difference in the rate of admission or discharge between any group.

Conclusion: We found a significant baseline difference in the rates of CT imaging ordered in our initial 2022 groups, where those with a Spanish-language preference were much more likely to have a CT ordered. This potentially exposed them to higher rates of unnecessary radiation exposure. The same trend was found for narcotic administration. After a drastic increase in the availability of Spanish-language PMIs in the ED, there was a significant decrease in CT imaging and narcotic administration for SLP patients. In-person PMIs may help reduce unnecessary imaging, dangers from radiation exposure, and complications from narcotic administration in patients with a language barrier.

Table 1. Patient encounters analyzed for chart review

	2022 SLP	2022 ELP	2023 SLP
Charts meeting inclusion criteria	126	150	
Left Without Being Seen/AMA	2	18	
Direct admission	1		
Pediatric or imprisoned	1		
Unresponsive/nonverbal	1		
No physician note	2	4	
Incorrect language or demographic documented in EHR		3	
Final	**119**	**125**	

Table 2. Comparison of outcomes among Spanish and English-language preference patients in 2022 and 2023.

	SLP 2022	ELP 2022	SLP 2023
Total records	119	124	130
Imaging performed	99 (83)	90 (73)	95 (73)
CT scan	78 (66)	59 (48)*	60 (46)*
Ultrasound	26 (22)	23 (19)	19 (15)
X-ray	26 (22)	20 (16)	44 (34)
IV narcotics received	66 (55)	43 (35)*	52 (40%) *
Admission rate	41 (34)	40 (32)	38 (29)

*Denotes statistical significance compared to SLP 2022 group.

Table 3. Types of language assistance documented in physician note.

Language Assistance Documented	2022 n=119	2023 n=125
In-person PMI	9 (7.6)	28 (21.5)
Video/Telephone	14 (11.8)	13 (10)
Family, friend or other	23 (19.3)	5 (3.8)
None	76 (63.9)	85 (65.4)

No, authors do not have interests to disclose

477 Multicenter Validation of the Emergency Department Trigger Tool: Evaluation of Preventable Harm

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Study Objectives: The ED Trigger Tool (EDTT) for detection of adverse events (AEs), features an automated screen for evidence-based triggers in the electronic medical record and strategic sampling of records to optimize yield. We have described

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derivation, validation and performance of this tool, but consistent with the mainstream methods of trigger tool research we have not previously attempted to assess AE preventability. As part of our multicenter validation, we added an evaluation of preventability and present here on our findings.

Methods: This retrospective, observational study used 18 months of data at 3 sites (452,719 records screened; 187,345 with >1 trigger). We performed 2-tiered dual independent review (2 first level RNs [L1s]; 1 MD confirmatory review [L2]) of a sample of 8,996 records (~3,000 per site), selected from among triggered records. We characterized AEs identified by occurrence in the ED vs present on arrival (POA), severity using a widely-utilized index, and type. After the study was underway, we added assessments of preventability of AEs using a 5-tiered scale with am option for insufficient information to make a determination. For simplicity, here we collapse preventable/ potentially preventable as 'preventable' and not preventable/ probably not preventable as 'not preventable'. We intentionally provided limited instructions to reviewers on defining preventability of AEs. The analysis was primarily descriptive, using Cohen's Kappa to evaluate inter-rater reliability between L1 and L2 reviewers and frequencies with proportions for preventability outcomes.

Results: We assessed preventability for a total of 4,116 AEs detected in unique 2,981 visits, including 1,630 ED and 2,486 POA AEs. Interrater reliability between pairs of L1 and L2 reviewers across sites was 0.965 (range 0.930 to 0.998). The proportion of AEs that were felt to be preventable was 37.6% overall, 36.9% for ED AEs, and 38.1% for POA AEs. The range of preventable AEs across sites overall was 25.5% to 43.2% (21.7% to 43.5% for ED AEs, and 28.6% to 43.0% for POA AEs). Patient care-related and Medication-related AEs were the most frequent types of AEs (44.2% and 29.7%, respectively), with 25.4% and 52.9% of these respective AEs classified as preventable overall (32.4% and 42.9% for ED AEs, and 20.7% and 61.6% of POA AEs, respectively) (Table 1). Across all sites the range of AEs felt to be preventable by severity levels were: 21.8% to 43.4% (E – Temporary harm), 29.2% to 44.3% (F – Harm requiring upgrade in care or prolonged facility stay), 34.8% to 57.1% (G – Permanent harm), 24.4% to 42.1% (H – Required intervention to sustain life), and 30.1% to 38.5% (I – Patient death).

Conclusions: Though assessment of preventability is fraught with problems, identifying preventable AEs is compelling since these AEs are high-yield targets for quality improvement. In this experiment evaluating preventability of AEs identfied using the EDTT, we found high interrater agreement and relatively high levels of AEs felt to be preventable or potentially preventable, with expected differences across severity and event classifications and sites.

Table 1. Preventability for ED and present on arrival (POA) adverse events (AEs), by site and by AE category. Proportions are calculated across each row, using the ED and POA totals for that row as denominators.

	Total		Preventable		Not Preventable		Insufficient Information	
	ED	POA	ED	POA	ED	POA	ED	POA
Sites								
Overall	1,630	2,486	602 (37)	946 (38)	869 (53)	1,209 (49)	159 (10)	331 (13)
Michigan	582	1,213	251 (43)	484 (40)	289 (50)	597 (49)	42 (7)	132 (11)
Ottawa	480	591	104 (22)	169 (29)	266 (55)	247 (42)	110 (23)	175 (30)
WU	568	682	247 (43)	293 (43)	314 (55)	365 (54)	7 (1)	24 (4)
Categories								
Medication	732	1,088	237 (32)	225 (21)	441 (60)	749 (69)	54 (7)	114 (11)
Patient Care	573	649	246 (43)	400 (62)	269 (47)	169 (26)	58 (10)	80 (12)
Device	138	119	41 (30)	42 (35)	84 (61)	50 (42)	13 (9)	27 (23)
Surgical Procedural	120	230	46 (38)	70 (30)	58 (48)	117 (51)	16 (13)	43 (19)
HCAI	59	299	27 (46)	129 (43)	16 (27)	112 (38)	16 (27)	58 (19)
Care Coordination	7	100	4 (57)	79 (79)	1 (14)	12 (12)	2 (29)	9 (9)
Ancillary Services	1	1	1 (100)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)

Numbers in the total columns are the denomiators and the counts in the remaining columns are reported as n (%)
Percentages rounded to whole numbers

Yes, authors have interests to disclose
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478 Efficacy of Compulsory Telemedicine Utilization to Reduce EMS Response to 911 Calls

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Study Objectives: Telemedicine has been proposed as a means to reduce the rates of transportation of low acuity patients to the emergency department. To reduce the overall number of 911 Emergency Medical Services (EMS) responses, a single fire-based EMS system partnered with a private telemedicine service which specializes in evaluating, treating, and dispositioning low acuity patients originating from the 911 system. In its initial implementation, 911 callers meeting pre-defined criteria were offered a transfer to telehealth instead of a traditional EMS response during day-time hours. During the following time period, callers meeting the criteria were instead automatically transferred to telehealth without the option for an EMS response. Later, this service was offered 24 hours per day. In this study, we sought to determine the difference in EMS responses between electively transferring callers compared to automatically transferring callers to telehealth.

Methods: Data pertaining to the number of 911 calls, telehealth utilization, and final disposition were collected over two distinct periods, separated by a transition: the initiation period (P1) from June – July 2024, the transition period (P2) from August – September 2024, and the compulsory transfer and 24/7 availability period (P3) from October – November 2024. During P1, individuals meeting criteria were offered transfer to telehealth during day-time hours. During P3, two changes were in place: Individuals meeting criteria were automatically transferred to telehealth for evaluation rather than being offered the service. Additionally, these services were expanded to 24 hours. The number of re-escalations to the 911 system after a call had been transferred to telehealth services for evaluation were categorized into: patient refusal of telehealth services, telehealth recommended EMS evaluation, patient requested re-escalation, and call disconnects. The number of re-escalations, in particular re-escalations advised by the telehealth service, were compared between P1 and P3. A Chi-squared test was utilized to compare the number of re-escalations to 911 response in the pre-and post-implementation periods.

Results: During P1, there were a total of 133 calls transferred to telehealth and 66 (49.6%) of these were re-escalated to 911 after telehealth evaluation, 23 (17.3%) at the recommendation of the telehealth provider. During P3, there were a total of 402 calls transferred to telehealth and 179 (44.5%) of these were re-escalated after evaluation, 78 (19.4%) at the recommendation of the telehealth provider. The absolute difference in the re-escalation rate between P1 and P3 was –5%, with a p-value of 0.31 (95% CI: -14.9 to 4.7). The absolute difference in telehealth provider recommended re-escalation to 911 was 2.1%, with a p value of 0.59 (95% CI: -5.3 to 9.6).

Conclusion: The total number of EMS re-escalations after telehealth transfer decreased by 5% in the post-implementation period, but was not statistically significant. The number of telehealth recommended re-escalations increased by 2%, however this also was not statistically significant. These data allow us to conclude that 24/7 availability and implementation of a compulsory transfer to telehealth services for specific 911 calls in this single, urban fire-based EMS system does not result in a statistically significant increase in calls being re-escalated to the 911 system as compared to transfer by patient assent only.

No, authors do not have interests to disclose

479 Comparative Analysis of Point-of-Care and Lab Troponin Testing: A Review of Time and Outcomes

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Introduction: Cardiovascular disease remains the predominant cause of mortality worldwide, with the World Health Organization reporting approximately 17.7 million deaths annually. Laboratory troponin testing currently serves as the gold standard diagnostic tool for adults presenting with symptoms consistent with acute myocardial ischemia. Although existing algorithms facilitate diagnosis or exclusion within hours, the extended turnaround time for laboratory troponin results presents a significant barrier to timely clinical decision-making and therapeutic intervention.

Study Objectives: This systematic review evaluates the comparative efficiency of point-of-care (POC) versus laboratory troponin testing.

Methods: Following a comprehensive literature review of over 50 publications, we analyzed 10 studies encompassing 7,942 adult emergency department patients. These studies compared POC troponin testing with standard laboratory assays in cases of suspected acute myocardial infarction. The primary endpoint was time to result, with secondary endpoints including sensitivity/specificity, clinical relevance (negative and positive predictive values), and length of stay. The analyzed studies comprised comparative analyses, diagnostic accuracy assessments, and prospective cohort investigations. POC methodologies employed included high-sensitivity cardiac troponin I, cardiac troponin T (cTnT), and high-sensitivity troponin I (hsTnI) assays.

Results: In five of the ten studies, POC testing demonstrated median turnaround times of 8-24 minutes, whereas laboratory testing in two studies averaged 71-87

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minutes. Sensitivity analyses revealed considerable heterogeneity among POC tests: four studies reported 90-100% sensitivity, two demonstrated 60-80%, and one showed <30%. Laboratory testing exhibited comparable sensitivity patterns, with four studies achieving 90-100% and one reporting <30%. Specificity was equivalent between POC and laboratory testing (95-100%) in two studies. The negative predictive value for POC testing ranged from 85-100% in seven studies, while laboratory testing achieved 90-100% in five studies. Positive predictive values were 65-85% for POC testing (three studies) and 95-100% for laboratory testing (one study). Low-risk patients evaluated via POC testing demonstrated significantly reduced length of stay (mean 200 minutes) compared to laboratory testing (mean 464 minutes).

Conclusion: Our analysis revealed that POC troponin testing substantially reduces turnaround times compared to laboratory testing (~15 versus ~80 minutes) in 50% of the reviewed studies. Despite variability in sensitivity between testing modalities, POC testing generally demonstrated adequate sensitivity for troponin detection, with specificity comparable to laboratory testing. In emergency medicine, where temporal efficiency is paramount, POC testing's capacity to deliver results approximately five times faster than laboratory testing represents a significant advantage. The observed reductions in length of stay and turnaround times suggest enhanced clinical decision-making efficiency. These findings have potential implications for expanding POC testing to emergency medical services protocols and possible home-based applications. However, the trade-off between rapid results and potentially reduced sensitivity in certain POC tests warrants careful consideration in clinical practice.

This systematic review demonstrates that POC troponin testing facilitates improved turnaround times, enabling more frequent serial testing, expedited clinical decision-making, and reduced length of stay for low-risk patients. These findings have significant implications for emergency department protocols and resource utilization.

No, authors do not have interests to disclose

480 Triage Point-of-Care Ketone Measurements: Association With Diabetic Ketoacidosis and Severity

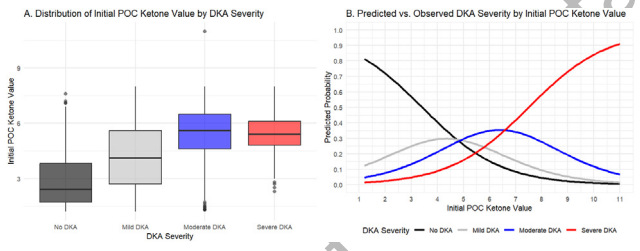
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Study Objectives: Point of care ketone (POCK) measurements at triage are an efficient approach to identify hyperglycemic patients who may have diabetic ketoacidosis (DKA). POCK correlate well with laboratory beta-hydroxybutyrate values, particularly at the lower end of measurements. The ability to identify DKA at triage with POC testing would enable timely intervention and the potential for improved patient outcomes. It is not known whether triage POCK alone can accurately identify patients with DKA or stratify initial DKA severity.

Methods: We conducted a retrospective observational study using electronic medical record data (01/01/2019-02/28/2023) for adult emergency department patients with initial glucose >300 mg/dL and initial POC ketone >1.1 mmol/L. Patients missing pH or bicarbonate values were excluded. Mild, moderate and severe DKA were defined by arterial or venous pH (7.25-7.30; 7.00-7.24 and <7.00, respectively) and bicarbonate level (15-18; 10-14; <10, respectively), determined by whichever value was most severe. Patients not meeting these criteria were considered not to have DKA. We used logistic regression to evaluate the association between POCK and DKA, using (1) incremental ketone levels and (2) a binary ketone covariate comparing levels 1.2-2.9 vs >3.0 (based on the 2024 consensus criterion ketone level of >3.0, which corresponds to a beta-hydroxybutyrate level of the same value). We then used ordinal logistic regression to evaluate the association between incremental POCK levels and DKA severity. All models were additionally adjusted for age, sex, and race.

Results: Among 1,580 eligible patients, 330 were excluded for missing lab values, leaving 1,250 included in the analysis (43% no DKA, 21% mild, 21% moderate, and 14% severe). Included patients were 53% male, 75% Black or African American, and 96% non-Hispanic, with a median age of 47 (IQR: 31, 60). Eighty-three percent of patients were admitted (9% were discharged), and had a median ED length of stay of 8.0 hours (IQR: 5.6, 11.3). Initial POCK levels ranged from 1.2-11.0, with a median value of 4.1 (IQR: 2.3, 5.6). Higher initial POCK levels (OR of 2.1, 95%CI 1.9, 2.3) and the POCK cutoff of >3.0 (OR 8.5 95% CI: 6.6, 11.2) were significantly associated with a laboratory diagnosis of DKA. Higher initial POCK were also significantly associated with DKA severity levels (OR = 1.9, 95% CI: 1.8, 2.1). The ordinal model estimated thresholds between DKA severity levels at initial POCK values of 3.4 (no DKA vs mild DKA), 5.3 (mild vs moderate), and 7.5 (moderate to severe). There were no differences observed when adjusting for demographics for any of the three models.

Conclusion: There is a clear association between increasing point of care ketone values and early DKA severity, with a nearly nine-fold increase in the odds of DKA in patients with POCK > 3.0 mmol/L, and a nearly two-fold increase in DKA severity per 1 mmol/L increase in POCK. These findings highlight the utility of POC testing in identifying those at high risk for DKA. However, the substantial overlap in observed ketone distributions across severity strata and predicted probabilities (Figure 1) limit its utility as a stand-alone classifier or predictor. While the association between initial POCK, DKA and severity are strong, additional work is needed to optimize POC-based algorithms for early detection of DKA.



No, authors do not have interests to disclose

481 Studying Resuscitation Resource Utilization for Isolated Hypotension

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Study Objectives: Hypotension is defined as a systolic blood pressure <90mmHg. In the HUMC emergency department, a patient found to have isolated hypotension or unobtainable blood pressure during initial triage is overheaded as a 'resus', short for resuscitation. Calling a resus is used as a trigger for the mobilization of staff and resources for immediate patient evaluation. The purpose of this study is to assess the positive predictive value of isolated hypotension in indicating critical illness. What percentage of patients who had isolated hypotension or unobtainable BP in triage had persistent hypotension on repeat assessment before any intervention? And out of those, what percentage of patients were discharged to home? Further, if these patients required admission, how many of these patients had the rapid response team mobilized? This will help inform and improve policy on resus activations and effectively inform ED resource allocation and triage policies.

Methods: The retrospective chart review included patients presenting to the HUMC Adult ED between August 2023 and August 2024 who had isolated hypotension at triage. Isolated hypotension is defined as someone whose all other vital signs are normal but have a systolic blood pressure below 90. In addition, the cohort includes any patients for whom all other vital signs were obtained at triage and were normal, but blood pressure was not obtained.

Patients who presented as a trauma, were sent to labor and delivery, had cardiac arrest as their chief complaint, or were dead on arrival were also excluded from the cohort.

Results: The population inclusion criteria resulted in 461 cases, all of which were reviewed by healthcare providers, including ED attendings, ED residents, and an ED research nurse coordinator. After 64 charts were double-reviewed by 4 reviewers, yielding moderate agreement with a mean pairwise kappa of 0.51. All discrepancies were adjudicated via an independent fifth reviewer.

17% of the population was ultimately discharged, and the rest were admitted, sent to observation, or sent to procedure. The sample was skewed female, with a 52% female population. The large majority of the same (93%) had no rapid response teams called.

Finally, it was found that 68% (314/461) of patients were normotensive upon second blood pressure evaluation, and 211 of those were normotensive without intervention. Therefore, it would indicate that the isolated systolic hypotension at triage resulted in 250 true positives and 211 false positives, indicating a 54.2% positive predictive value.

Limitations: There are multiple limitations to this chart review. First, all of our data was collected retroactively, and it is challenging to know when exactly an intervention was initiated and completed. While there is a 'Medical Administration Record' that is closely documented in the patient's chart, when patients are perceived as ill, medications and interventions can be initiated before their documentation. This

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could have falsely skewed our results, indicating that more patients had improvement in their vital signs without intervention when they did receive IV fluids. In fact, 8% of the patients arrived by ALS, which means that they could have had fluid orders that we don't know about (43% by BLS, 0.22% by STCU).

Conclusions: Although the current results suggest that using isolated hypotension as a single trigger for calling a resus may result in an overwhelming number of false positive cases, more investigation is warranted. Although this work may point to some challenges with the current resus definition, we fully acknowledge that deciding what patients are truly sick within minutes of meeting them is an incredibly challenging task, and the consequence of missing a truly sick patient and having them wait hours to be seen could be dire.

No, authors do not have interests to disclose

482 Expedited Discharge System Implementation for Syncope Patients in an Emergency Department Observation Unit

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Study Objectives: Emergency department observation units (EDOUs) play a vital role in the management of patients who present to the Emergency Department (ED) with syncope or pre-syncope. Patients with risk factors or suspicion for cardiogenic syncope are often kept in EDOUs to obtain a transthoracic echocardiograph (TTE) to rule out structural abnormalities. However, TTE results infrequently yield clinically relevant findings, resulting in increased EDOU length of stay (LOS) with limited benefit and associated financial implications. This prompts one to consider the health care cost burden versus the utility of the TTE in the EDOU setting. This study evaluates the use of an early-discharge protocol to discharge lower risk patients from the EDOU prior to TTE resulting to reduce EDOU LOS.

Methods: Patients included were those with syncope-related ED primary diagnoses (collectively referred to as "syncope") placed in the EDOU for TTE. Exclusion criteria for expedited discharge included a high clinical concern for structural cardiac pathology, additional syncope episodes during EDOU observation, or inability to contact patients after discharge. Patients who did not meet the exclusion criteria were discharged after TTE completion and results were later reviewed for clinically significant findings. Patients with relevant findings were notified of results and instructed to either return to the ED or follow up outpatient, as clinically indicated. A 4-month period "pre intervention" of similar patient population was analyzed for average LOS, and compared to those within the 2 month "post intervention" period.

Results: In the 4-month pre-intervention period, the median EDOU LOS for syncope patients who underwent TTE was 23.42 hours, compared to 17.55 hours for those who did not. In the post-intervention period, 24 patients were discharged prior to formal TTE results, under the early-discharge pathway. None of these patients had clinically significant findings requiring callback to the hospital. These patients had a median EDOU LOS of 22.37 hours, reflecting a decrease of 1 hours ($p=0.45$) compared to the pre-intervention group. Although the reduction was modest, it represents a potential savings of 211.2 hours annually, or approximately 8.8 days of EDOU bed time per year.

Conclusion: Although the decrease in median EDOU LOS did not reach statistical significance, the intervention demonstrates the feasibility and safety of early discharge for lower-risk syncope patients prior to TTE results. The lack of statistical significance may be attributed to factors such as sample size differences, a short washout period, and a delay in full adoption of the new protocol by EDOU providers. Further studies with larger sample sizes and longer washout periods are needed to assess the true impact of this protocol on EDOU LOS.

No, authors do not have interests to disclose

483 Non-Mydriatic Ocular Fundus Imaging on Consecutive Emergency Department Neurologic and Neurosurgical Patients

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Study Objectives: Examination of the ocular fundus is part of the standard neurologic examination. However, bedside ophthalmoscopy is rarely performed, especially in EDs, with risk of missed/delayed diagnoses/inappropriate triage. Our goal was to determine how often funduscopic examination with non-mydriatic ocular fundus photographs/OCT nerve/macula (NMPF-OCT) may be possible/helpful in a consecutive cohort of patients with neurologic/neurosurgical disorders seen in a general ED.

Methods: Quality improvement project, prospective over 16 consecutive days/nights. NMFP-OCT OU [table-top Maestro2/Topcon-Japan] was ordered for all patients presenting to our ED with any neurologic/neurosurgical disorders. Demographic information, neurologic diagnosis, presence of headache and NMFP-OCT findings were collected.

Results: Of 1838ED visits over 16 days/nights, 449 (24.4%) patients reported neurologic/neurosurgical disorders, including headache; 247 underwent NMFP-OCT. 115/202 (57%) patients without NMFP-OCT were medically unable.

-64/247 had neurologic complaints without active headaches [NFMP-OCT: 2 papilledema, 3 other disc edema, 4 optic atrophy, 36 normal].

-54/247 with past neurologic/neurosurgical disorders presented for another reason without headache [2 papilledema, 1 other disc edema, 2 optic atrophy; 40 normal].

-37/247 had neurologic complaints and headaches [NMFP-OCT: 4 papilledema, 1 other disc edema, 3 optic atrophy, 3 relevant retinopathy; 19 normal].

-52/247 presented for non-neurologic issues but also had headaches [NMFP/OCT: no papilledema].

-40/247 patients with NMFP-OCT presented for primarily headaches without focal neurologic symptoms [NMFP-OCT: 1 papilledema, 1 vasculopathy from carotid-cavernous-fistula; 36 normal].

Conclusion: NMFC-OCT obtained in the ED in patients presenting with neurologic/neurosurgical disorders allows for rapid/reliable diagnosis of papilledema (9/247) and ruling-out papilledema (233/247), often remotely. It also facilitates diagnosis of other causes of optic neuropathies with disc edema (5/247), optic atrophy (9/247), relevant retinopathy (4/247). Overall, 27/247 (10.9%) had relevant findings, confirming that NMFP-OCT is useful in patients with neurologic/neurosurgical disorders. However, 115/449 (25.6%) patients were too sick and could not have NMFP-OCT, reinforcing the need for funduscopic examination in neurology/neurosurgery patients.

Yes, authors have interests to disclose

Disclosure: GenSight Biologics and Topcon Medical

Valerie Biousse is a consultant for GenSight Biologics and Topcon Medical

Disclosure: GenSight Biologics, Stoke, Chiesi, Neurophth and Lilly

Nancy J Newman is a consultant for GenSight Biologics, Stoke, Chiesi, Neurophth and Lilly

484 Comparison of Procedural Duration Between Ultrasound-Guided IVs, Midline Catheters, and CVCs

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Study Objectives: Patients with difficult intravenous (IV) access in emergency departments (EDs) often require advanced vascular access techniques, including ultrasound-guided peripheral intravenous catheters (USGIVs), single lumen midline catheters (SMCs), and central venous catheters (CVCs). Although prior research has explored the safety and dwell time of these vascular access devices (VADs), we aimed to examine the procedure duration and clinical functionality across differing types of VADs.

Methods: We performed a prospective observational study from a convenience sample of 52 patients in the ED of a Level 1 trauma center from January to September 2024. Procedural duration was measured using direct time-motion observations. Catheter survival time, IV medication use, and the number of blood draws were assessed through prospective chart review. Simple descriptive statistics were used to describe these outcome measures. Early outliers ($<$ 24-hour dwell time) were excluded for the catheter survival analysis.

Results: A total of 51 successful VAD insertions were observed: 13 USGIVs, 18 SMCs, and 20 CVCs. The median total procedural time was 9.1 minutes (IQR: 6.2-12.2) for USGIVs, 15.5 minutes (IQR: 11.0-24.7) for SMCs, and 30.2 minutes (IQR: 24.7-37.6) for CVCs. Median catheter survival was 2.5 days for USGIVs ($n = 12$), 4.9 days for SMCs ($n = 12$) and 5.2 days for CVCs ($n = 17$). The mean number of IV medications infused within 24 hours of IV insertion was 1.3 (SD 1.5) for USGIVs, 5.3 (SD 3.7) for SMCs, and 7.3 (SD 3.2) for CVCs. The mean number of blood draws within 24 hours of IV insertion was 3.8 (SD 2.3) for USGIVs, 5.8 (SD 3.2) for SMCs, and 7.2 (SD 2.3) for CVCs. Vasopressors were infused through none of the USGIVs, 33% of SMCs, and 70% of CVCs within 24 hours of VAD placement.

Conclusion: These findings suggest that SMCs required less time to place than CVCs in the ED setting while also demonstrating expanded clinical functionality compared to USGIVs in terms of medication infusion, blood draws, and vasopressor administration. Moreover, the survival resultssupportlonger survivorship of SMCs over

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USGIVs in accordance with previous studies. Further study might compare procedural characteristics, functionality, and clinical outcomes across differing types of VADs in head-to-head trials.

No, authors do not have interests to disclose

485 Clinical Decision Support Tool Impact on Emergency Return in Low-Income Atrial Fibrillation Patients

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Study Objectives: Atrial fibrillation (AF), the most common heart arrhythmia diagnosed in the Emergency Department (ED), is associated with higher rates of ED return among patients of lower socioeconomic status (SES). Clinical decisionsupport(CDS) tools are known to improve patient engagement. We sought to assess whether CDS tools decrease rates of ED return among patients of lower SES with AF using insurance class as a proxy.

Methods: A retrospective chart review was performed on electronic medical records (EMR) of patients diagnosed with AF at 3 EDs (1 academic, 2 community) in the Portland Metropolitan area from January 2020 to October 2023 as part of an ongoing step-wedged cluster-randomized trial implementing an AF CDS tool. Records from phases P0 (pre-implementation) and P1 (when ED providers were educated about the CDS tool and a link to the tool was made available in the EMR) were grouped based on insurance class (private, Medicare, Medicaid, and self-pay). Records were reviewed to determine the proportion of patients with AF-related ED return (including recurrent AF, atrial flutter, stroke, transient ischemic attack, palpitations, congestive heart failure, myocardial infarction, cardiac arrest, and pulmonary embolism) within 1 year of the index visit and the proportion with cardiology and primary care (PCP) follow-up within 14 days of the index visit. Patients were excluded due to specified comorbidities, current anticoagulant use, lack of available insurance information, or index visits < 1 year before chart review. Comparisons were assessed for categorical variables using Fisher's exact test.

Results: Of 4983 study-eligible patients, 402 in P0 and 223 in P1 met inclusion criteria (median age 66 [IQR: 55-76], 43.8% female, 85.0% white, and 85.8% non-Hispanic). Overall, 110 (27.4%) patients in P0 and 57 (25.6%) in P1 returned to the ED. In P0, self-pay patients had the highest rate of ED return at 37.5% (95% confidence interval [CI]: 13.7, 69.4%), Medicaid patients had the second highest at rate 32.8 % (95% CI: 22.8, 44.7%), and Medicare and privately insured patients had the lowest rates of return at 23.8% (95% CI: 18.6, 30.0%) and 29.9% (95% CI: 22.4, 38.7%), respectively. The differences in the rate of ED return across insurance classes in P0 were not statistically significant (p=0.33). In P1, self-pay and Medicaid patients had the highest return rates at 44.4% (95% CI: 18.9-73.3%) and 40.6% (95% CI: 25.5-57.7%), respectively, with lower ED returns reported in Medicare (23.7%, 95% CI: 17.0-32.2%) and privately (18.8%, 95% CI: 11.1-30.0%) insured patients with their difference of borderline significance (p=0.06).

Privately insured and Medicare patients had the highest rate of cardiology follow-up in P0 at 24.8% (95% CI: 17.7, 33.3%) and 26.2% (95% CI: 20.7, 32.5%). Medicaid and self-pay patients had significantly lower (p <0.01) rates of cardiology follow-up in P0 at 7.5% (95% Cl: 3.2, 16.3%) and 12.5% (95% CI: 0.6, 47.1%). Similarly, there was a significant difference (P=0.02) in rates of PCP follow-up in P0, with privately insured and Medicare patients at 41.0% (95% CI: 32.5, 50.1%) and 38.1% (95% CI: 31.8, 44.8%), respectively, with lower rates of return reported in Medicare (25.4%, 95% CI: 16.5, 36.9%), and self-pay patients (0.0%, 95% CI: 0.0, 32.4%). There were no significant differences seen in cardiology and PCP follow-up between groups in P1.

Conclusion: The percentage of patients with ED return within 1 year of their index visit varied by insurance class, but differences were not significant in either phase. Cardiology and PCP follow-up differed significantly by insurance status in P0 but not P1. Comparisons between phases will be further explored via modeling.

No, authors do not have interests to disclose

486 Gender Bias in Opioid Use in Acute Back Pain: Retrospective Study in 17 French Emergency Departments

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Introduction: Acute low back pain is a frequent reason for emergency department (ED) visits, yet its management remains heterogeneous. Emerging evidence suggests that clinical decision-making and pain management may be influenced by patient gender, raising concerns about potential disparities in care. However, there is limited evidence assessing whether these differences translate into inequities in the treatment of acute low back pain in the ED.

Study Objective: This study aimed to assess whether patient gender influences opioid prescription rates in the ED for acute low back pain, including codeine, tramadol, and morphine.

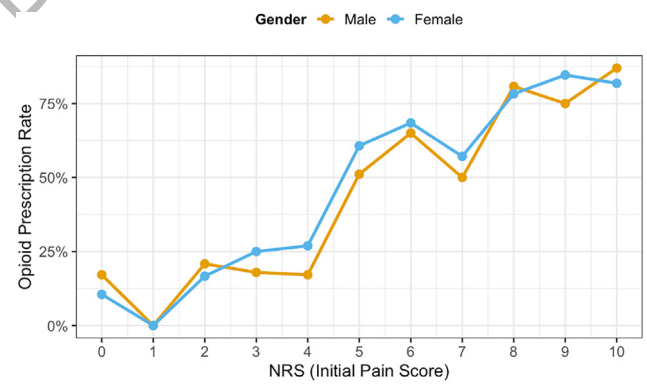
Methods: We performed a multicenter, retrospective observational study involving 17 EDs across France from January 1 to July 1, 2024. The study population included adult patients aged 20 to 55 years who presented with acute low back pain for less than six weeks, without clinical "red flags" indicative of severe underlying conditions (eg, neurological deficits, suspected malignancy, or infectious etiology). Pain severity was assessed using the Numeric Rating Scale (NRS) at triage. The primary outcome was opioid prescription rates. The association with patient's gender was analyzed after stratification by pain severity categories: mild (NRS 1–3), moderate (NRS 4–6), and severe (NRS 7–10). We also performed a logistic regression adjusted for NRS scores, and an analysis limited to morphine prescription.

Results: A total of 558 patients were included, of whom 42.2% were women. The median NRS score at initial evaluation was 5.0 (IQR 3-7), with missing NRS data in 10.9% of patients. Opioids were prescribed in 46.9% of patients during their ED visit (12.7% codeine, 14.9% tramadol, and 19.4% morphine).

There was no significant difference in opioid prescription rates between women and men across all categories: mild pain (17.0% vs 17.6%; OR, 0.95; 95% CI, 0.4–2.3), moderate pain (50.7% vs 42.0%; OR, 1.42; 95% CI, 0.8–2.6), and severe pain (72.3% vs 73.3%; OR, 1.05; 95% CI, 0.5–2.1).

In the adjusted analysis, the overall opioid prescription rate did not significantly differ between women and men (47.0% vs 46.0%; adjusted odds ratio [aOR], 1.01; 95% CI, 0.7–1.4). Similarly, there was no significant gender-based difference in morphine prescription rates (women 22.9% vs men 16.8%; aOR 0.92; 95% CI, 0.7–1.2).

Conclusion: In this multicenter retrospective study, gender did not significantly influence opioid or morphine prescription rates in patients presenting with acute low back pain in the ED.



No, authors do not have interests to disclose

487 Association of 29-mRNA Blood Test With Survival in Patients With Suspected Infection or Sepsis

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Study Objectives: Subjectivity in clinical judgment and diagnostic uncertainty can result in inconsistent assessments of illness severity, particularly for conditions with non-specific or evolving symptoms, such as acute infection and sepsis. The TriVerity™ Test is a 29-mRNA host response-based test from blood to diagnose bacterial and viral infections and predict illness severity. Here, we evaluated whether the TriVerity Severity score is associated with patient survival probabilities.

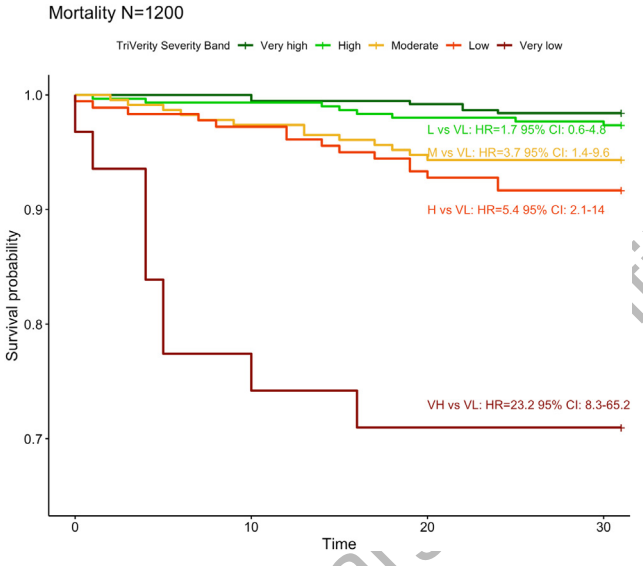
Methods: We utilized data from a large, multicenter, prospective clinical trial (SEPSIS-SHIELD, NCT04094818) conducted in 22 emergency departments across

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the United States and Europe. It enrolled adult patients (N=1,222) with suspected acute infection or suspected sepsis. TriVerity measured the expression of 29 mRNAs using the Myrna™ instrument, which delivers results via machine learning classifiers to generate three scores (bacterial, viral, and illness severity) across five interpretation bands (very low, low, moderate, high, very high) in approximately 30 minutes. The severity score is a prognostic score for the 7-day need for mechanical ventilation, vasopressors, and/or renal replacement therapy ("ICU-level care"). Survival curves were analyzed to evaluate the association between survival probabilities and the TriVerity Severity bands.

Results: A total of 1,200 patients were included in the analysis, with a mean (SD) age of 51.3 ± 17.6 years. The overall 28-day mortality was 4.5% (CI 3.4%-5.8%). Patients in the very high illness severity band (31/1,200) exhibited the lowest survival rates (71%, CI 58%-81%), while those in the very low illness severity band (355/1,200) had the highest rate of survival (98%, CI 96%-99%). Importantly, survival rates for the moderate and high severity bands were lower than that of the low severity bands and higher than that of the very high band. We observed similar trends for the number of abnormal vital signs (AVS).

Conclusions: The TriVerity test uses the host immune response to assist in diagnosing bacterial and viral infections as well as in predicting the severity of illness. We observed a strong correlation between TriVerity illness severity bands and survival probability. High TriVerity Severity scores are associated with lower survival probabilities, underscoring their potential in risk stratification. By providing an objective measure of illness severity, TriVerity can empower clinicians to make better informed, potentially life-saving decisions with confidence.



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Disclosure: Inflammatix, Inc.
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488 Emergency Department Length of Stay Before and After Fluid Restrictive Strategy Due to IV Fluid Shortage

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Study Objective: On September 29, 2024, Hurricane Helene impacted the Baxter plant in North Carolina, a facility responsible for producing nearly 60% of the IV fluids used in the United States. As a result, a critical shortage of IV fluids occurred, prompting our hospital to implement a fluid-restrictive strategy aimed at reducing IV fluid utilization. Oral Rehydration Solutions (ORS), which include electrolyte drinks containing specific amounts of electrolytes and sugar, have been shown to be beneficial in cases of mild to moderate nausea, vomiting, and diarrhea. ORS also offers a more cost-effective and accessible alternative to IV fluids. However, prior to the IV fluid shortage, many emergency department patients without signs of severe dehydration were routinely given IV fluids for rehydration. This practice was often driven by patient preference, specific requests for IV hydration, and the convenience of ordering IV fluids. The hurricane created a unique environment where IV fluids were used only sparingly, and as such, created a natural experiment. It was an opportunity to utilize a treatment strategy that was not widespread in our emergency department prior to the IV fluid shortage and compare the effect of that treatment on emergency department length of stay. If this fluid restrictive strategy could be shown to decrease length of stay, decrease cost to the patient, and a safe discharge, it is something that should be considered.

Methods: This study is a single center retrospective cohort study. This study included all emergency department patients aged 18 years and older at University of Michigan Health West who were discharged with the diagnoses listed inTable 2between September 1, 2024 and November 9, 2024. Data collection was performed via a chart review. Patients were excluded if they had acute kidney injury, moderate to severe electrolyte abnormalities (defined as potassium <3 or magnesium <1.5), were evaluated by a specialist, or had documentation of at least two hypotensive blood pressures (SBP <90 or MAP <65). The primary outcome of the study was emergency department length of stay, measured from the time the patient was roomed until their discharge status was recorded. The secondary outcome was the percentage of patients receiving medication plus IV fluids compared to those treated with medication and oral rehydration. A two-tailed independent samples t-test was used to compare groups. Additionally, a two-tailed independent samples t-test was conducted to compare the length of stay before and after the IV fluid shortage.

Results: Prior to the IV fluid shortage, 94.7% of patients received IV fluids, whereas after the shortage, this percentage dropped significantly to 31.2%. When stratifying by the fluid shortage, the mean length of stay for patients prior to the shortage was 2 hours and 16 minutes (SD: 1 hour and 10 minutes), compared to 2 hours and 4 minutes (SD: 58 minutes) after the shortage. This difference was not statistically significant ($p = 0.198$). When comparing patients who received medication with IV fluids versus those who received medication with oral rehydration, the mean length of stay for the IV group was 2 hours and 17 minutes (SD: 50 minutes), while the oral rehydration group had a mean length of stay of 1 hour and 57 minutes (SD: 1 hour). This difference also did not reach statistical significance ($p = 0.131$). The national IV fluid shortage necessitated a rapid change in clinical practice, leading to an increased reliance on oral rehydration in place of IV fluids. Our data demonstrate that this shift did not significantly impact emergency department length of stay, suggesting that oral rehydration may be a viable alternative in select cases.

Conclusion: IV fluids are often used by default, despite the added cost to the patient. Our findings highlight an opportunity to reconsider IV fluid use, particularly for patients who can tolerate oral hydration. By shifting away from routine IV fluid administration, emergency departments may be able to optimize resource utilization without negatively affecting patient throughput. Further research is needed to explore the broader implications of this practice change.

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Shortage status = before shortage

Patient sex[a]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	30	31.9	31.9	31.9
	Female	64	68.1	68.1	100.0
	Total	94	100.0	100.0	

a. Shortage status = before shortage

Shortage status = after shortage

Patient sex[a]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	31	33.3	33.3	33.3
	Female	62	66.7	66.7	100.0
	Total	93	100.0	100.0	

a. Shortage status = after shortage

No, authors do not have interests to disclose

489EMF Assessing Microvascular Flow in Sepsis Using Diffuse Correlation Spectroscopy

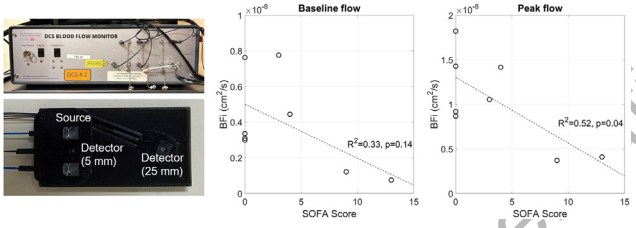
Lee J, Carp S, Franceschini M, Shapiro N/Beth Israel Deaconess Medical Center, Boston, Massachusetts

Study Objectives: Sepsis is a life-threatening condition associated with high morbidity and mortality, with more than 1.7 million patients impacted and over 350,000 deaths each year in the United States alone. Microcirculation, responsible for delivering oxygen and nutrients to the tissue, plays a critical role in the pathophysiology of sepsis. Diffuse correlation spectroscopy (DCS) is a noninvasive optical technique that measures an index of microvascular blood flow (BFi) by quantifying fluctuations of light scattering from moving red blood cells. By monitoring peripheral microvascular flow, DCS has the potential to serve as a surrogate measure of end-organ perfusion, which plays a crucial role in organ dysfunction in sepsis. The objective of this study was to assess if microvascular flow impairment measured by DCS is correlated with higher illness severity as assessed by Sequential Organ Failure Assessment (SOFA) score in patients with infection.

Methods: This was a single center, prospective, observational pilot study performed at Beth Israel Deaconess Medical Center, Boston, MA, USA. Adult ($\geq$ 18 years) Emergency Department (ED) patients with infection being admitted to the hospital were enrolled. Baseline microvascular flow was measured using a DCS system consisting of a long coherence laser source (785 nm) and two detectors located at 5 and 25 mm from the source. DCS measurement was performed at the thenar eminence in conjunction with a vascular occlusion test (VOT). The VOT involves using a blood pressure cuff to occlude and restore blood flow to the limb to assess microvascular perfusion capacity and reactivity. Baseline and peak BFi were compared to baseline SOFA score using linear regression analysis.

Results: A total of 8 patients were enrolled in this ongoing study with 4 septic patients per Sepsis-3 criteria. SOFA score ranged from 0 to 13. Impaired microvascular flow was associated with higher illness severity as demonstrated by the inverse relationship between BFi and SOFA Score with $R^2 = 0.33$; $p = 0.14$ for baseline BFi and $R^2 = 0.52$; $p = 0.04$ for peak BFi.

Conclusion: Baseline and peak microvascular flow, as measured by DCS with VOT, were inversely correlated with illness severity, as assessed by SOFA score. These findings providesupportthat DCS with VOT has the potential to provide clinically useful information about microvascular flow in patients with infection. The ongoing study aims to enroll 60 patients to validate these results and further explore the clinical utility of DCS in sepsis detection and management.



No, authors do not have interests to disclose

490EMF Time to Hemostatic Agent Increases Mortality in Veterans With Factor Xa Inhibitor-Related ICH

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Study Objectives: Since FDA approval of Andexanet alfa (AA) in May 2018, there have been concerns regarding the lack of high-quality comparative studies, potential for thromboembolic events, and higher cost relative to four-factor prothrombin complex concentrate (4F-PCC). AA and 4F-PCC are given for reversal of life-threatening hemorrhage associated with Factor Xa (fXa) inhibition. Due to this, there is a critical need for real-world data from large-scale databases describing the reversal of fXa inhibitors using AA compared to 4F-PCC to determine their impact on patient outcomes and mortality and their time to administration.

Methods: This was a national retrospective cohort from the Veteran Health Administration of AA or 4 F-PCC between January 1, 2018 to January 1, 2024. The primary efficacy endpoint was time to hemostatic agent administration. The primary safety endpoint was 30-day thrombotic events (venous thromboembolism, pulmonary embolism, acute ischemic stroke [AIS], myocardial infarction), which were validated through manual chart review. Demographic and treatment variables were summarized using descriptive statistics and frequency distributions. The two sample Wilcoxon rank-sum test was utilized on the primary endpoint. Logistic regression was used to compare time of hemostatic administration and 90-day mortality.

Results: There were 19,015 Veterans with ICH, of whom 664 Veterans received AA (n=151) or 4F-PCC (n=513). Overall, 350 Veterans received a fXa inhibitor within 180 days and were included (AA n=129; 4F-PCC n=221). Of those 350, 104 were removed as they did not receive a hemostatic agent in the emergency department (AA n=89; 4F-PCC n=157). Most veterans were male (96.3%) and elderly (median age 77 years). Apixaban was the most utilized anticoagulant and intracerebral hemorrhage was the most common type of intracranial hemorrhage. There was no difference in the primary endpoint time to hemostasis between the groups (203 minutes (140-283) vs 200 (137-299), p=0.70). Time to hemostatic agent administration was predictive of 90-day morality (odds ratio =1.004 (95% CI;1.001-1.006), p=0.002). Each additional minute of time to hemostatic agent administration increased odds of 90-day mortality by 0.4%.

Conclusion: In Veterans with fXa inhibitor-related ICH receiving AA or 4F-PCC there was no difference between AA and 4F-PCC in time to hemostatic administration. Also, this study showed that time to administration of hemostatic agent was predictive of 90-day mortality.

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Table 1. Patient Demographics and Medical Characteristics by Hemostatic Agent Treatment: Unadjusted Analysis

Characteristic	Unadjusted Analysis		
	AA Group (n=39)	4F-PCC Group (n=167)	P value
Age, years, median (IQR)	77.5 (73.5 - 82.4)	76.7 (71.1- 82.4)	0.41
Male sex, n (%)	85 (34.6)	152 (61.8)	0.60
Race, n (%)			
Asian/Pacific Islander	3 (1.2)	5 (2)	0.20
African American	16 (6.5)	42 (17.1)	
White	62 (25.2)	104 (42.3)	
Other/unknown	8 (3.3)	6 (2.4)	
Hispanic ethnicity, n (%)	7 (2.8)	11 (4.5)	0.75
Comorbid conditions, n (%)			
Cancer	23 (9.3)	44 (17.9)	0.71
Chronic kidney disease	35 (14.2)	59 (24)	0.79
Coronary artery disease	51 (20.7)	78 (31.7)	0.25
Diabetes	45 (18.3)	76 (30.9)	0.75
Heart failure	39 (15.9)	71 (28.9)	0.832
Hypertension	79 (32.1)	138 (56.1)	0.84
Stroke	25 (10.2)	50 (20.3)	0.53
Social history, n (%)			
Alcohol misuse	9 (2.4)	11 (4.5)	0.29
Smoking	19 (7.7)	32 (13)	0.86
Anticoagulant indication, n (%)			
Atrial fibrillation	71 (28.9)	109 (44.3)	0.078
Pulmonary embolism	9 (3.7)	16 (6.5)	0.58
Deep venous thrombosis	1 (0.4)	12 (4.9)	0.028
Anticoagulant use, n (%)			
Apixaban	74 (30)	128 (52)	0.75
Edoxaban	0 (0)	5 (2)	0.089
Rivaroxaban	15 (6.1)	26 (10.6)	0.95
Antiplatelet use, n (%)			
Aspirin	29 (11.8)	57 (23.2)	0.56
Cilostazol	0 (0)	2 (0.81)	0.29
Clopidogrel	7 (2.8)	17 (6.9)	0.52
Ticagrelor	0 (0)	1 (0.41)	0.45
Enrollment priority, n (%)			
Group 1	33 (13.4)	61 (24.8)	0.92
Group 2	3 (1.2)	8 (3.3)	
Group 3	10 (4.1)	14 (5.7)	
Group 4	7 (2.8)	8 (3.3)	
Group 5	22 (8.9)	41 (16.7)	
Group 6	0 (0)	0 (0)	
Group 7	3 (1.2)	8 (3.3)	
Group 8	11 (4.5)	17 (6.9)	
HCC score, median (IQR)	2.63 (1.435-3.793)	2.449 (1.677-4.089)	0.32
Charlson comorbidity index, median (IQR)	6 (4-9)	6 (4-9)	0.73
NIHSS*, median (IQR)	2 (1 – 6)	4 (1.5 – 10)	0.55
Rurality, n (%)			
Urban	61 (24.8)	98 (39.8)	0.49
Rural	11 (4.5)	28 (11.4)	
Unknown	17 (6.9)	31 (12.6)	
Type of intracerebral hemorrhage, n (%)			
Intracerebral hemorrhage	63 (25.6)	94 (38.2)	0.12
Subarachnoid hemorrhage	14 (5.7)	16 (6.5)	
Subdural hematoma	16 (6.5)	47 (19.1)	
Outcomes	**AA Group (n=39)**	**4F-PCC Group (n=167)**	**P value**
Time to hemostasis, median (IQR)	203 (140-283)	200 (137-299)	0.70
Time to hemostasis at 90 min or less, n (%)	4 (1.6)	7 (2.8)	0.99
Mortality, n (%)			
In-hospital mortality	14 (5.7)	26 (10.6)	0.87
30-day mortality	16 (6.5)	34 (13.8)	0.49
90-day mortality	14 (5.7	33 (13.4)	0.31
Hospital length of stay, median (IQR)	9 (5 - 17)	6 (4 - 13)	0.067
30-day thrombotic events, n (%)	12 (4.9)	5 (2)	0.002
Deep venous thrombosis	3 (1.2)	3 (1.2)	0.48
Myocardial infarction	2 (0.81)	0 (0)	0.059
Pulmonary embolism	1 (0.41)	0 (0)	0.18
Ischemic stroke	8 (3.3)	2 (0.81)	0.003
Blood product use within 7 days, n (%)			
Cryoprecipitate	0 (0)	2 (0.81)	0.29
Fresh frozen plasma	0 (0)	7 (2.8)	0.43
Packed red blood cells	7 (2.8)	13 (5.3)	0.91
Platelets	8 (3.3)	24 (9.8)	0.99
Adjunctive hemostatic agents, n (%)			
Desmopressin	2 (0.81)	0 (0)	0.50
Tranexamic acid	1 (0.41)	1 (0.41)	0.68
Vitamin k	1 (0.41)	16 (6.5)	0.007

Abbreviations: IQR= interquartile range, HCC= Hierarchical Condition Category; NIHSS=National Institutes of Health Stroke Scale *N= 26 (AA n=11, 4F-PCC n=15); after adjustment N=19 (AA=11, 4F-PCC n=8)

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491 Blowhole Incision for Subcutaneous Emphysema: A Novel Approach With Negative-Pressure Wound Therapy

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Study Objectives: This case report describes a patient who sustained significant subcutaneous emphysema of the chest, neck, and face along with hemopneumothorax and multiple left-sided rib fractures with an associated flail segment following an all-terrain vehicle accident. The emphysema was treated using negative pressure wound therapy (NPWT) applied through bilateral infraclavicular "blowhole" incisions. This report examines the use of NPWT as a treatment modality for subcutaneous emphysema, assessing its efficacy in reducing the need for more invasive interventions and promoting recovery. Methods: The patient's clinical presentation in the emergency department, NPWT application technique, and treatment progression were documented in this case report. Additionally, a literature review was conducted to contextualize NPWT's role in managing subcutaneous emphysema. Result: The patient exhibited a marked reduction in subcutaneous emphysema within 24 hours of NPWT initiation, with continued improvement confirmed through physical examinations and imaging. By day 13, complete resolution was achieved, and NPWT was discontinued without complications. Conclusion: This case highlights NPWT as a promising, minimally invasive treatment option for subcutaneous emphysema, demonstrating rapid resolution and favorable outcomes. Further studies may help define its broader clinical applications.

No, authors do not have interests to disclose

492 Glargine as an Adjunct to Standard Therapy for Managing Diabetic Ketoacidosis: A Randomized Trial

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Study Objectives: 1. To compare the duration of Diabetic Ketoacidosis (DKA) resolution among patients receiving Glargine with Standard intravenous (IV) Insulin (intervention) versus Standard IV Insulin alone (control). 2. To compare the duration of emergency and hospital stay, total insulin requirement, and complications (hypoglycemia, hypokalemia, and rebound hyperglycemia) between the groups.

Methods: This prospective, open-labeled, randomized controlled study includes adult patients diagnosed with DKA in a tertiary care setting. After initial assessment using a pre-designed proforma, the patients were randomized to receive either Glargine (0.3U/kg, subcutaneously) and IV Insulin or IV insulin alone, followed by monitoring with hourly vitals, capillary glucose, and blood gas every four hours, until DKA resolution. We also incorporated patient demographics and clinical progression during hospitalization. The variables were analyzed using independent samples t-test on SPSS version 30.0 and expressed using mean ± standard deviation with p-values <0.05 considered as statistically significant.

Results: We conducted a preliminary analysis with 15 subjects in each arm. The time differences to DKA resolution and emergency stay were significant between the two groups (p-values: 0.0039 and 0.0027, respectively), while the differences of total insulin infusion time and dose and duration of hospital stay were non-significant. The incidence of hypokalemia and hypoglycemia during infusion was comparable in both the groups, whereas rebound hyperglycemia was significantly less in the intervention group (p-value: 0.045).

Parameter	Control (Mean ± SD)	Intervention (Mean ± SD)	*p-value*
DKA Resolution Time (hours)	19.63 ± 6.09	12.47 ± 6.37	***0.0039***
Insulin Infusion Time (hours)	24.17 ± 7.65	17.93 ± 15.65	*0.1809*
Total Insulin Dose (units)	69.73 ± 25.07	54.08 ± 24.48	*0.0946*
ED Stay Duration (hours)	43.70 ± 16.92	24.67 ± 14.66	***0.0027***
Hospital Stay Duration (days)	11.07 ± 11.88	8.73 ± 4.38	*0.5046*
Hypokalemia (min K+, mmol/L)	3.45 ± 0.65	3.47 ± 0.50	*0.9330*
Hypoglycemia (min glucose, mg/dL)	124.20 ± 41.58	104.00 ± 43.13	*0.2204*
Rebound Hyperglycemia (mg/dL)	230.87 ± 78.01	176.07 ± 61.76	***0.0451***

Table: Representing the variables as mean ± standard deviation among the control and intervention groups.

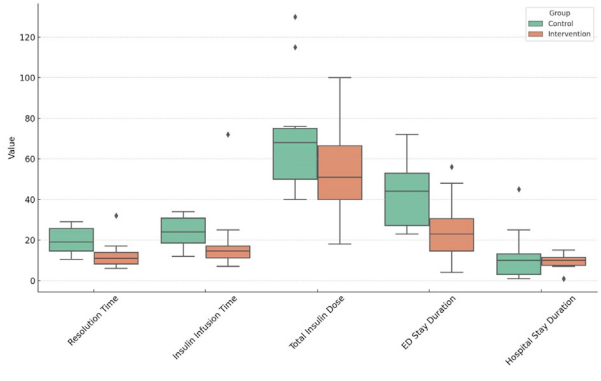


Figure 1: Comparison of DKA resolution time, Insulin infusion time, total insulin dose, duration of emergency department (ED) and hospital stay among the two groups. The diamonds represent outlier variables.

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Conclusion: On a preliminary basis, we suggest that Glargine, co-administered early with IV insulin, is associated with early DKA resolution, shortened emergency stay and infrequent rebound hyperglycemia, with no significant elevation in hypokalemic or hypoglycemic episodes than standard IV insulin alone. This reinforces that Glargine, which is cost-effective and easily accessible in the emergency setting, is an indispensable adjunct to manage a life threatening condition such as DKA. Patient implications: Early resolution and discharge from emergency will help minimize patient discomfort, risk of hospital-acquired infections and overall health expenditure.

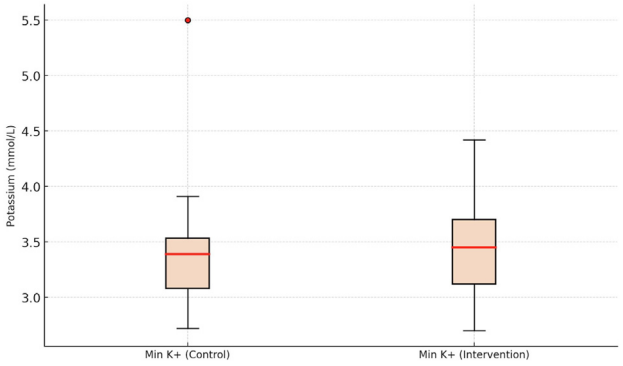


Figure 2: Comparison of potassium levels during infusion among the control and intervention groups. Red dot denotes an outlier potassium level of 5.5 mEq/L.

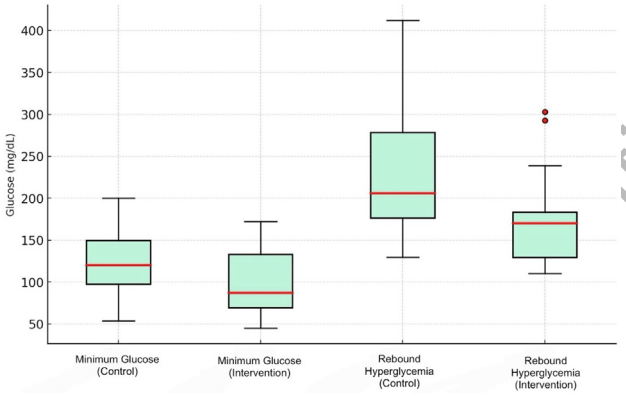


Figure 3: Comparison of minimum glucose levels and rebound hyperglycemia during infusion among the two groups. Red dots denote outlier blood glucose levels.

No, authors do not have interests to disclose

493 Dementia Increases Rates of Intracranial Hemorrhage in Geriatric Emergency Department Head Trauma Patients

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Study Objective: Head trauma from a fall is a common source of morbidity and mortality among older adults. This risk is even higher in older adults diagnosed with dementia. The aim of this study is to investigate the association of dementia and intracranial hemorrhage in older adult emergency department (ED) patients presenting with head trauma.

Methods: This secondary analysis of the Geriatric Head Trauma Short-Term Outcome Project (GREAT STOP) examined rates of intracranial hemorrhage in patients >65 years presenting to the ED with blunt head trauma and dementia. Intracranial hemorrhage was defined via head CT, and dementia was identified by patient history or ICD-10 code by medical record review.

Results: Out of 5,755 participants, 14.7% (n = 845) had dementia at the time of their fall. ICH was identified in 14.1% (n = 119) amongst those with dementia versus 11.6% (n = 571) without dementia (p = 0.043). The most common types of intracranial hemorrhage observed on CT scan amongst dementia patients were subdural hematomas with 9.1% (n = 77) and intraparenchymal hemorrhage with 3.9% (n = 33). In non-dementia patients, 7.1% (n = 349) had subdural hematomas and 2.5% (n = 125) had identifiable intraparenchymal hemorrhages (p = 0.040 and p = 0.025, respectively).

Conclusions: In geriatric ED head trauma patients, dementia is associated with higher rates of intracranial hemorrhage with subdural hematomas and intraparenchymal hemorrhages being the most common type. When evaluating dementia patients presenting to the ED with blunt head trauma, clinicians should account for this risk factor for injury.

No, authors do not have interests to disclose

494 Human Neutrophils Display Rhythms in Cell Metabolism and Inflammatory Response

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Study Objectives: Sepsis is a major health burden, affecting nearly 1.7 million Americans per year. Early sepsis deaths are characterized by hyperinflammatory responses leading to high serum cytokines and organ injury. However, there remains a lack of effective therapeutics that target inappropriate immune responses to pathogens despite years of effort. Interestingly, sepsis mortality in animal models varies based on the time of infection, reminiscent of non-infectious diseases like myocardial infarctions and cerebral infarctions which show diurnal variation in humans. Since cellular metabolism has been shown to influence inflammatory responses of cells such as macrophages, we hypothesize that time of day variation in cellular metabolism of immune cells may be responsible for biological variation in inflammatory responses to pathogens. Neutrophils are especially abundant and critical for early hyper-inflammation through cytokine production, extracellular trap formation (NETosis) and vesicle degranulation. The goal of this proof of concept work is to identify and map metabolic rhythms in healthy human neutrophils and correlate these to their inflammatory response to bacterial endotoxin (LPS) at different times of day. These results will be applicable to sepsis as well as other inflammatory disease states by identifying potentially novel immunometabolic phenotypes and rhythms.

Methods: Peripheral blood was collected by venipuncture at times 0600, 1200, 1800 and 0000 from eight volunteers. Participants were between the ages of 18-50, had no co-morbidities, did not use stimulants and were on a day-shift schedule. Neutrophils were isolated from peripheral blood by commercially available negative selection assay (Miltenyi Biotec). Cells were immediately collected in methanol for untargeted polar metabolomics by LC-MS. Remaining cells were plated in RPMI and treated with or without LPS. After 4 hours, supernatant was collected for lactate measurement. Cells were then collected in RLT buffer and mRNA was isolated by commercial assay for gene expression analysis. High throughput gene expression measured using Fluidigm system. Statistical analysis was performed on Prism.

Results: Human neutrophils display rhythms in lactate production throughout the day that separate into 2 distinct patterns of lactate production rhythms. Similarly, using untargeted polar metabolomics, time-dependent differences in metabolite levels were noted, primarily in metabolites of glycolysis, pentose phosphate pathway and amino acid metabolism pathways. Greatest differences in metabolite levels were noted between 0600 and 1800. Neutrophils also displayed upregulated but time-dependent differences in inflammatory gene expression with LPS stimulation.

Conclusion: Our results display that neutrophil metabolism varies throughout the course of the day, highlighting the temporally dynamic nature of neutrophil phenotype and function, with most prominent differences occurring at opposing time of day. Since neutrophils are short lived, this may display unique neutrophil subtypes throughout the day, neutrophil aging or metabolic plasticity due to circulating factors such as endocrine hormones. Healthy individuals separate into phenotypic subgroups based on lactate production, identifying potential patient subgroups and indicates that neutrophil lactate levels may reflect underlying biological rhythms in metabolism, though this is limited by small sample size. Neutrophil inflammatory responses also display time of day variation, but it remains unclear if these are regulated by metabolic flux and will be the focus of

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future work. Based on metabolomic results, specific glucose and amino acid metabolic pathways will be targeted with small molecule inhibitors to modulate inflammatory responses and characterize neutrophil function. This study lays the foundation for larger scale analysis of neutrophils from a population of patients with and without sepsis to identify similarities and differences in metabolic and inflammatory rhythms.

No, authors do not have interests to disclose

495 Platelet Count to Spleen Diameter Ratio for Predicting Esophagogastric Varices

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Introduction: Esophagogastric varices (EGVs) represent a significant cause of acute upper gastrointestinal bleeding (UGIB), associated with substantial morbidity and mortality. Early identification of patients at risk for EGVs is essential for initiating timely management and prioritizing urgent esophagogastroduodenoscopy (EGD). Although several tools have been proposed for predicting EGVs, their utility remains limited in acute UGIB settings. In outpatient populations, the platelet count to spleen diameter (PC/SD) ratio has demonstrated promise as a non-invasive predictor of EGVs among patients with advanced liver disease, but its role in predicting EGVs in patients presenting to the emergency departmen twith UGIB has not yet been evaluated.

Study Objective: To evaluate the diagnostic accuracy of the platelet count to spleen diameter (PC/SD) ratio as a predictive tool for the presence of esophageal varices in patients presenting with acute UGIB.

Methods: We conducted a retrospective cohort study involving 876 patients presenting to the emergency department with acute UGIB at a large-volume county hospital (Parkland Memorial Hospital). Platelet count and spleen diameter measurements obtained upon hospital presentation were used to calculate the PC/SD ratio. All patients underwent diagnostic upper gastrointestinal endoscopy, the current gold standard, to confirm the presence or absence of EGVs Diagnostic accuracy was assessed using receiver operating characteristic (ROC) analysis, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV).

Results: Of the 876 patients studied, 369 (42.1%) had confirmed esophageal varices. Patients with EGVs had significantly lower median PC/SD ratios (6.73) compared to patients without EGVs (10.99), $p < 0.001$. ROC analysis demonstrated moderate accuracy of the PC/SD ratio for predicting EGVs, with an area under the curve (AUC) of 0.659. Using an optimal cutoff value ($\leq$11.33), the PC/SD ratio yielded a sensitivity of 76%, specificity of 49.5%, PPV of 52.7%, and NPV of 73.6%.

Conclusion: The PC/SD ratio provides moderate diagnostic accuracy and a promising negative predictive value for identifying patients with a lower likelihood of esophageal varices in acute UGIB settings. This easily calculable, non-invasive ratio may help prioritize patients requiring urgent endoscopy, optimize resource utilization, and improve patient outcomes. Prospective validation studies are recommended before widespread clinical adoption.

No, authors do not have interests to disclose

497 IV Fluid Optimization (IV FLO): A Comparison of Three Pressurization Methods

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Study Objectives: Our objective is to conduct an experiment to compare the flow rate of IV fluid (ml/min) of each of these three pressurization methods to each other and to the flow rate under gravity when emptying a 1-L bag of normal saline. It is hypothesized that each will have higher flow rates compared to gravity and different flow rates compared to each other.

Methods: For each method, we attached an 18-gauge peripheral vascular access catheter (BD Insyte™ Autoguard™ Shielded IV Catheters, Beckton Dickenson Infusion Therapy Systems, Inc) and standard IV tubing (SmartSite® Gravity Set, Care Fusion) to a 1-L bag of normal saline at 6 feet from the ground, a standard height above a hospital bed. The 18-gauge catheter is an accepted standard for large-bore IV access in volume resuscitation. Normal saline is a commonly used crystalloid solution. We used a standard Pleur-evac container with gradations to collect and measure the fluid output. For the gravity group, we opened the tubing to free-flow. For the pressure bag group, we used a standard pressure bag (Vital Signs™ Pressure Infusor 1000 mL, Vyaire™) inflated to 300 mmHg. At intervals when the pressure bag decreased to less than 250 mmHg, we reinflated to obtain a pressure of 300 mmHg. For the manual squeeze group, we used the roll method of manual squeezing which is defined as rolling the saline bag from the top continuously as the bag empties. For the syringe method group, we used a 60-ml syringe and aspirated from the bag along the tubing to fill the syringe and then administered towards the catheter at a plunger pressure comfortable for the operator. We continued this process until the 1-L bag was emptied. The total volume of IV fluid (ml) was recorded from the Pleur-evac every 30 seconds to calculate the flow rate per 0.5 min. We also obtained the cumulative mean flow rate (ml/min) by dividing the total volume of fluid by the amount of minutes needed to empty the bag. The flow rate at each 0.5-minute interval can change over time as the bag empties. We completed 12 trials for each method. The setting took place in the SIM center of our medical school affiliation. The 4 authors participated in the research deisgn.

Results: The mean flow rate for the gravity group was 65 ml/min (2.45). The mean flow rate for the pressure bag group was 156 ml/min (9.94). The mean flow rate for the manual squeeze group was 119 ml/min (8.24). The mean flow rate for the syringe group was 191 ml/min (11.2).Table 1summarizes the flow rates for each method with the standard deviation and interquartile ranges with associated p-values.

Median cumulative flow rate was highest for the syringe method compared to the gravity method (Median (IQR): 190 (181-202) vs 65.4 (64.1-66.3)). The pressure bag method had the second highest median cumulative flow rate. The distributions of cumulative flow rate were different by method (Kruskal-Walis test $p < .0001$). From the pairwise comparisons, the distribution of flow rates from all methods were higher than that of the gravity method (Mann-Whitney Rank sum test $p < .0001$; Table).

The Figure depicts the mean flow rate per 30 second intervals. The mean flow rate was the highest for the syringe method and lowest for the gravity method across all time points. Pressure bag had the next highest flow rate and emptied next, but its flow rate slowed towards the end. Aside from that, flow rate was largely constant across the time period and lower and slower than all other methods. Flow rate was highly variable towards the end of emptying for all methods.

Conclusion: The syringe method provided the fastest flow rates for IV fluid administration, almost 3 times as fast as gravity. The pressure bag method also provided faster flow rates than gravity and manual squeeze. Rapid infusions of crystalloid solutions or blood products can be part of the resuscitation of a patient with shock or hemorrhage. This study helps Emergency and Critical Care physicians to quantifiably understand which method of increasing pressure can lead to higher flow rates.

Table 1. Comparison of Cumulative Flow Rate (ml/min) Pressurization Methods

Method	Mean (SD)	Median (Q1-Q3)	P Value[a]
Gravity	65.0 (2.45)	65.4 (64.1-66.3)	
Squeeze	119 (8.24)	119 (114-123)	<.0001
Pressure Bag	156 (9.94)	154 (151-160)	<.0001
Syringe	191 (11.2)	190 (181-202)	<.0001

Note. SD=standard deviation. Q1=quartile 1. Q3=quartile 3.
a. P value of post-hoc pairwise comparisons of each pressurization method to gravity method from Wilcoxon rank sum test

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498 Evaluation of the Analytical Performance of the LIAISON® MeMed BV® Assay at a Tertiary Cancer Center

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Study Objectives: Patients with cancer have an increased risk of infection and mortality from sepsis. Antibiotics are mostly needed but can be overused leading to antimicrobial resistance and occurrence of *Clostridium difficile* infections. The pathogen is often not identified prior antibiotic use and can interfere with

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traditional culture results. The LIAISON® MeMed BV® assay utilizes three host biomarkers, Tumor necrosis factor (TNF) related apoptosis-inducing ligand (TRAIL), interferon-gamma inducible protein of 10 kDa (IP-10) and C-reactive protein (CRP) to distinguish bacterial versus viral etiologies in patients. Data on performance of a host immune response assay in cancer patients presenting at an urgent care center are limited. In this study we evaluated the analytical performance of the MeMed BV® assay in an oncology setting.

Methods: This was a retrospective, single center, observational study in adult cancer patients between 18 and 90 years of age admitted to Urgent care center (UCC) or Intensive Care Unit (ICU). Study samples were collected from September 2023 to December 2024 and tested according to manufacturer's instructions. Assay results were classified as high or moderate likelihood of either viral (HighVIR or ModVIR) or bacterial infection (HighBACT or ModBACT), or equivocal.

Results: A total of 272 samples were tested during the study period including 99 samples from patients with no suspicion of sepsis (controls) and 173 patients being ruled out for sepsis (cases). Valid results were obtained for 166 (96.5%) cases and 92 (92.9%) controls. UCC case sample results included 2/51 (3.9%) HighVIR, 2/51 (3.9%) ModVIR, 1/51 (2.0%) equivocal, 13/51 (15.5%) ModBACT and 33/51 (64.7%) HighBACT. ICU case sample results included 2/115 (1.7%) HighVIR, 0/115 (0%) ModVIR, 3/115 (2.6%) equivocal, 11/115 (9.6%) ModBACT and 99/115 (86.1%) HighBACT. Control sample results were 37/92 (40.2%) HighVIR, 29/92 (31.5%) ModVIR, 10/92 (10.9%) equivocal, 8/92 (8.7%) ModBACT and 8/92 (8.7%) HighBACT. There were no significant differences in the rates of ModBACT/HighBACT between UCC and ICU patients ($p > 0.05$) but differences were observed with the control group ($p < 0.05$).

Conclusions: A significant number of cases with moderate to high likelihood of bacterial infection were detected in this cancer patient cohort suggesting that the MeMeD BV assay performs well in this patient population and may provide actionable data. Comparison with SOC testing will provide clarity on the role of this novel test in the management of infection in oncology patients.

Yes, authors have interests to disclose
Disclosure: Diasorin
Esther Babady
Scientific Study/Trial
Diasorin

499 Implementation of an Emergency Department-Based HIV Comprehensive Prevention Service Program

Huckins G, Roth A, Ibarra JC, Kitzmiller K, Gormley M, Faso A, Ajqui M, Roth P, Moschella P, Litwin A/Prisma Health, Greenville, South Carolina

Study Objectives: Human immunodeficiency virus (HIV) remains a threatening epidemic to the United States. One of the biggest barriers to HIV treatment is the delay in the time of diagnosis. In this time lag when patients are infected by the virus but are unaware, there is opportunity to develop other chronic illnesses and missed opportunity for linkage to HIV treatment. The emergency department (ED) sees countless patients with increased risk factors for HIV acquisition, making the ED can an excellent venue to implement HIV prevention at an adventitious time. While studies have investigated the importance of HIV prevention including screening, education, and referrals for biomedical intervention, there are limited studies exploring the usage of a prevention navigator (PN) within a Comprehensive Prevention Services (CPS) program. This abstract highlights the strategies, challenges, and successes of the CPS using a PN within an ED Opt-Out HIV and HCV screening program.

Methods: From March 2023 to March 2025, the CPS program utilized the PN within a Level 1 Trauma Center ED in the Southeastern U.S. to engage any patient at risk for acquiring HIV, with a voluntary question set to assess risk factors and knowledge about prevention services. The role of the PN is to offer education, prevention strategies, and refer to biomedical interventions. Descriptive statistics were used to summarize the number of patients encountered, connected to treatment, and referred to interventions.

Results: The PN encountered 2,301 patients. From these encounters the majority were male 59%, White 60%, and an average age of 39.5 years. The majority (N=2,082, 90%) were linked by PN to education and or prevention materials. A total of twenty-six patients were referred to biomedical interventions. Less than five individuals attended follow up appointments for HIV biomedical intervention and less than five agreed to biomedical intervention in the ED during their visit.

Conclusions: Whereas most patients were receptive to receiving HIV education and or prevention materials, few agreed to be linked to care. Additional studies are recommended to explore strategies for increasing patient motivation to engage in follow-up preventive care and improve access for those at substantial risk for HIV acquisition

Yes, authors have interests to disclose
Disclosure: Gilead Sciences
Alain Litwin MD, MPH
Board Member/Officer/Trustee
Gilead Sciences
Disclosure: AbbVie
Alain Litwin MD, MPH
Board Member/Officer/Trustee
AbbVie

500 Breaking the Silence: Addressing Therapy Stigma in Emergency Medicine Residency

Samuels R, Ganshirt E, Huekcer M/University of Louisville, Louisville, Kentucky

Study Objectives: This prospective cohort study targeted emergency medicine residents and faculty. The study aimed to assess how the perception of, and participation in, therapy influences burnout and wellness. Specific objectives included the following: 1. Assessing perceptions of therapy and 2. Evaluating wellness survey scores in relation to therapy use.

Methods: Study personnel sent electronic surveys to all residents and faculty in an EM program at a Level I urban trauma center. The study was approved by the institutional review board. Subjects signed consent to participate and could withdraw at any time but retain access to the therapy intervention. Participants completed the Copenhagen Burnout Inventory, World Health Organization, and Two Question Summative Score wellness surveys. All surveys employed a 1-5 Likert scale for responses (strongly disagree-disagree-neutral-agree-strongly agree). Then, subjects received access to two complimentary therapy sessions viafundingfrom the local medical society. All received one reminder email from the program coordinator at a specified point during the study period, offering to assist in scheduling therapy sessions. Demographic and questionnaire data were deidentified and stored in Redcap, an online, encrypted database. The surveys were redistributed as the "post-intervention" survey after 12 months of access to therapy resources.

Results: Twenty-five residents completed the preintervention survey and seventeen of those completed the post-intervention survey. Eight subjects had experience to therapy prior to residency and two subjects responded that they were actively engaged in therapy. Seven subjects planned to attend therapy provided by the program. On the post-intervention survey, only one subject responded that they utilized the free therapy intervention. Nine subjects reported that work schedule conflicted with the ability to attend therapy. PGY1s and PGY3s showed increased agreement with the statement "I am familiar with finding a therapist" in the post-survey. Eight subjects either strongly agreed or agreed that therapy could cause a person to be considered weak. Of the subjects who attended therapy, all agreed that therapy made a positive impact on their wellness and agreed they were able to provide better, more empathetic care to their patients.

Conclusions: This study highlights the ongoing stigma surrounding participation in therapy among emergency physicians. Although some subjects planned to attend therapy and had experience to therapy prior to the study, barriers such as work schedule or negative emotions surrounding therapy may have prevented utilization of counseling. The increased familiarity among PGY1 and PGY3 to finding a therapist may suggest a positive shift in awareness. Importantly, all subjects who attended therapy agreed on meaningful benefits, both in their own wellness and their ability to provide empathetic care. Our findings suggest a need for continued efforts to reduce stigma, improve accessibility and encourage EM residents to participate in therapy.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

502 Pediatric Psychiatric Boarding: Is it Exacerbating Disease?

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Study Objectives: Emergency department (ED) length of stay (LOS) of children with acute psychiatric illness has been increasing, but the effect of prolonged ED LOS on long-term adverse outcomes and healthcare utilization for these patients remains unknown. We aimed to identify if prolonged ED LOS was associated with one-year revisits and repeat hospitalizations in this population while controlling for disease severity and other common confounders.

Methods: Patient encounters from 2016-2024 at an urban children's hospital with local inpatient psychiatric services were analyzed. Patients were included if presenting for suicidal ideation, self-harm, suicide attempt, depression, behavioral concerns, or psychiatric evaluation as determined by visit ICD-10 codes or text analysis of the reason for visit field. Patients were excluded if not between 4-17 years old, if discharged on index visit, or if living over 9km from the hospital (closest pediatric ED was 18km). Outcomes included number of ED revisits, repeat hospitalizations, and repeat visits for psychiatric chief concern within one year. The analysis controlled for possible confounders by calculating variance inflation factor (VIF) and training logistic regression (LR) models for each outcome using several control variables: measures of socioeconomic status (child opportunity index, insurance type, median household income for census tract), demographics (age, gender), and index visit variables (mean department ESI and census on index visit). Models were trained both including and excluding total hospital LOS on index visit as a marker of disease severity.

Results: Among 1,228 visits meeting inclusion criteria, encounter demographics were 62% female, 17% white, 55% black, 62% Medicaid, 2% uninsured, 26% with low or very low child opportunity index, and with a mean age of 13.6 (IQR 12-15), mean ED LOS 15.6h (IQR 7.1h – 20.6h), mean hospital LOS 164h (IQR 87h – 196h), and mean daily ED census of 230 (IQR 195 – 271). ED LOS had a VIF of 1.02. After controlling for potential confounders, ED LOS on index visit was not significantly associated with any measured outcome on LR (Odds Ratio 1.0, 95% CI 1.0-1.0, p-value range 0.26 – 0.79). Significant predictors ($p < 0.05$) of return psychiatric ED visits and admissions included inpatient length of stay (OR 1.06 and 1.05 per day respectively), mean department ESI on index visit (OR 0.68 and 0.57 respectively), department census on index visit (OR 1.30 and 1.31 per 100 patients respectively), and Medicaid insurance status (OR 1.79 and 1.33, respectively).

Conclusions: ED LOS has no association with downstream healthcare utilization as quantified by repeat ED visits or hospitalizations, both for psychiatric and all-cause presentations. However, departmental characteristics during index ED visit are significantly associated with repeat psychiatric presentations. We plan to continue to study whether department-level characteristics influence revisit rates, whether there is an inflection point at much higher ED LOS where it begins to exacerbate disease, and whether these findings hold true in an adult population.

Yes, authors have interests to disclose

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503 Patients Using CBD Products May Be Unaware of Potential Interactions With Prescription Medications

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Study Objectives: Cannabidiol (CBD) products are commonly used both recreationally and for presumed medicinal benefit. CBD has intrinsic pharmacological activity that can lead to adverse drug events (ADEs) and drug-drug interactions (DDI) when used concurrently with common prescription medications. Due to their largely unregulated nature and widespread advertising, consumers who use CBD products may not be aware of the potential negative drug interactions. The purpose of this study was to describe how often patients who use CBD products are concurrently using prescribed medications known to have DDI with CBD.

Methods: In this prospective, observational study, a QR code linked to an online survey was posted in patient rooms in the adult and pediatric Emergency Departments at a Level 1 Trauma Center in Eastern North Carolina. Voluntary participants (convenience sample) were asked about their use of CBD products, and to select from a list, any prescription medications they currently take. Responses were excluded from anyone < 18 years old.

Results: Of 686 respondents, 198 (28.9%) reported CBD use in their home. Among those, two thirds (133, 67.2%) reported concurrent use of 1 or more medications with a potential DDI with CBD. Among this at-risk group, the most common category of prescriptions being used was anxiety medications (81, 60.9%), followed by antihypertensives (59, 44.4%) and diabetes medications (20.3%). The medications most likely to have severe adverse Drug-Drug Interactions (DDIs) were immunosuppressants (14, 10.5%), followed by anticoagulants (10, 7.5%) and antiepileptics (10, 7.5%). Among those who reported CBD use, 46 (25.8%) said CBD was recommended by a doctor.

Conclusion: Most respondents using CBD are concurrently using a prescription medication that puts them at risk for an ADE. This highlights the need for patient education regarding these potential interactions. Emergency physicians should also be aware of interactions between CBD and prescription medications to ensure that they ask about the use of CBD by their patients and can recognize the clinical presentation of a CBD-related DDI.

No, authors do not have interests to disclose

504 Rethinking Patient Education to Reduce Pediatric Emergency Department Overutilization

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Study Objectives: The overutilization of pediatric emergency departments (EDs) for non-emergent conditions contributes to overcrowding, increased healthcare costs, and resource misallocation. Many caregivers lack adequate health literacy, leading to unnecessary ED visits for minor ailments that could be managed in primary or urgent care settings. This study evaluates the effectiveness of targeted educational interventions—specifically, multilingual lectures, structured reeducation workshops, and a culturally tailored "traffic light" healthcare navigation system—in reducing non-emergent pediatric ED visits. Additionally, it assesses the prevalence and patterns of ED overutilization across Michigan.

Methods: This mixed-methods study was conducted across five Michigan healthcare institutions, including Sparrow Health Systems, McLaren Greater Lansing, UofM Health West, C.S. Mott Children's Hospital, and Helen DeVos Children's Hospital, from October 2022 to April 2024. A total of 2,000+ pediatric patient encounters were analyzed for ED utilization patterns, while 520+ caregivers participated in pre- and post-intervention surveys assessing their understanding of appropriate healthcare pathways. Quantitative analysis, using t-tests and data triangulation, evaluated the impact of educational interventions on patient decision-making. Qualitative data from caregiver interviews provided insights into barriers to healthcare literacy and access.

Results: Baseline data indicated that 38% of non-emergent ED visits were Medicaid-insured patients, with a significant proportion of visits attributed to minor colds, low-grade fevers, and mild gastrointestinal issues. The intervention demonstrated a 68% improvement in patient awareness of appropriate healthcare options ($p = 0.1383$), particularly regarding primary care and urgent care utilization. Despite these gains, survey data revealed continued limited awareness of community health resources, with only 47% of caregivers correctly identifying urgent care services post-intervention (Figure 2B).

Conclusion: The findings highlight the substantial burden of non-emergent pediatric ED visits and the potential for educational interventions to mitigate these challenges. While statistical significance was not achieved ($p = 0.1383$), the data indicate a positive trend in informed healthcare decision-making, suggesting that further refinement of educational strategies may yield greater impact. Community-based reeducation efforts, particularly in-person workshops, were the most effective intervention, possibly reducing non-emergent visits by 27% over six months. These results underscore the importance of integrating structured, culturally competent patient education into public health strategies to optimize emergency department resource allocation and improve healthcare literacy.

No, authors do not have interests to disclose

505 Emergency Department Screening for Social Determinants and Health Care Usage Behavior: A Pilot Study

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Study Objectives: Social determinants of health (SDOH) are the conditions in which people are born, grow, live, work, and age, and are posited to have a significantly

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larger influence on health outcomes than medical care. Social emergency medicine (EM) is a developing field of emergency care that emphasizes addressing SDOH that directly impact and complicate patients' abilities to manage their health. The objectives of our study were to pilot an SDOH screening survey and identify initial demographic trends in social needs, determine any correlations between SDOH burden and healthcare usage behaviors, and to qualitatively identify methods for improving social EM practices within the limitations of this ED.

Methods: This was a convenience sampling of adult patients (>18 years old) who presented to the ED between July 2024 and February 2025. Patients who were sedated, intoxicated, incarcerated, presenting with an acute psychiatric complaint or >level 2 trauma activation, or had limited English proficiency were excluded from participation. During each survey shift, patients were selected for participation via random number generation corresponding to bed number to minimize sampling bias. Following patient consent, a survey was administered to assess social needs in four principal areas: food, housing, transportation, and interpersonal safety. Healthcare usage behaviors were also measured by asking if patients had established care with a primary care physician (PCP), if they had delayed visiting their PCP or seeking emergency care, if they had rationed their medications, if they had failed to take their medication due to doubting its efficacy or safety, or if they ever felt unsafe in a medical setting. Surveys also included patient demographics including, age, gender, ethnicity, and annual household income. Patients who reported a social need were provided with referrals by either the research assistant directly or the ED social worker. A SDOH score ranging from 0 to 4 was developed from a summation of any positive replies within each of the four domains. The SDOH 4-point scale was then used in logistic regression models to estimate the odds of each healthcare utilization measure.

Results: 105 patients were surveyed. 41.9% (n=44) of patients reported at least one social need or challenge, with the most frequent being related to food insecurity (32.4%, n=34). Among univariable logistic regression models, per each 1-point increase in SDOH, the odds of patients not having a PCP increase by an estimated 113%, the odds of non-adherence to medication regimen increase by 86%, the odds of patients delaying medical care increase by 89%, and the odds of patients reporting experiencing medical mistreatment or feeling unsafe increase by 236%, respectively. Among multivariable models, while controlling for patient age, the odds of delaying medical care increase by 63% per each 1-point increase in SDOH. Additionally, while controlling for the effect of SDOH, patients less than 55 years old have more than 6 times the odds of delaying medical care than those over 55.

Conclusion: Patients with identified social needs were more likely to report delaying care or failing to adhere to a medication regimen. Patients facing multiple distinct types of social challenges at once were increasingly likely to report such behaviors. Factors contributing to this trend could include limited access to care stemming from economic and social stress, and/or mistrust of healthcare institutions and medical services in part based on exposure to unsafe living environments or interpersonal abuse. This study indicates that SDOH are highly correlated with patient ability to properly seek and subsequently adhere to medical treatment. Implementation of broad routine SDOH screening in the ED could be a viable first step to ensure that emergency physicians consider and act on these social factors in an effort to improve health outcomes.

No, authors do not have interests to disclose

506 Evaluating Variables that Influence Discharge Delay for Emergency Department Patients Requiring Physical Therapy

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Introduction: Delayed discharge in the emergency department (ED) can negatively impact patient outcomes, increase healthcare costs, and contribute to ED overcrowding. Many patients are seen in the ED each year for acute trauma. Depending on their injuries and other factors some will be placed in observation or admitted, and some will be discharged without barriers. Of those patients found not to have pathologies requiring acute intervention, many cannot be discharged because they still have ambulation dysfunction. This puts a strain on those patients who may have worse outcomes by waiting in the ED for up to 24 hours, a strain on the providers and prevents new patients from being seen. There is literature that identifies risk factors and preventive measures for falls in the elderly, but more studies are needed to assess what are the barriers to safe discharge for all patients with ambulatory dysfunction in the ED

Study Objective: This study aims to look at what variables influence time to departure for ED patients who had a physical therapy (PT) evaluation.

Methods: A retrospective chart review of patients who presented to the ED at Hackensack University Medical Center between June 2023 andSept 2024and had a PT evaluation was conducted. To specifically focus on patients who had a non-medical cause for admission, patients admitted primarily due to a change in functional status were excluded. Excluded patient visits also included any visits with a Deceased, Eloped, Send to Procedure, Send to Obs, or Expired Hospital disposition. To assess the significance of each of the PT variables on discharge delay, an ANOVA analysis was conducted with "Time between Disposition and Departure" as the dependent variable.

Results: A total of 318 charts were identified as matching our cohort. We had a total of 5 healthcare professional reviewers, and two reviewed every chart. All discrepancies were resolved through consensus discussion. Upon review, 177 of the charts were found to have a medical reason for admission and were thereby excluded. Of the remaining 141 visits, 55% were non-ambulatory or used an assistive device at baseline. In 72% of cases, chart review revealed a PT recommendation of incorporating an assistive device in the patients' plan of care. 126 (89%) of the cases represented patients who were neurologically within normal limits. Of the 141 visits, 69 of those patients were admitted (for non-medical reasons), and 72 were discharged from the ED. The ANOVA calculation with interactions revealed that having a standard cane at baseline, along with a rolling walker at baseline was a significant factor in ED length of stay (multiple hypothesis testing corrected $p=0.025$). In addition, having crutches as the PT recommendation also showed significant delays, but there were only 2 patients who fell into this cohort. Patients who did not have a cane and rolling walker at baseline (94%) had a median length of stay of 38 hours, whereas those who did (6%) had a median length of stay of 57 hours.

Conclusion: Identifying a set of modifiable factors that contribute to delayed discharge in ED patients requiring PT evaluation will inform targeted interventions to improve length of stay and time to disposition.

No, authors do not have interests to disclose

508 Temporal Trends in Use of Social Determinants of Health Diagnoses in Emergency Department Patients

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Study Objective: Social determinants of health (SDoH) significantly impact patient outcomes. Recently, there has been a growing focus on identifying SDoH to enhance patient access to resources and improve the efficiency of healthcare systems. One method of capturing SDoH is using ICD-10 codes (Z55-65), introduced in 2015. These codes address issues related to education and literacy, employment, housing, economic stability, and psychosocial circumstances. We hypothesize that two recent significant events may have led to increased documentation of these ICD-10 codes: the passage of California Senate Bill 1152 in 2019, which requires addressing SDoH before discharging the patient from the hospital, and changes to billing and coding guidelines in 2023 that recognize SDoH as a factor in determining the complexity of medical decision-making.

Methods: The California Health & Human Services Agency makes ICD-10 codes for all emergency department visits publicly available. To analyze the frequency of Social Determinants of Health (SDoH) diagnoses, we calculated the rate per 100,000 total diagnoses (dx/100k) annually. We divided the years into three periods based on significant events: 2016-2018, 2019-2022, and 2023. We employed a two-way ANOVA to compare the average frequency of SDoH diagnoses across these periods and ICD-10 groupings. We evaluated the differences between individual groups using Post-hoc Tukey HSD testing. A P-value of less than 0.05 was considered statistically significant.

Results: Overall, there were statistically significant differences in the rates of Social Determinants of Health (SDoH) diagnoses across different periods ($p < 0.001$ for 2016-2018 vs 2019-2022; $p=0.047$ for 2019-2022 vs 2023; $p < 0.001$ for 2016-2018 vs 2023) and in terms of ICD-10 grouping ($p < 0.001$). The SDoH category that exhibited the most significant increase in the relative rate of diagnoses when comparing 2023 to 2016 was "problems related to education and literacy" (Z55), which increased from 0.45 to 25.3 diagnoses per 100,000 people, representing a rate of 55.8. In 2023, the most frequently diagnosed SDoH were "problems related to housing/economic circumstances" (Z59) at 522.6 diagnoses per 100,000, followed by "employment/unemployment" (Z56) at 98.4, and "other psychosocial circumstances" (Z65) at 83.7 diagnoses per 100,000, respectively.

Conclusions: The use of Social Determinants of Health (SDoH) diagnosis codes in California emergency departments has significantly increased. Further research is necessary to determine whether these trends exist in other settings.

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509 Impact of the Mortality Surprise Question on Emergency Department Clinician Behavior

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Study Objectives: Electronic health records (EHRs) are widely implemented to improve care delivery but often introduce unintended workflow disruptions. The Mortality Surprise Question (MSQ) is a validated screening tool prompting clinicians to consider whether a patient might benefit from end-of-life care planning. In 2023, our health system introduced the MSQ into the emergency department (ED) admission workflow across three high-volume EDs. This study evaluated whether the MSQ altered admission order entry behaviors and assessed variation by clinician experience with the EHR.

Methods: A retrospective observational study included all adult ED admissions from January through December 2023 across three EDs sharing a single EHR instance and a single clinician group with a combined annual volume of approximately 200,000 patients. Data from September 2020 to September 2023 were analyzed. Admission orders were categorized by whether they originated from the Quicklist or Disposition tab in the EHR. The MSQ was implemented in two phases: first into the Quicklist (on May 30) for phase 1, then into the Disposition tab (on September 11) for phase 2. For primary analysis, we compared proportions of admissions from each workflow across implementation phases using t-tests. Clinician EHR experience was stratified into three groups (0–2, 2–4, and >4 years) and we examined the relationship between the clinician EHR experience and likelihood of using each entry mode.

Results: During the study period, 53,896 patients were admitted from the ED: 29,541 (55%) using the Quicklist and 24,355 (45%) the Disposition tab. Proportion of admission orders placed from the Quicklist declined from 59% (95% CI: 58.1–60.5%) pre-intervention to 46% (95% CI: 45.6–45.9%) after phase 1, then rebounded to 57% (95% CI: 55.6–58.3%) after phase 2. Compared to clinicians with 0–2 years of experience, those with 2–4 years were less likely to use the Quicklist (OR: –0.067; 95% CI: –0.134 to –0.0002), while those with >4 years were more likely (OR: 0.126; 95% CI: 0.054–0.197). We also found that those with 4+ years experience with the EHR were more likely (OR 1.97 (1.006, 3.86)) to use the Quicklist tab to admit in the pre-intervention period. While years of experience was associated with the type of admission order source overall and pre-intervention, there were no significant associations with likelihood of switching upon introduction of the MSQ.

Conclusion: Following implementation of the MSQ, clinicians altered their admission workflow to avoid the new question, shifting from the quick list to the disposition tab. Once the question was required in both entry modes, behavior reverted toward prior habits, demonstrating how EHR-driven interventions may lead to unintended shifts in clinical behavior. We also note varying comfort levels with a new intervention based on clinician experience with the EHR. These findings suggest that reducing optionality and aligning interventions with existing workflows can improve adoption of quality improvement tools.

No, authors do not have interests to disclose

510 Sudden Death in Young Adults: A Retrospective Trend Analysis in the Pre-COVID and Post-COVID Era

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Study Objectives: Sudden death in young adults represents a significant public health concern with varying etiologies. Although cardiac causes are often emphasized, non-cardiac etiologies and the pandemic's impact remain underexplored. This study aims to investigate the epidemiological trends, etiological factors, and demographic patterns of sudden death in young adults in Karachi, Pakistan, to address this gap and assess shifts in the pre-COVID (January 2018 to February 2020) and post-COVID (March 2020 to September 2023) era.

Methods: We conducted a retrospective analysis of 855 patients experiencing sudden death—defined as death within 24 hours of symptom onset—at the emergency departments of Aga Khan University Hospital (AKUH) and Indus Hospital from January 2018 to September 2023. Trauma, violence, overdose, and palliative care-related deaths were excluded. Data from electronic health records included demographics, clinical history, vital signs, and causes (cardiac, non-cardiac, or unexplained). Descriptive statistics, chi-square, and t-tests were used for analysis (SPSS v27, $p < 0.05$).

Results: The cohort (mean age 30 ± 6 years) was 56% male, with diabetes (31%) and hypertension (19%) as common comorbidities. Non-cardiac causes predominated (86%), led by diabetic ketoacidosis (31%), ischemic stroke (8%), and non-traumatic intracerebral hemorrhage (7%), while cardiac causes (5%) included idiopathic dilated cardiomyopathy (28%) and hypertrophic cardiomyopathy (19%); 8% were unexplained. Post-COVID cases (67%) exceeded pre-COVID cases (33%). Most deaths (59%) occurred outside the hospital, with 75% within 1–6 hours of symptom onset. Among cases at AKUH, 16% were unvaccinated and 2% fully vaccinated post-COVID.

Conclusion: The study highlights the predominance of non-cardiac causes in sudden deaths among young adults, with a notable increase post-COVID. The findings emphasize the need for targeted preventive measures and improved emergency response strategies to mitigate sudden mortality in this population. Further research is warranted to explore the underlying mechanisms linking COVID-19 and sudden death trends.

Table 1: Causes of Sudden Death

Cause	Frequency	Percentage
Cardiac Cause	46	5%
Non-Cardiac Cause	738	86%
Unexplained Sudden Death	71	8%

Table 2: Cardiac Causes of Sudden Death

Cause	Frequency	Percentage
Idiopathic Dilated Cardiomyopathy	9	28%
Hypertrophic Cardiomyopathy	6	19%
Arrhythmogenic Right Ventricular Dysplasia	6	19%
Dilated Cardiomyopathy	6	19%
Primary Arrhythmias (e.g., Long QT Syndrome, AV Block)	6	19%
Ventricular Arrhythmias	6	19%
Myocarditis	3	9%
Hypertensive Cardiomyopathy	3	9%
Bacterial Endocarditis	3	9%
Ischemic Cardiomyopathy	2	6%
Valvular Heart Disease	2	6%
Others (Specify)	3	9%

Table 3: Non-Cardiac Causes of Sudden Death

Cause	Frequency	Percentage
Diabetic ketoacidosis	87	29%
Ischemic stroke	24	8%
Intra-cerebral hemorrhage (non-traumatic)	20	7%
Pulmonary embolism	15	5%
Asthma	14	5%
Seizures	10	3%
Pancreatitis	7	2%
Others	156	52%

No, authors do not have interests to disclose

511 Evaluating a Clinical Decision Support Tool for Sepsis Management for Evidence of Intrinsic Bias

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Study Objectives: Clinical decisionsupport(CDS) tools may be vulnerable to intrinsic bias resulting from their design, implementation, and utilization potentially leading to disparities in healthcare delivery and patient outcomes. The primary objective was to assess whether a CDS tool designed to facilitate the identification, diagnostic workup, and therapeutic management of patients with sepsis in the emergency department (ED) displayed evidence of bias.

Methods: A retrospective observational study of a consecutive sample of patient electronic health records was performed. All ED adult patient encounters across a single large, public, non-profit healthcare system in the southeast United States over a 21-month period (January 2023 – September 2024) were screened. Encounters during which the patient satisfied sepsis criteria per Centers for Medicare & Medicaid Services guidelines (suspected or documented source of infection with at least two Systemic Inflammatory Response Syndrome criteria) were included. Data regarding whether an institutional sepsis Best Practice Advisory (BPA) alert fired during the ED encounter was recorded. Structured demographic and clinical patient data (age, sex at birth, preferred language, race, payor status, mode of arrival, ED disposition, and the maximum model score used as a proxy for disease severity) were recorded. A multivariable logistic regression analysis in which a BPA firing event was modeled while adjusting for covariables was performed using SAS Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at 0.05, a priori.

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Results: A total of 7762 patient encounters satisfied eligibility criteria during the study period. The BPA fired during 2461 (31.7%) encounters. The logistic outcome regression model for BPA firing event was significant for the covariables representing mode of arrival (ambulance:walk-in AOR: 1.54, 95% CI: 1.4-1.7, p <.0001, other:walk-in AOR: 5.88, 95% CI: 4.2-8.2, p <0.01), ED disposition (discharge:admit AOR: 0.60, 95% CI: 0.4-0.8, p <0.01), and maximum model score (AOR: 0.99, 95% CI: 0.98-0.99, p <.0001).

Conclusion: A CDS tool designed to facilitate the identification, diagnostic workup, and therapeutic management of patients with sepsis in the ED appears to fire more frequently for patients presumed to have a higher severity of illness but does not appear to be subject to intrinsic biases related to patient demographics such as age, sex at birth, preferred language, and race and socioeconomic factors such as payor status.

Figure: Results of the multivariable logistic regression analysis for Best Practice Advisory alert deployment event while adjusting for age, sex at birth, preferred language, race, payor status, mode of arrival, emergency department disposition, and the maximum model score. The level of significance was set at 0.05, a priori.

Analysis of Maximum Likelihood Estimates

Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	1.2790	0.1391	84.4850	<.0001
AGE		1	0.000530	0.00151	0.1234	0.7254
GENDER_CAT	1	1	0.0153	0.0249	0.3789	0.5382
LANGUAGE_CAT	1	1	-0.0544	0.0667	0.6649	0.4149
LANGUAGE_CAT	2	1	0.0157	0.0901	0.0305	0.8613
RACE_CAT	1	1	-0.0803	0.0472	2.9000	0.0886
RACE_CAT	2	1	-0.0936	0.0535	3.0556	0.0805
RACE_CAT	3	1	0.0341	0.0825	0.1711	0.6792
ARRIVAL_CAT	1	1	-0.3015	0.0641	22.1131	<.0001
ARRIVAL_CAT	2	1	1.0363	0.1135	83.3536	<.0001
DISPO_CAT	1	1	-0.3356	0.1110	9.1465	0.0025
DISPO_CAT	2	1	0.1663	0.0740	5.0460	0.0247
PAYOR_CAT	1	1	-0.0710	0.0605	1.3764	0.2407
PAYOR_CAT	2	1	0.0315	0.0496	0.4047	0.5247
MAX_MODEL_SCORE		1	-0.0131	0.00211	38.6212	<.0001

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
AGE	1.001	0.998	1.003
GENDER_CAT 1 vs 0	1.031	0.935	1.137
LANGUAGE_CAT 1 vs 0	0.911	0.780	1.065
LANGUAGE_CAT 2 vs 0	0.977	0.755	1.265
RACE_CAT 1 vs 0	0.802	0.703	0.916
RACE_CAT 2 vs 0	0.792	0.681	0.921
RACE_CAT 3 vs 0	0.900	0.714	1.133
ARRIVAL_CAT 1 vs 0	1.542	1.383	1.719
ARRIVAL_CAT 2 vs 0	5.877	4.200	8.224
DISPO_CAT 1 vs 0	0.604	0.438	0.832
DISPO_CAT 2 vs 0	0.997	0.853	1.165
PAYOR_CAT 1 vs 0	0.895	0.676	1.185
PAYOR_CAT 2 vs 0	0.992	0.769	1.280
MAX_MODEL_SCORE	0.987	0.983	0.991

No, authors do not have interests to disclose

512 Clinical Profile of Patients With Malignancy Presenting to the Emergency Department

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Study Objectives: PRIMARY OBJECTIVE: To study the clinical profile of patients with malignancy presenting to the emergency department of All India Institute of Medical Sciences (AIIMS) New Delhi and National Cancer Institute (NCI) AIIMS Jhajjar. SECONDARY OBJECTIVES: To assess outcome at 24 hours and 7 days after presentation to Emergency (duration of stay in emergency or admission or discharge or death); To assess the factors associated with mortality in patients with malignancy.

Methods: A prospective observational study was conducted on patients with malignancy who presented to Emergency Department of AIIMS, New Delhi and Emergency Department of National Cancer Institute (AIIMS, New Delhi) for a period of 18 months. 500 patients who met the inclusion criteria were included in the study.

Inclusion Criteria:

1) Patients with diagnosed cancer (biopsy proven)
2) Patients/legally authorized representatives willing to give valid consent

Exclusion Criteria:

1. Age <18 years.
2. Patients brought in Cardio-respiratory arrest.
3. Patients with a history of trauma
4. Patients/legally authorized representatives not willing to give valid consent

Statistical Analysis: The data was analyzed using Jamovi software version 2.6.44. Univariate and bivariate analysis was conducted for patients' demographics and outcome. Multivariate logistic regression analysis was done to identify independent factors associated with mortality

Results: 500 patients were included in the study and the mean age of the sample is 48.2± 16.8. Males constituted 57.4% (287) and females 46.6%(213) of the population. 86% of the patients were receiving primary oncological care from AIIMS Out Patient Department (OPD) and about 54.4% of the patients visited emergency during Out patient services hours mostly because unavailability of the appointment dates. 57% of the patients had at least one prior emergency visit. For about 61% of the people, the prior visit was one month back. 69% of the patients were educated about when to visit emergency department by their primary physician. 15.6% of the patients required oxygen for treatment and 6% received vasopressors during their course in emergency department. The most common malignancy was of haematology (30.4%) in both genders. The second most common cancer in females is breast cancer and gastro intestinal cancers in males. The most common presenting symptoms are gastrointestinal (nausea, vomiting, loose stools) which were there in 31% of the sample, followed by fever (23%), respiratory like dyspnoea and cough (24%) and pain (18%). Anaemia (23.6%), thrombocytopenia (18%), Infection (17.8%), sepsis (16%) and febrile neutropenia (16%) were common complications of malignancy in this dataset. 52% (260) were on some form of analgesics and 55.9% received antibiotics. 192(38.4%) patients had locally advanced disease and 132(26.4%) distant metastases. 52% of the population were on chemotherapy as their primary treatment for cancer. 20.8% (104) had poor performance score (ECOG 4). At 24 hours of Emergency stay 52.6% (263) were discharged and 3.6%(18) were dead. At 7 days 12.4% were dead and 9.8% were admitted to wards or intensive care units. Poor performance score, invasive ventilation, vasopressor use, prior kidney disease, elevated lactates, sepsis and poor sensorium were found to be independently associated with mortality at 7 days (p <0.05)

Conclusion: Frequent ED visits by cancer patients not only reflect the severity and unpredictability of the disease but also point to potential gaps in outpatient care and the need for improved symptom management. Preventable causes of visits should be reduced to decrease the load on overburdened Emergency facilities. Our study being one of the first emergency department-based study in India which is one of the most populated countries, ranking third in cancer incidence as perGLOBOCON 2020report and included all types of cancers, provides a great input in revising policies and practices of emergenct physicians all over the country and world.

No, authors do not have interests to disclose

513EMF Perceptions of a Deep Learning Model for Identifying Patients at Risk for Structural Heart Disease

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Study Objectives: Structural heart disease (SHD) remains underdiagnosed with higher rates in medically underserved patients frequently using the emergency department (ED) as their primary source of care. EchoNext, a deep learning model designed to predict structural heart disease (SHD) from ECG tracings identifies high-risk patients likely to benefit from transthoracic echocardiogram (TTE). We aimed to

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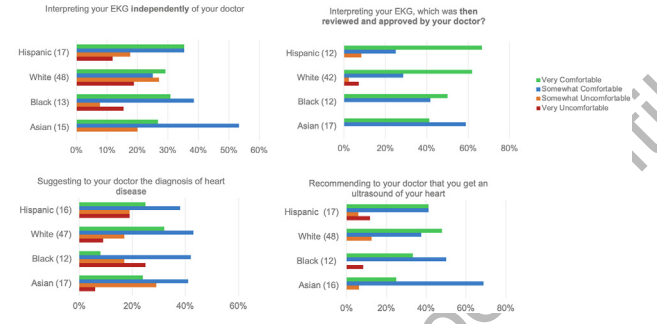
assess patient and provider perspectives on the use of artificial intelligence (AI) in an ED-based SHD screening program to assess facilitators and barriers of adoption prior to implementation at our institution.

Methods: We recruited a convenience sample of ED patients and ED providers at a single, urban academic ED. Providers include current faculty, residents and advanced practice providers; ED patients were eligible if aged 18-65, English-speaking, and not critically ill. Surveys were developed based on prior literature, expert consensus and adapted for EchoNext. Surveys were administered via Qualtrics. Descriptives statistics are presented.

Results: Between July and October 2024, 102 patient surveys were completed: median age was 34, 47% female, 50% white, and 20% Hispanic. While 56% reported knowing little to nothing about AI in healthcare, 79% were comfortable with AI to help diagnose SHD though acceptance varied by age and racial / ethnic subgroups (Figure 1). Key factors driving acceptance included physician review, sharing test results, and model accuracy, while AI disclosure was less important. Survey responses were obtained from 52 ED providers (42 attendings, 8 residents, and 2 physician assistants), most with >5 years clinical experience, and the majority were somewhat familiar with use of AI in medicine. Providers ranked tool accuracy and integration as top priorities. A majority (84%) believed EchoNext would reduce missed SHD diagnoses, though only 63% were confident it would improve outcomes. Half of providers felt better tools were needed for SHD diagnosis, and 75% would trust EchoNext recommendations. However, 95% expressed concern about patient follow-up, and 86% were worried about liability with AI use.

Conclusion: Patients are generally optimistic about the use of AI, despite most knowing little about how it works. While a slight majority of patients are comfortable with EchoNext reading their ECGs, they exhibit strong preferences for physician review, underscoring the need for physician oversight and patient education throughout the screening workflow. ED providers were generally in agreement that AI models could improve clinical care for patients with possible SHD.

Figure 1: Patient comfort with use of AI for ECG interpretation and recommendations by race and ethnicity



No, authors do not have interests to disclose

514 Navigating the Research Landscape: A Study of AI Search Tools With Literature Mapping Capabilities

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Study Objectives: The exponential growth of academic literature necessitates efficient tools for discovering, analyzing, and visualizing research outputs. Artificial intelligence-driven (AI) search tools have emerged to aid researchers in navigating the research landscape. Literature mapping allows researchers to see how different studies relate to one another through citations and thematic connections. This helps researchers and scholars quickly identify related works and understand the evolution of ideas within a field. Our proposal compares prominent AI search tools explicitly focusing on their literature mapping capabilities.

Methods: This prospective descriptive analysis compared six prominent AI search tools that have literature mapping capabilities. A panel of emergency medicine research faculty developed twelve evaluation criteria. These criteria included functionality, user interface, cost, weaknesses, accuracy (relevance and precision of mapped relationships among papers), and integration (ability to connect with other databases or reference management tools). Descriptive statistics were used to describe the key qualitative variables.

Results: AI search tools all had a modern interface that allowed users to easily navigate between studies. Litmaps and Scite.ai had extensive mapping capabilities, were highly accurate in contextualizing citations (100%), and integrated with various reference management tools. Research Rabbit did not have a robust mapping capability but focused on discovering new research papers. Its overall accuracy was 92%. Connected Papers and Lens.org were designed for researchers to explore academic literature visually, allowing them to create interactive graphs. Their accuracy was 83-91%, depending on the starting paper. Semantic Scholar is developing its database compared to the more established platforms. All six AI tools had a free tier available, making them valuable resources for researchers looking to explore academic literature effectively.

Conclusions: These tools provide various functionalities for literature mapping, with different strengths in user interface design, accuracy, and integration options. Litmaps and Scite.ai offer robust mapping and citation analysis features, while Research Rabbit, Lens.org, and Connected Papers focus on discovery and drive innovation.

No, authors do not have interests to disclose

515 Missed Opportunities for STI Diagnosis in the Presence of Newly Diagnosed HIV

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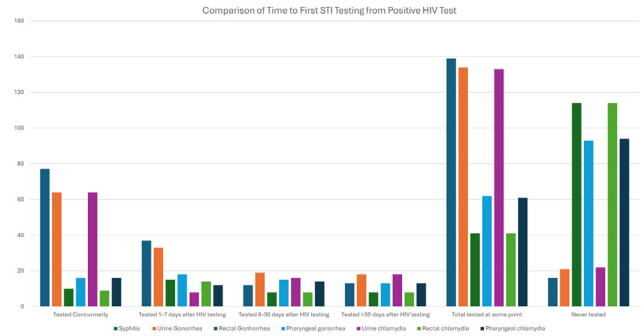
Study Objectives: Sexually transmitted infections (STIs) are on the rise across the United States (US). STI exposure and screening are common chief complaints in the Emergency Department (ED), and many EDs have embraced the opportunity to screen for STIs, particularly HIV, through opt-out or risk-based screening. Previous research has highlighted that STIs are a reliable risk factor for HIV seropositivity and should be considered criteria for HIV screening. Less attention has been given to the corollary that a new HIV diagnosis increases the risk for other STIs. The purpose of this study is to determine the percentage of newly identified HIV-positive patients being tested for STI co-infections, the timing and location of the testing, and rates of co-infection.

Methods: This is a retrospective cohort study of newly diagnosed HIV-positive patients identified through screening in the EDs, outpatient clinics, and inpatient wards of a large healthcare system in the urban southeast US; three of the four EDs in the health system test patients for HIV in an opt-out fashion. Between January 1, 2022, and July 31, 2024, 155 new HIV-positive adult patients were identified. The electronic health record (EHR) was reviewed for each patient to assess for STI co-infection. Patient demographics, STI co-infections, and time to STI diagnosis were extracted from the medical record. We calculated STI positivity rates for patients who received STI screening and then applied these rates to the percentage of patients who never received screening to estimate possible missed diagnoses.

Results: During the study period, 155 patients were newly diagnosed as HIV-positive. The average age was 36.52 years of age (range 18-78). Seventy-three percent of subjects were male, and 77% were African-American. The ED accounted for the highest number of new HIV diagnoses, with 74 (48%), followed by ambulatory clinics with 43 (28%) and the remaining 38 (24%) from the inpatient ward. Syphilis screening was performed in 139 (89%) patients, with a 39.6% positivity rate. Only 55% of patients were tested concurrently with HIV (Figure 1), and 17 (10.9%) patients were never tested for syphilis. Urine samples were tested for gonorrhea in 134 (86%) and for chlamydia in 133 (85%) of patients, with positivity rates of 9% and 4.5% respectively. Forty-one (26%) patients were tested for rectal gonorrhea and chlamydia with positivity rates of 9.7% and 4.5% respectively. Another 10% of patients received oral gonorrhea and chlamydia screening with a 3.9% and 0% positivity rate, respectively. Figure 1 shows the timing of these tests with low concurrent testing rates, particularly for oral and rectal sites. STI screening was never completed in many patients (Figure 1), ranging from 10% who never received syphilis testing to 73.5% who never received rectal gonorrhea or chlamydia testing. Applying the above positivity rates in this population to unscreened patients, it is estimated that as many as six patients with syphilis had a missed diagnosis, eight patients with some form of gonorrhea, and 5.5 patients with an active chlamydia infection. Although 81% of the patients tested and diagnosed with HIV in the ED were successfully linked to care, the ED patients still accounted for the majority of unsuccessfully linked patients (61%), further highlighting the importance of concurrent STI testing in the ED.

Conclusion: This study highlights the gaps in complete STI testing in the presence of a new HIV diagnosis. A singular focus on the HIV diagnosis, instead of the complete spectrum of STI infections, may result in detrimental outcomes for patients who are already immunocompromised.

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Yes, authors have interests to disclose

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516 Validation of an AI-Based Automated Detection of Zone and Key Organs During the Abdominal FAST Exam

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Study Objectives: The Focused Assessment with Sonography in Trauma (FAST) exam is used to rapidly identify intraperitoneal hemorrhage in trauma patients. An abdominal FAST exam requires the user to visualize areas of fluid accumulation in three abdominal zones: the right upper quadrant – RUQ, left upper quadrant – LUQ, and Suprapubic – SP zones. Automated identification of zones and key abdominal organs during the FAST exam can enhance workflow and diagnostic accuracy in several ways. For instance, automated annotation of critical regions can provide real-time feedback on exam completeness, enable auto-save functionality, and facilitate structured reporting of relevant findings. Furthermore, real-time auto labeling can enable users to capture a complete view by ensuring key landmarks have been identified. This study aimed to evaluate an AI-based algorithm for automated zone and organ detection using abdominal FAST exam data.

Methods: FAST exams were prospectively acquired from trauma patients (n=82; 64% male; age 45.8 ±20.7; BMI 27.8 ±6) from three clinical sites under institutional review board approvals using a commercially available handheld ultrasound system. Exam videos (n=229) were independently evaluated by five readers comprising three Emergency physicians and two sonographer technicians in a blinded retrospective study. Readers were asked to identify the abdominal zone and organs present in each video. A reference standard was established based on the majority vote (^{3} 3 readers agreement). An AI-model developed using a separate database than the validation dataset, was evaluated against the reference standard for its ability to detect and label abdominal zone and organs.

Results: The AI model showed an accuracy of 91.1% [95% CI: 86.4 - 94.7]% for automated detection of the abdominal zone. The accuracy for the detection of key organs were: Liver 83.3% [73.2 - 90.8]%; Spleen 94.3% [84.3 - 98.8]%; Bladder 98.5% [92.0 - 99.9]%; Right kidney 97.8% [91.3 – 99.9]%; Left kidney 97.8% [88.5 – 99.9]%; Liver tip 86.5 [74.2 – 94.4]%; Spleen tip 90.0 [78.2 – 96.7] %.

Conclusion: Our study demonstrated a high accuracy of the AI model to identify abdominal zone and key organs during the FAST exam. TheAImodel may enable improved workflow andsupportless-trained users to ensure completeness ofFASTexams.

Acknowledgement: This study was partiallyfundedby the U.S. Department of Health and Human Services (HHS); Administration for Strategic Preparedness and Response (ASPR); Biomedical Advanced Research and Development Authority (BARDA), under contract number 75A50120C00097. The contract and federal funding are not an endorsement of the study results, product or company.

Yes, authors have interests to disclose

Disclosure: Philips

Goutam Ghoshal, Hyeonwoo Lee, Mohsen Zahiri, Rashid Al Mukaddim, Martha Grewe Wilson, Balasundar Raju

Employee

Philips

517 Artificial Intelligence-Powered Clinical Narratives for Optimizing Emergency Patient Disposition

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Introduction: Early and accurate disposition decisions for febrile emergency department (ED) patients are crucial for optimal resource allocation and improved outcomes. Delayed recognition of admission needs increases mortality risk, particularly in septic patients. Despite established protocols, disposition decisions remain challenging due to varying illness severity and ED overcrowding.

Study Objectives: This study aims to develop and evaluate a predictive model utilizing advanced pre-trained language models to enhance ED disposition decisions for febrile patients. By transforming numerical vital signs into structured clinical narratives, we seek to improve early hospitalization predictions without relying on laboratory results. Our objective is to assess the model's performance compared to traditional machine learning approaches and investigate its potential impact on patient outcomes and ED efficiency.

Methods: This retrospective study analyzed 25,405 ED visits with febrile symptoms from a tertiary medical center in Taiwan (2017–2019). We developed a novel predictive model using the GatorTronS pre-trained language model to forecast hospitalization needs based on triage data. Our approach transformed numerical vital signs into narrative text and standardized clinical narratives, enabling comprehensive semantic analysis without requiring laboratory results.

Results: Our model outperformed traditional machine learning and other biomedical language models, achieving superior performance (AUROC: 0.9226, AUPRC: 0.8767, Macro F1-score: 0.8446). The incorporation of textualized vital signs significantly enhanced prediction accuracy across all models tested. Notably, 553 patients (3.5% of discharges) returned within 72 hours requiring admission, underscoring the clinical importance of improved initial disposition decisions.

Conclusion: By leveraging readily available triage data without waiting for laboratory results, our model enables earlier intervention for high-risk patients while preventing unnecessary admissions. This approach has significant implications for mitigating ED overcrowding, optimizing resource utilization, and improving patient outcomes through timely and appropriate care delivery. Future research should focus on external validation and prospective implementation across diverse healthcare settings.

No, authors do not have interests to disclose

518 WITHDRAWN

519 Adding a Physician Assistant as Champion for Emergency Department Alternative to Opioids Program

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Study Objectives: The Emergency Department Alternatives to Opioids (ALTO) program was a Substance Abuse and MentalHealthService Administration (SAMHSA)

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fundedfederalgrantaimed to reduce opioid use by implementing alternative pain management modalities in the emergency department (ED) setting. This abstract assesses the influence of a Physician Assistant (PA) as a program champion on the ALTO procedure enrollment.

Methods: The ALTO program was implemented at a Level 1 Trauma Center ED in the Southern United States region on 8/1/2021 and concluded on 11/28/2024. Enrolled ED patients were English-speaking adults presenting with pain and an Estimated Severity Index of "urgent" (3), "less urgent" (4), and "non-urgent" (5) who received an ALTO intervention that may have included non-opioid medications, acupuncture, transcutaneous electrical nerve stimulation (TENS), regional nerve blocks (RNB), and/or trigger point injections (TPI). Initially, ALTO treatments were administered by one emergency physician, a pain specialist, and an acupuncturist available 1-2 days a week. Outside of their availability, the administration of ALTO interventions depended on the patient's ED attending physician. A full-time PA came onto the team on 7/1/2023 with the goal of increasing the program's enrollment. Here, we report the differences in patient enrollment, ALTO treatment use, and ED staff training Pre-PA (8/1/2021- 6/30/2023) and Post-PA (7/1/2023-11/28/2024).

Results: Of the 766 patients who received an ALTO intervention from 8/1/2021 to 11/28/2024, 166 patients enrolled Pre-PA and 600 enrolled Post-PA. The average monthly enrollment increased 390.3% (Pre-PA: 7.2 Post-PA: 35.3). The number of patients per month treated with TENS (Pre-PA: 1.9 Post-PA: 29.8), RNB (Pre-PA: 0.8 Post-PA: 5.2), and TPIs (Pre-PA: 0.7 Post-PA: 1.5) increased, whereas the monthly number of patients treated with acupuncture decreased (Pre-PA: 2.1 Post-PA: 0.5). Lastly, the number of ED staff trained on ALTO interventions increased 250% (Pre-PA: 20 Post-PA: 70).

Conclusions: Introducing new treatments into the ED presents challenges in training and gaining provider buy-in for implementation. The addition of the PA champion was instrumental in increasing enrollment and training for the ALTO program in our Southern ED. Future researchers should consider the benefits of a PA champion on enrollment and uptake when implementing study interventions in the ED.

No, authors do not have interests to disclose

	Questions	Residents n=102	Attendings n=83
Prenatal	Can pregnant persons in the first trimester opt out of overnight shifts, if desired?	40 (39%)	28 (33%)
	Can pregnant persons in the third trimester opt out of overnight shifts, if desired?	70 (69%)	62 (77%)
	Can pregnant persons in the third trimester opt out of mandatory overtime or jeopardy/back-up call)?	38 (37%)	46 (5%)
Parental Leave	Median (IQR) number of weeks of paid leave for the birthing parent:	6 (6, 8)	8 (6, 12)
	Median (IQR) number of weeks of paid leave for the non-birthing parent:	6 (0, 6)	4 (0, 8)
Lactation	Does your employer have a written policy explaining the objectives and accommodations provided to support lactating parents?	79 (78%)	52 (63%)
	Is there a dedicated private lactation space in or close to the emergency department?	98 (96%)	73 (89%)
	Is there a refrigerator to store breastmilk?	88 (86%)	42 (5%)
	Does the lactation space contain a desk/table with a telephone and computer connected to the electronic health records for clinical work?	65 (66%)	39 (53%)
	Does your workplace eliminate single coverage shifts for lactating physicians until cessation of lactation (up to 1 year)?	39 (38%)	39 (47%)
Return to Work	Upon return to work after birth and medical leave, do birthing parents have: - a reduction in # of overnight shifts? - no mandatory overtime/jeopardy? - fewer overall clinical shifts?	 17 (17%) 12 (12%) 19 (19%)	 11 (13%) 15 (18%) 11 (13%)
Fertility	Are assisted reproductive technologies (such as egg harvesting for fertility preservation, IUI, or IVF) included in your workplace's benefits package?	41 (40%)	37 (45%)

Table. Highlights of the responses from the Parental Policies Survey for residents and attendings in EM programs in the U.S.

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520 Adoption of Guidelines for Physician Pregnancy, Parental Leave, and Lactation in Emergency Medicine

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Study Objectives: Starting a family is an important milestone for many emergency physicians. Despite the recognized risks associated with this career and newly published guidelines for parental policies for these clinicians (Lall et al 2024), guideline adoption across emergency medicine (EM) programs is unknown. The purpose of this study was to better understand the adoption and content of parental policies for residents and attending physicians across U.S. emergency departments.

Methods: A 53-item REDCap survey was designed to assess the presence and details of best-practice recommendations related to thesupportof physicians during the prenatal, peripartum, and postpartum phases, parental leave, lactation, and fertility benefits in university- and community-basedEMprograms with residencies in the U.S. This survey was distributed via email to faculty chairs and residency program directors of the 282 programs listed in the FREIDA AMA Residency Database. At least three attempts were made to contact each program via email, with at least one attempt via phone call from September 2024 to February 2025.

Results: A total of 102 (36%) resident surveys and 83 (29%) attending surveys were completed, and the key findings are highlighted in the Table. While most EM programs limited overnight shifts in the third trimester for resident and attending physicians (69% and 77%), this was less common for the first trimester (39% and 33%). The minority of EM programs exempted resident and attending physicians from mandatory overtime or jeopardy/backup call (37% and 5%). Paid parental leave was also less robust for non-birthing parents, with a median (IQR) of 6 (0, 6) and 4 (0, 8) weeks for resident and attending physicians, respectively. The majority had written lactation policies tosupportbreastfeeding indefinitely, but appropriate lactation space and the ability to safely step away from patient care varied. A minority of EM programs provided coverage of assisted reproductive therapies.

Conclusions: This survey on parental policies of resident and attending sites found variability in adherence to consensus-driven recommendations for parental policies. This study may be limited by low response rates and response bias. More work is needed to enhance the adoption of these recommendations and to understand the impact of adherence on parental and fetal outcomes.

521 The "Thank a Lifesaver" Initiative: Enhancing Staff Well-Being

Goebel J, Sidle J/Northwell Health Huntington Hospital, Huntington, New York

Study Objective: The "Thank a Lifesaver" initiative reunites former critical patients with the caregivers who were instrumental in their care at a local community hospital. By fostering emotional connections, this program allows staff to witness the profound impact of their work. These events provide patients the opportunity to express gratitude, while helping alleviate stress, reduce burnout, and boost morale by showcasing the tangible outcomes of compassionate care.

Methods: The program has been conducted biannually for the past 1.5 years at a large community hospital. After the most recent event, attendees completed a two-question post-survey using a 5-point Likert scale:

"The 'Thank a Lifesaver' initiative,sponsoredby the Wellness Committee, had a positive impact on my personal well-being."

"I advocate for incorporating well-being initiatives into process change and program development."

Results: The feedback was overwhelmingly positive:

83% agreed or strongly agreed the initiative positively impacted their personal well-being.

92% agreed or strongly agreed on the importance of incorporating well-being initiatives into process changes. Attendee testimonials highlighted the initiative's impact:

"Incredibly inspiring event, truly filled my heart with joy to hear her story and how everyone in her life and in the hospital helped save her life."

"Exceptional care and collaboration among all disciplines."

"This event validated the reason why I went into healthcare."

Conclusions: The "Thank a Lifesaver" initiative is a transformative program that enhances both staff and patient well-being. By allowing healthcare professionals to see the lasting impact of their work, it fosters gratitude, emotional connection, and team collaboration. These events reduce burnout, improve job satisfaction, and highlight the value of staff well-being initiatives in healthcare.

No, authors do not have interests to disclose

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523 Low- Versus High-Fidelity Simulation for Fascia Iliaca Blocks: Considering Cost in Competency Training

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Study Objectives: Traumatic hip and femur injuries are common in emergency department (ED) patients and can cause severe pain and significant morbidity. Prompt and effective pain control is essential to reduce patient discomfort and complications. The ultrasound-guided fascia iliaca compartment block (UGFICB) is a valuable technique that provides opioid-sparing analgesia, but its technical complexity requires structured training. Simulation-based education plays a critical role in procedural skill acquisition; however, high-fidelity models (HFM) are expensive, leading some programs to adopt low-fidelity models (LFM) as cost-effective alternatives. This study evaluates whether an LFM is noninferior to an HFM in assessing resident competency in UGFICB performance. Secondary outcomes include confidence, procedural knowledge, model realism, and user preference.

Methods: This prospective simulation-based study was conducted at a high-volume, urban, academic ED (>100,000 annual visits) with a three-year emergency medicine (EM) residency program. Participants included 22 EM residents (PGY-1: 9, PGY-2: 7, PGY-3: 6). A low-cost LFM ($2.41 per model) was constructed using extra-firm soy tofu, soft white yarn, latex twisting balloons, ultrasound gel, and saran wrap. A commercial HFM was purchased for $4,225. Each session included a pre-training survey assessing self-reported confidence using a 100-point visual analog scale (VAS) and procedure knowledge via 10 content questions. A 10-minute instructional session covered indications, contraindications, and procedural steps, followed by a practice session on each model. Residents then performed independent UGFICB simulations, during which competency was assessed using a 16-item skills mastery checklist based on a validated assessment tool (score range: 0–32). A post-training survey reassessed confidence (100-point VAS), procedural knowledge (10 content questions), and secondary outcomes such as model realism and preference. Data collection and analysis followed established methods from intervention-based research. Survey results were linked via anonymous identifiers and analyzed using paired two-tailed t-tests (α=0.05). 95% confidence intervals (CI) were calculated for all significant findings.

Results: Competency scores did not significantly differ between models (LFM: 29.14 vs HFM: 29.23, p=NS). Confidence in UGFICB performance increased by 46.36 points (p <0.001, 95% CI: 33.97–58.76), and knowledge test scores improved by 21.82 points (p <0.001, 95% CI: 16.32–27.32). Residents reported higher confidence using the LFM compared to the HFM (+13.64 points, p <0.001, 95% CI: 6.65–20.62). The LFM was rated as more realistic (+25 points, p <0.001, 95% CI: 15.07–34.93), and all participants preferred it over the HFM.

Conclusions: A low-cost LFM was as effective as an HFM in assessing UGFICB competency and was associated with higher realism ratings, confidence, and preference among EM residents. Simulation training significantly improved procedural knowledge and self-reported confidence in UGFICB performance. Limitations include self-reported bias, small sample size, and no assessment of long-term skill retention. A two-month follow-up survey is planned to reassess self-reported confidence and procedural knowledge. Future studies should explore real-world success rates, long-term retention, and optimal training intervals for UGFICB competency development.

No, authors do not have interests to disclose

524 Habits and Hobbies of Emergency Physicians

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Study Objectives: Emergency physicians (EPs) face unique challenges due to the high-intensity nature of their work, which can impact their overall well-being, health habits, and lifestyle choices. Understanding the exercise routines, dietary habits, and personal hobbies of EPs may provide insight into their coping mechanisms and overall quality of life.

Methods: This cross-sectional study utilized electronic surveys to assess the health habits and lifestyle behaviors of EPs. Surveys were anonymous, and were distributed via email (emergency medicine program coordinators and program directors), text messaging, and posted on private verified Emergency Physician Facebook groups and forums. Data were automatically entered into a SurveyMonkey spreadsheet and downloaded into excel for analysis. Data were analyzed with descriptive statistics and thematic analysis.

Results: A total of 795 surveys were completed, with respondents including 340 males (42.82%), 446 females (56.17%), and 8 identifying as other/nonbinary/gender fluid. Participants were categorized by years of experience: 71 in training (8.94%), 134 within five years post-graduation (16.88%), 164 with 6-10 years of experience (20.65%), 182 with 11-15 years (22.92%), 104 with 16-20 years (13.1%), and 139 with more than 20 years of experience (17.51%).

Exercise and Physical Activity: Among respondents, 179 (22.63%) reported not engaging in any fitness or exercise activity. The majority participated in some form of physical activity: 474 (59.92%) engaged in cardiovascular exercise, 430 (54.36%) performed strength training, 180 (22.76%) practiced mindfulness activities or yoga, and 49 (6.19%) played team sports.

Dietary Habits: Eating out was a common practice, with 53 (6.68%) reporting that they never eat out. A majority, 431 (54.28%), dined out 1-2 times per week, 212 (26.7%) ate out 3-4 times per week, 72 (9.07%) ate out 5-6 times per week, and 26 (3.27%) ate out daily or more.

Hobbies and Leisure Activities: A portion of EPs, 207 (26%), reported having no hobbies. Among those who engaged in leisure activities, the most common hobbies included reading and literature (22%), outdoor activities (17%), travel (16%), sports and fitness (8%), cooking and baking (8%), music and arts (7%), family and social activities (6%), gardening (6%), and video games/entertainment (6%).

Conclusions: The findings suggest that while many emergency physicians engage in exercise and fitness routines, a notable proportion remain inactive. Additionally, frequent dining out is common, potentially impacting long-term health outcomes. The diversity of hobbies reflects various coping strategies, yet a significant percentage of EPs report having no hobbies, which may indicate a need for work-life balance interventions. Future studies should further investigate the relationship between these lifestyle habits and physician burnout, well-being, and job satisfaction.

No, authors do not have interests to disclose

525 Enhanced Prearrival Communication for Emergency Departments

Goebel J, Sidle J/Northwell Health Huntington Hospital, Huntington, New York

Study Objectives: A multidisciplinary committee was established to identify evidence-based practices thatsupportstaff wellness. This initiative aimed to assess how daily operational practices influence wellness and employ a data-driven approach to discern the needs of the hospital prior to implementing targeted solutions. Huntington Hospital has made significant advancements in enhancing the prearrival process for emergency department (ED) patients by transitioning from traditional paper call-in sheets to an electronic prearrival note within the electronic medical record. The previous paper-based method presented several challenges, including the potential for transcription errors related to phone numbers, names, and clinical histories due to illegible handwriting, as well as workflow disruptions caused by the need to transport documentation to two distinct triage areas and the risk of lost forms. The objective of this study was to utilize a data-driven methodology to evaluate whether this workflow transformation resulted in a decreased workload for ED staff at a busy community hospital.

Methods: The Maslach Burnout Inventory was administered at our hospitalists prior to the formation of the wellness committee to identify factors contributing to burnout. With an 83% response rate, the survey revealed that workload was the primary driver of burnout among staff. Subsequently, a focus group comprised of physicians, advanced care providers (ACPs) and nursing staff was convened to discuss specific workload issues impacting provider satisfaction. A significant concern identified was the practice of receiving calls in the ED from outpatient facilities and manually transcribing this information onto paper pink post-it notes. To evaluate the effectiveness of the implemented changes in reducing workload, a post-implementation survey was conducted using Microsoft Forms. This three-question survey asked participants to rate the following statements: "Eliminating the Pink Slip as a method for collecting pre-arrival patient information has reduced my workload burden" and "I recommend using Wellness Work to drive further process changes and program development." Responses were categorized as Strongly Disagree, Disagree, Neutral, Agree, or Strongly Agree. The final question solicited the occupation of the respondent to contextualize the feedback.

Results: The ED comprises fourteen full-time and three part-time Advanced Care Providers (ACPs), fifty-five nurses, and six Unit Ambassadors, all of whom are significantly impacted by the workflow process in question. We successfully collected fifty-two survey responses. Among the respondents, twenty-eight were nurses, seventeen were ACPs, four were physicians, and three were Unit Ambassadors. The results indicated a highly positive reception. Thirty two respondents strongly agreed and sixteen agreed with the statement, "Eliminating the Pink Slip as a method for

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collecting pre-arrival patient information has reduced my workload burden." Regarding the statement, "I recommend using Wellness Work to drive further process changes and program development" forty staff members strongly agreed and twelve agreed, with no respondents expressing disagreement. These findings underscore the effectiveness of the implemented changes in enhancing workflow and supporting staff wellness.

Conclusions: Enhancing workflow processes can significantly streamline administrative tasks and alleviate unnecessary burdens and enable a greater focus on patient care rather than paperwork. Our multidisciplinary wellness committee has demonstrated a positive impact on wellness through various initiatives, including this one. By employing a data-driven approach, we have effectively identified specific drivers of burnout, allowing for targeted interventions. These focused strategies address critical areas, such as workflow efficiency and workload management. Ultimately, these efforts foster a supportive and efficient work environment, which not only decreases workload and improves wellness but also enhances the quality of patient care delivered within the hospital.

No, authors do not have interests to disclose

526 Impact of Career Development Panels on Professional Growth

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Study Objective: A panel discussion typically features a moderator and a group of experts in a specific field presenting to an audience. The purpose is to stimulate conversation, share wisdom, and provide insights that deliver real value and actionable takeaways for the audience. These discussions create an intimate setting where panelists and the audience can engage in meaningful dialogue. Panel discussions on career development can significantly enhance wellness by fostering a sense of community, offering valuable insights, andsupportingpersonal and professional growth.

Methods: To celebrate Women in Medicine Month, the Wellness Committee at a 200+ bed hospital organized a Women in Medicine Panel, featuring healthcare professionals from diverse disciplines. This event allowed panelists to share their experiences as women in healthcare, including career lessons, strategies for balancing work and home life, and advice on seeking mentorship andsupportwithin the health system. Additionally, the Emergency Medicine Service Line (EMSL) Wellness Committee, in partnership with the EMSL Peer-to-Peer Program—a mentorship initiative pairing new emergency physicians and Advanced Care Provdiers (ACPs) with experienced mentors—hosted a wellness panel. This panel included three physicians and two ACPs from across the service line, discussing topics such as career development, work-life balance, and the importance of mentorship.

Results: The Women in Medicine Panel event drew over 60 participants, both in person and via Teams. A post-event survey revealed:

88% of respondents strongly agreed or agreed that the panel positively impacted their personal wellbeing.

The Emergency Medicine Service Line Wellness Panel attracted 70 participants via Teams. Key survey results included:

82% of participants strongly agreed or agreed that the panel positively impacted their wellbeing.

91% of participants strongly agreed or agreed that wellness initiatives can drive process changes and program development.

Conclusions: Career development panels are more than professional events—they are platforms for fostering community, sharing wisdom, and providing mutualsupport. By addressing career challenges, promoting connections, and encouraging growth, these panels enhance overall wellness. The positive social interactions, knowledge sharing, and sense of purpose generated by such discussions play a crucial role in improving emotional, mental, and even physical wellbeing.

No, authors do not have interests to disclose

527 Lack of a Lactation Space: Current Lactation Barriers and Their Impact on Emergency Department Staff

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Study Objectives: The World Health Organization (WHO) recommends breastfeeding for at least two years, citing cognitive, metabolic, and long-term health benefits for both infants and mothers. However, workplace barriers often prevent women from meeting their lactation goals, particularly in high-acuity settings such as the emergency department (ED). Prior studies suggest that lack of workplace lactationsupportnegatively impacts retention and emotional well-being, yet limited research exists on lactation experiences among allEDstaff, regardless of role or gender. This study's primary objective is to assess the impact of the absence of an in-department lactation space on different roles and genders with considerations on pumping feasibility, emotional health, perceived workplacesupport, and staff retention.

Methods: The study was conducted at a tertiary care ED in Northern New Jersey, which handles over 100,000 annual visits and employs over 350 staff members, but lacks an in-department lactation space. A 19-question anonymous survey was distributed to all ED staff regardless of gender or lactation status. The survey gathered data on current and past lactation experience, pumping frequency, perceived workplacesupport, emotional impact, and preferred proximity to a lactation space. Staff were invited to respond via two separate emails, sent two weeks apart, reaching 395 staff members. A total of 136 staff members participated. Responses were anonymized, and data analysis followed established survey-based research methods. Analysis utilized correlational statistics with descriptive statistics and subgroup analyses performed to explore relationships between role, gender, perceivedsupport, lactation space access, and emotional impact.

Results: Among respondents, 91.7% of current pumpers and 90.0% of past pumpers expressed a preference for a lactation space within the ED, indicating strong demand for improved accessibility. Those who reported feeling leastsupported(rating 1 or 2 on a 5-point scale) were more likely to pump only 0-1 times per shift, which is insufficient for maintaining milk supply. Among those who pumped 4-5 times per shift, 100% preferred a lactation space within the ED, demonstrating that accessibility directly influences lactation feasibility. 89.4% of female and 90.3% of male respondents reported that the lack of an ED lactation space negatively affected their emotional well-being, highlighting that this issue affects both genders. Males and females (83.9% and 88.5%, respectively) both believed that adding a lactation space in the ED would improve staff retention.

Conclusions: Our findings demonstrate that the lack of an inter-ED lactation space is a critical barrier to workplace lactation, negatively impacting pumping feasibility, emotional well-being, and staff retention. Employees who pump the most at work are the strongest advocates for an inter-ED lactation space, reinforcing the direct impact of accessibility on feasibility. Additionally, the perception of workplacesupportis strongly associated with pumping frequency, suggesting that both physical and cultural workplace barriers affect lactation success. Those who felt leastsupportedpumped less frequently, while those with high pumping frequency universally endorsed the need for an inter-EDspace. Importantly, no gender differences were observed in the perception of lactation space necessity or emotional impact, reinforcing that this is an important workplace issue that extends beyond lactating staff. This study has limitations, including its single-site design, potential selection bias, and reliance on self-reported data. Additionally, while strong correlations were observed, causality cannot be established. Future research should explore longitudinal outcomes after implementing lactation-supportive policies. This study emphasizes the critical need for dedicated lactation spaces within EDs tosupportmaternal and workplace well-being, ensuring a more inclusive work space for all staff, increasing workplace satisfaction and retention for a diverse workforce.

No, authors do not have interests to disclose

528 Adverse Effects of Ketamine in Acute Trauma Pain in Emergency: A Systematic Review and Meta-Analysis

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Study Objectives: This study aimed to evaluate the adverse effects associated with ketamine compared to other drugs when used for analgesia in trauma patients in emergency settings. While ketamine is increasingly used as an alternative or adjunct to opioids due to its analgesic efficacy and opioid-sparing potential, especially in light of opioid-associated risks, such as abuse and dependence, its safety profile remains a concern. Understanding the frequency and severity of ketamine's adverse effects is crucial for optimizing its use in emergency trauma care.

Methods: We searched PubMed, Embase, and Cochrane databases for randomized controlled trials (RCTs) up to 12 December 2024. After removing duplicates using Zotero, two independent reviewers screened titles and abstracts, followed by a full-text assessment for eligibility. Discrepancies between the authors were resolved through discussions. Exclusion criteria were pediatric patients, ICU patients, sedated or intubated patients, non-trauma patients, and non-RCTs. A random-effects model with 95% confidence intervals was used to estimate risk ratios (RR). Heterogeneity was assessed using the I^2 statistic and Cochran's Q Test. Meta-analyses and forest plots were generated using Review Manager (RevMan) 5.4. The protocol was registered in PROSPERO (CRD420251009954, on 14 March 2025). PRISMA guidelines were used to ensure transparency and methodological rigor. We segmented the studies into

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subgroups by route of administration of ketamine: intravenous (IV), nebulized (NBZ), and intranasal (IN). The primary outcomes of this meta-analysis were pain reduction and the need for rescue analgesia, which are reported in a complementary abstract. Here, we present the secondary outcomes, focusing on the adverse effects, including dizziness, nausea/vomiting, neuropsychological symptoms, visual disturbances, hemodynamic instability, cardiac arrest and death.

Results: A total of 18 RCTs were included with 3,355 patients (1,717 ketamine vs 1,648 control). The mean age was 34,2 years, with 28,78% female patients. Adverse effects were analyzed according to the route of ketamine administration (IV, IN, and NBZ). No cases of cardiac arrest or death were reported. Hemodynamic instability was documented in only two studies, with two occurrences in the ketamine group and one in the control group. Dizziness was the most frequently reported adverse effect, occurring in 217 patients in the ketamine group compared to 148 in the control group. In the IN subgroup, the incidence of dizziness was significantly higher in the ketamine group (RR 1.69; 95% CI 1.05-2.71; $p = 0.03$; $I^2 = 44\%$), while all other results for this subgroup were not statistically significant. In the IV subgroup, ketamine was associated with a significantly higher incidence of neuropsychological symptoms (RR 4.62; 95% CI 1.98-10.79; $p = 0.0004$; $I^2 = 43\%$) and visual disturbances (RR 3.70; 95% CI 1.59-8.59; $p = 0.002$; $I^2 = 0\%$), with no other statistically significant findings. No statistically significant differences were observed in the NBZ subgroup, nor for nausea and vomiting across any administration route.

Conclusions: Despite the higher incidence of adverse effects, ketamine appears to be a safe option for analgesia in trauma patients in emergency settings, as no severe adverse events, cardiac arrests, or deaths were reported in any of the studies. The most commonly observed adverse effects, including dizziness and neuropsychological symptoms, were generally transient and self-limiting. The low to moderate heterogeneity in the results may be attributed to variations in ketamine dosing across studies. Given these findings, further high-quality RCTs are needed to better characterize ketamine's safety profile and determine strategies to mitigate its adverse effects while maintaining its analgesic benefits.

Figure 1A: Incidence of dizziness after intranasal ketamine was significantly higher compared to control.

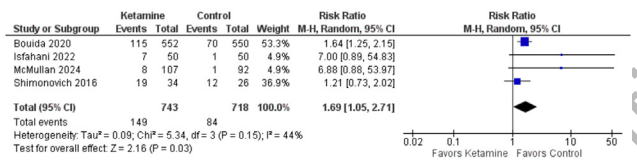


Figure 1B: Incidence of neuropsychological symptoms after intravenous ketamine was significantly higher compared to control.

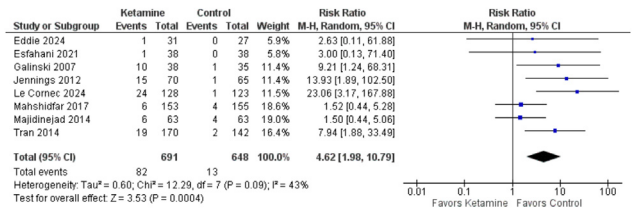
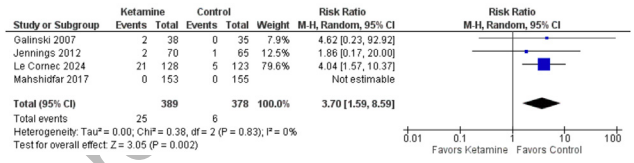


Figure 1C: Incidence of visual disturbances after intravenous ketamine was significantly higher compared to control.



No, authors do not have interests to disclose

529 Characteristics of Thoracic Trauma in Elderly Asian Population

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Introduction: Geriatric trauma is associated with higher mortality and morbidity given the aging population worldwide. It presents an unique challenge to standardized trauma care due to unmodifiable factors like frailty, multiple co-morbidities, polypharmacy and age-related physiological changes. For thoracic trauma specifically, preliminary studies have shown increased risk of mortality up to four to seven times. Study by Owen et al also demonstrated improved outcome with direct admission to intensive care unit from emergency department (ED) for elderly patients with clinically important blunt thoracic trauma (3 or more rib fractures). Currently there is limited literature that reviews geriatric thoracic trauma in Asian population.

Study Objective: We aim to review and describe injury characteristics of elderly patients with thoracic trauma in Asia; focusing on association between thoracic AIS (abbreviated injury scale), mechanisms, comorbidities as well as management in the emergency department with mortality outcomes.

Methods: This is a retrospective, multi-national, observational cohort study based on Pan-Asian Trauma Outcomes Study (PATOS) dataset from 2015 - 2022. The study included patients above 65 years old presenting to 53 trauma centers with thoracic injury. Further subgroup analysis was performed for older adults with isolated thoracic injury. Study characteristics include demographics (age, gender, country), injury characteristics (mechanism, location, type, AIS), ED data (vitals, ED disposition, ED interventions) and inpatient data (ICU admission, mortality, operation). Statistical analysis with Stata 17 software will be performed to analyze associations with mortality. Statistical significance is defined as $p < 0.05$. A modified Poisson regression with robust variance was used to examine the incidence rate ratio (IRR) of AIS on death.

Results: This study included 2085 patients (61.65% male predominance) with a median age of 74. Among 206 patients (9.9% mortality) who demised, 87 died in ED. Predominant mechanism was blunt injuries (92.4%). Injury characteristics with significant mortality included non-accidental injury, traffic accidents and alcohol use. In older adults with thoracic injury, patients who also sustained injuries to head or lower limbs were associated with higher mortality. None of the organ-specific co-morbidities predicted mortality. Patients who demised presented with lower blood pressure, higher heart rate, lower temperature and higher proportion of trauma activations. In ED, 12% required intubation, 5.5% required thoracotomy and 2.4% required positive pressure ventilation for flail chest. Two patients also had pericardiocentesis. Eventually, 4.4% were operated in the thoracic region with five requiring embolization of vessels. The dataset showed significant association between injury severity score and AIS. Unadjusted incidence rate ratio demonstrated that higher severity of injury had a significantly higher mortality risk. A subgroup analysis was performed for isolated thoracic trauma. There were 473 patients included with mortality rate of 0.05% (25/473). Majority 60% (15/25) of patients died in ED. In terms of mechanism of injury, most patients who died suffered from traffic accidents (65%) while those who survived sustained injuries from falling (44%). Patients who died had significantly lower Glasgow Coma Scale (GCS) but no significant difference in blood pressure, heart rate and oxygen saturation. Compared to those survived, patients who died had higher proportions of intubation (17.4% vs 5.9%) and transfusion (52% vs 6.1%) but no statistically significant difference observed for thoracotomy. They also had higher AIS (median 3 IQR 1-3 vs median 2 IQR 1-3) and ISS (median 9 IQR 4-16 vs median 4 IR 1-9).

Conclusions: Our study underscores the need for awareness and targeted measures to reduce both fall-related and traffic-related injuries in older adults. Early intervention and injury prevention efforts are crucial to improve trauma burden and outcomes for geriatric patient at risk of severe thoracic injuries, particularly those with higher trauma scores and compromised neurological status.

No, authors do not have interests to disclose

530 Comparison of Firearm-Related YPLL and State Preemption Laws

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Study Objectives: Preemption laws are state-determined legislation that prohibits local municipalities from enacting their own regulations on any matter, including firearms. States that do not have firearm preemption laws allow local governments to enact specialized firearm regulations in areas that need it most. There are only five states that do not have firearm preemption laws, which include Connecticut, Hawaii, Massachusetts, New Jersey, and New York.[1] These five are among the top seven states in firearm law strength and the top six states in lowest gun violence rates.[2] Missouri, a state without preemption laws and no foundational firearm violence prevention laws, ranks in the bottom 10 of both categories. With the known crisis of gun violence in the United States, this project aims to compare the years of potential life lost (YPLL) from firearm-related mortality in states with and without preemption laws.

Methods: Aggregate mortality statistics were sourced from CDC WISQARS, an injury database. Data from all 50 states were analyzed for TIMEFRAME. Firearm-

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related YPLL were calculated using a life expectancy of 75 years. YPLL rates, defined as the total number of years of potential life lost per 100,000 people, were compared in states with and without preemption laws. A two-sample t-test was used to evaluate if there was a difference between YPLL rates in states with and without preemption laws.

Results: State YPLL rates due to firearm-related mortality ranged from 101 to 1,046 years of life lost per 100,000 people. States without preemption laws had a mean YPLL rate of 169 per 100,000 people, while states with preemption laws had a mean YPLL rate of 548 per 100,000 people, an absolute difference of 379 firearm-related years of life lost per 100,000 people ($p < 0.01$). Five of the six states with the lowest YPLL rates were those without preemption laws. The YPLL rate in Missouri, a state with preemption laws, was 802 years of person life lost per 100,000 people, ranking 46th among all states.

Conclusions: Firearm violence is influenced by numerous risk factors, social drivers of health, and policies at the national and state level.[3,4] Its root causes are intertwined and difficult to isolate. However, the data from this studysupportthe notion that the existence of preemption laws may play a key role in increased firearm-related morbidity and mortality. Some limitations to this study include small sample size of states without preemption laws, temporality of data regarding law changes, and heterogeneity of preemption laws. As only five states do not have preemption laws, strength of association may improve in subsequent studies if more states eliminate preemption laws. Also, because some states have recently changed their preemption law statutes (Iowa, Nevada, New Mexico), longitudinal research is necessary to trend changes in YPLL. Last, as the specific details of preemption laws are determined by states, there is some variability in firearm law strength within the preemption law group. Further study is necessary to distinguish nuances between this subgroup. States with existing state preemption laws have higher rates of firearm-related YPLL than states that allow local jurisdictions to set their own firearm laws (states without preemption laws). Although firearm policy in the United States is a complex ecosystem, these findings describe an actionable target for firearm policy reform, eliminating preemption laws, which may help address the public health crisis of preventable firearm-related morbidity and mortality.



No, authors do not have interests to disclose

531 Iatrogenic Risk of Tube Thoracostomy: A Retrospective Trauma Database Analysis

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Study Objectives: Traumatic hemothorax, pneumothorax, and hemopneumothorax are life-threatening conditions which are often treated with chest tube placement (thoracostomy). Prior retrospective trauma database research has identified thoracostomy as an independent risk factor for both mortality and increased hospital length of stay (LOS), including when controlling for injury severity score (ISS). Given the coexistence of increased mortality and LOS, the objective of this study was to examine whether this mortality risk is driven by iatrogenic factors such as in-hospital complications.

Methods: This retrospective cohort study used data from the 2019 American College of Surgeons-Trauma Quality Program (ACS-TQP) database, sometimes referred to at the National Trauma Databank (NTDB), using R version 4.2.2. This study included all adult patients in the database (18-89 years) presenting with traumatic hemothorax, pneumothorax, or hemopneumothorax. Patients with missing data in demographics, vitals, comorbidities, in-hospital complications, injury parameters, or outcomes, as well as those with no signs of life upon arrival, were excluded from the study. Patients were propensity score matched based on demographics, vitals, comorbidities, and injury parameters, which improved prognostic balance. Comparison of in-hospital mortality, LOS, and rates of in-hospital complications between patients with and without thoracostomy were analyzed using the chi-squared test and t-test where appropriate. Mediation analysis was performed by a statistician to assess whether mortality differences were mediated by in-hospital complications.

Results: Our post-match sample consisted of 36,550 patients, 18,275 who underwent thoracostomy and 18,275 who did not. Thoracostomy was associated with increased mortality and LOS ($p < 0.001$). After using a Bonferroni correction to adjust the alpha value to account for multiple comparisons, thoracostomy was also associated with increased incidence of 17 of the 21 in-hospital complications that the database tracks ($p < 0.002$). These included but were not limited to stroke, myocardial infarction, pulmonary embolism, adult respiratory distress syndrome, acute kidney injury, sepsis, surgical site infection, alcohol withdrawal, and cardiac arrest. A mediation analysis was performed which showed that many of these in-hospital complications were acting as mediators between thoracostomy and mortality. The strongest mediator was cardiac arrest, which had an indirect effect that accounted for 34.8% of the mortality risk of tube thoracostomy.

Conclusions: This study suggests that in-hospital complications may at least partially drive the increased mortality associated with thoracostomy in patients presenting with traumatic hemothorax, pneumothorax, or hemopneumothorax. We recommend a reexamination of clinical guidelines regarding the threshold for thoracostomy, as it is possible that there is a subset of patients for whom the downstream iatrogenic risks outweigh the benefits from treatment with a chest tube. In the short-term, we recommend increased caution post-procedure to minimize downstream complications such as cardiac arrest.

No, authors do not have interests to disclose

532 External Validation and Extended Application of Four Clinical Decision Rules in Minor Head Injuries

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Study Objectives: The Canadian CT Head Rule (CCHR), New Orleans Criteria (NOC), Canadian C-Spine Rule (CCR), and National Emergency X-Radiography Utilization Study Criteria (NEXUS) have been validated as effective tools for clinical decisionmaking regarding minor head injuries. However, these rules exclude patients taking anticoagulants, those with minimal injuries, or consciousness disturbance, limiting real-world generalizability. Additionally, elderly patients often automatically meet these criteria regardless of clinical presentation, creating adherence challenges.

Methods: This prospective, multicenter, observational cohort study (HELMET study) was conducted from April 2021 to March 2024 across five emergency and critical care centers in Japan. Inclusion criteria were patients aged ≥18 years with minor head injury and a Glasgow Coma Scale score of 13–15. The exclusion

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criteria were major trauma, a history of cranial injury or surgery, penetrating head trauma, or pregnancy. Historical and physical examination findings relevant to the CCHR, NOC, CCR, and NEXUS criteria were recorded using standardized forms. The primary outcome for the CCHR and NOC was neurosurgical intervention, whereas the primary outcome for the CCR and NEXUS was a clinically important cervical spine injury. The analysis was performed using complete case data for all four clinical decision rules. Comprehensive diagnostic performance measures (sensitivity, specificity, positive and negative predictive values, likelihood ratios, and Area Under the Curve) were calculated. The potential reduction in CT utilization was estimated, and Decision Curve Analysis (DCA) was used to assess the net clinical benefit.

Results: A total of 3,278 patients with minor head injuries were enrolled, of whom 1,706 met the criteria for all four decision rules. In the overall cohort, the median age was 71 years (Interquartile Range: 51–82 years), and 55.6% of the patients were male. Anticoagulants were used in 12.3% of patients. Neurosurgical intervention was required in 2.5% of the patients, and clinically important cervical spine injury occurred in 0.9%. For detecting neurosurgical intervention, CCHR had a sensitivity of 90.7% (95% Confidence Interval [CI]: 81.4–97.9) and a specificity of 32.3% (95% CI: 30.1–34.6), with a potential CT scan reduction of 31.7%, while NOC had a sensitivity of 97.8% (95% CI: 92.7–100), a specificity of 17.1% (95% CI: 15.4–19.1), and a CT scan reduction of 16.7%. For clinically important cervical spine injury, CCR had a sensitivity of 93.1% (95% CI: 77.8–100) and a specificity of 37.0% (95% CI: 34.7–39.2), with a CT scan reduction of 36.8%, while NEXUS had a sensitivity of 71.4% (95% CI: 46.2–94.1), a specificity of 75.5% (95% CI: 73.4–77.4), and a CT scan reduction of 75.1%. DCA showed a net benefit for all four rules, particularly at lower CT thresholds (Figure). In patients younger than 65 years, CCHR showed a sensitivity of 55.6% and specificity of 77.3%, while NOC had a sensitivity of 88.9% and specificity of 41.0%. For cervical spine injury, CCR demonstrated a sensitivity of 83.3% and specificity of 89.7%, whereas NEXUS showed a sensitivity of 50.0% and specificity of 71.8%.

Conclusions: This study suggests that clinical decision rules play a valuable role in optimizing CT utilization and assisting clinical judgment, even in a broader population with minor head injuries. Considering the sensitivity, CT reduction, and net benefit, NOC and CCR appear particularly useful in this setting. However, their performance may vary by patient age, indicating that further refinement of scoring systems may improve accuracy and clinical applicability.

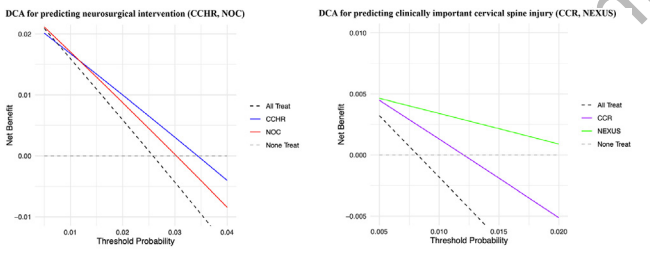


Figure: Decision Curve Analysis (DCA) for CCHR, NOC, CCR, and NEXUS
The analysis illustrates the net clinical benefit of each decision rule compared to the "treat all" and "treat none" strategies across varying threshold probabilities.

No, authors do not have interests to disclose

533 Geriatric Trauma: Age as a Criterion for Trauma Activation

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Study Objectives: Geriatric trauma patients are at increased risk of death or disability after their injuries and many have proposed Emergency Medical Services transport to trauma centers and hospital trauma team activations based on advanced age alone as criterion. However, the cutoff age upon which a patient should be considered high-risk for death or disability, or highly likely to need rapid trauma care, has not been determined in prior studies. The objective of this study is to examine whether there is a well-delineated age cutoff at which geriatric trauma patients are at a higher risk of adverse outcomes.

Methods: An observational retrospective study utilizing one year (2022) of national trauma data, covering 984,355 adult patients, was abstracted from the National Trauma Data Bank of the American College of Surgeons. The primary outcome was the association between age and the risk of in-hospital mortality. Secondary outcomes were associations between age and discharge to a poor functional outcome; and between age and a composite outcome (including need for emergent surgery, angiography, blood transfusions or emergent procedures, among others) as an indicator of high patient acuity. The primary and secondary outcomes were analyzed first in simple univariable models with age as the only independent variable and then in logistic regression models that retained age as the independent variable while correcting for multiple covariates.

Results: There was no identifiable inflection point at which age alone predicted a significantly increased risk of trauma-related mortality, discharge to non-functional status, or need for high levels of resuscitative care. Undesirable outcomes - death in hospital and discharge to non-functional status - started to rise at around ages 55-60 and 45-50, respectively, and rose steadily thereafter. The risk for ICU admissions after trauma also rose steadily with advancing age. Conversely, the risk of death upfront in the emergency department fell steadily with advancing age as did the risk of needing many high-acuity interventions, including blood transfusion, surgery, intubation, interventional angiography, and bedside emergent procedures.

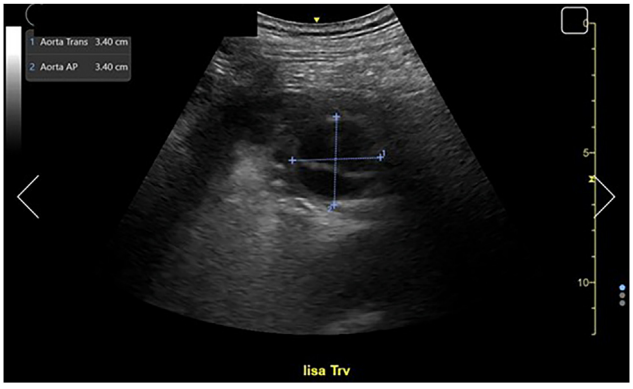
Conclusions: Trauma patients have rising mortality with advancing age and a rising rate of admission to the ICU but a falling rate of requiring many of the procedures associated with a trauma team activation. There was no obvious age identified to indicate a patient should be triaged to a trauma center or at which a patient automatically merited an emergency department trauma team activation.

No, authors do not have interests to disclose

534 The Left InterScapular Approach View: A Novel Way to use POCUS to Evaluate for Aortic Pathology

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Acute aortic syndrome (AAS) encompasses any life-threatening pathology affecting aortic wall stability, with aortic dissection being the most common of AAS affecting patients. Currently, computed tomography angiography is considered the standard for evaluation of the entire aorta when evaluating for acute aortic syndrome in the emergent setting, with point of care ultrasound (POCUS) of little utility for evaluation in the emergency department due to limited ability to visualize the thoracic aorta. In 2023, a novel approach to evaluate the thoracic aorta was proposed by Felix and colleagues: The Left InterScapular Aortic (LISA) view. The LISA view approaches visualizing the thoracic aorta posteriorly in the space between the left scapula and spine. We present a series of five clinical cases of aorta visualization using the LISA view in both confirmed aortic pathology and non-pathology. We suggest the LISA view offers an alternative approach for visualizing not only the descending thoracic aorta, which has limited visibility on traditional aortic views, but may also offer an additional modality of visualizing the abdominal aorta when approaching a patient with difficult ultrasound characteristics such as obesity and increased bowel gas.



No, authors do not have interests to disclose

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535 Effect of BMI on EFAST Imaging Quality

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Study Objectives: Point of care ultrasound (POCUS) is used in the Emergency Department (ED) to help clinicians assess a patient in real time and guide them to a quick and accurate diagnosis. The EFAST (Extended Focused Assessment with Sonography in Trauma) has become an important part of trauma assessments in the ED. It is used to evaluate for free fluid, which in trauma can indicate internal injury. Ultrasound imaging quality can be affected by multiple variables. A proposed variable is a patient's body mass index (BMI). There is a perceived increase in difficulty in obtaining images on larger patients. This study looks for an association between BMI and image quality scores of assigned during the quality assurance (QA) process for EFAST exams.

Methods: This is a retrospective chart review of EFAST exams obtained at the University of Arkansas for Medical Sciences (UAMS) ED. EFAST exams included in this study were obtained in trauma evaluations and then stored the QPath platform. All point of care ultrasound studies obtained in the UAMS ED go through a QA process where ultrasound fellowship trained faculty review and grade overall quality of imaging on a scale from 1-5, with a score of 5 being the best quality. Exams used for this study were stored on the QPath platform and had already undergone the QA process. Data was collected on EFAST exams including quality rating of exam, sufficiency of images for interpretation, BMI, experience level of operator, indication for study and which faculty reviewer assigned an image quality score. Data was collected on a total of 500 EFASTs with an indication of either blunt or penetrating trauma where BMI was available within 6 months from the time the study was obtained. Statistical analysis was performed in excel using Analysis ToolPak and Xrealstats data analysis tools.

Results: The relationship between BMI and QA score was assessed with a Spearman Rank Correlation, which showed no relationship between BMI and QA score (Spearman's Rho -0.038, p=0.397). A Mann-Whitney test was performed to assess BMI of subjects with inadequate EFAST compared to adequate EFAST. The median BMI of the group with inadequate EFAST imaging was 28 while the median BMI of the group with adequate EFAST imaging was 27. There was no difference in BMI of the group with inadequate EFAST imaging compared to the group with adequate EFAST imaging (two-tail p=0.85, norm).

The interpretation of the treating clinician compared to interpretation by quality reviewers was judged as true negative in 75.2% of cases, true positive in 10.4% of cases, falsely negative in 3.2% of cases, false positive in 1.8% of cases, and technically limited in 9.4% of cases. This yielded a sensitivity of 76.5%, specificity of 97.7%, and diagnostic accuracy of 94.5% compared to expert assessment. Among cases with consultative imaging and/or operative findings for comparison as a gold standard (n = 294), sensitivity was 53%, specificity was 95.6%, and accuracy was 88.1%.

Conclusions: Although there is a perceived increased difficulty in obtaining images for EFAST exams on patients with elevated BMI, no statistically significant association between BMI and image quality scores was found. This reinforces confidence in the reliability of the EFAST exam as a screening test for intrabdominal injury in trauma. Despite patient factors that can make this exam more difficult to obtain EFAST exams can be relied upon for clinical decisionmaking.

Frequency	n	%
Gender		
Female	181	36.2
Male	319	63.8
Blunt or Penetrating Trauma		
Blunt Trauma	462	92.4
Penetrating Trauma	38	7.6
Adequacy of imaging		
Inadequate imaging	40	8
Adequate imaging	460	92
Operator Level of Training		
PGY-1	169	33.8677355
PGY-2	124	24.8496994
PGY-3	111	22.244489
US Fellow	15	3.00601202
PEM Fellow	4	0.80160321
EM Faculty	64	12.8256513
US Faculty	12	2.40480962
QA Score		
1	2	0.4
2	34	6.8
3	156	31.2
4	170	34
5	138	27.6
QA Reviewer		
Reviewer 1	129	25.8
Reviewer 2	202	40.4
Reviewer 3	169	33.8
BMI		
Underweight (<18.5)	11	2.2
Normal (18.5-24.9)	150	30
Overweight (25-29.9)	161	32.2
Obesity (30+)	178	35.6

No, authors do not have interests to disclose

536 Point-of-Care Ultrasound in Triage for Critical Diagnoses: A Retrospective Pilot Study

Youngman M, Kostura M, Franjic L, Bollini M, Smalley C/The MetroHealth System/Cleveland Clinic Health System, Cleveland, Ohio

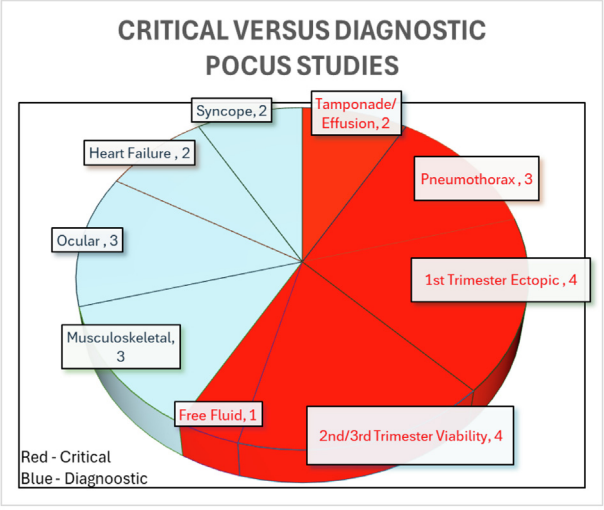
Study Objectives: Emergency department (ED) boarding is a national crisis. Root causes of ED boarding are multifactorial: increased acute care, staffing shortages, and stagnant hospital capacity. Between 2017-2021, left without being seen (LWBS) population nearly doubled from 1.1% to 2.1% with some hospitals reporting as high as 10% of patients LWBS from ED waiting rooms (WR). Provider-in-triage (PIT) protocols have been implemented in some EDs to mitigate risk and identify WR patients with life-threatening conditions that could evolve while awaiting an ED treatment room. Point-of-care ultrasound (POCUS) is a common modality utilized in EDs to answer focused clinical questions. POCUS can decrease time to diagnosis, guide further imaging studies, and assist in making time dependent life-threatening diagnoses. The goal of our pilot study was to investigate characteristics of all POCUS studies performed in the WR triage area including type of POCUS performed, critical findings, and time to treatment room, in an effort to delineate the future potential for POCUS triage protocols.

Research Embargoed Until Publication

Methods: A retrospective review of all POCUS studies performed in triage during PIT shift coverage (0800-2200) of a non-trauma quaternary care urban ED with ~65,000 annual visits was performed from January 1, 2024 to March 3, 2025. Patient encounters arriving through the WR in which POCUS orders were placed after patient registration but prior to the patient being placed into an ED treatment room were included. Date of study, time of study, type of POCUS, ED arrival time to POCUS result, POCUS result to treatment room time, disposition, and final diagnosis were collected. Charts were retrospectively reviewed to determine the purpose of performing POCUS, image interpretation, and if the POCUS study found a critical diagnosis, defined as a life-threatening emergency requiring immediate intervention. Descriptive characteristics were performed.

Results: Twenty-three patient encounters met inclusion criteria and 24 POCUS were performed. All studies were performed by ED attending physicians. During the study period, six POCUS studies were performed: basic cardiac, lung, obstetric, skin/soft tissue, ocular, and focused assessment of sonography in trauma (FAST). 58% (14/24) POCUS studies were performed to rule out the following critical diagnoses: pericardial effusion/tamponade, pneumothorax, 1st trimester ectopic, 2nd/3rd trimester viability, and intraperitoneal free fluid (Figure 1). Of these POCUS studies, 14% (2/14) found a critical diagnosis (pneumothorax and tamponade) that resulted in the patient being roomed immediately. Ten POCUS studies (10/24) were performed for diagnostic purposes and considered not critical: musculoskeletal, ocular studies for vitreous detachment/retinal tear, syncope evaluation, and congestive heart failure (Figure 1). Excluding those roomed immediately, mean time of POCUS to ED treatment room for critical vs non-critical diagnosis was 74.6 and 56.1 minutes, respectively. Three patients with non-critical POCUS findings eloped from WR prior to being placed in the treatment room.

Conclusions: As EDs become more crowded and boarding persists, POCUS can help us identify critically ill patients in the WR. Our pilot study found that ~9% of patients who came through the ED WR had a critical POCUS finding requiring emergent intervention. These patients were immediately roomed and intervened upon based on POCUS findings. Greater than half of POCUS studies performed in triage were performed to rule out critical diagnoses and once ruled out, patients were safely able to wait until an ED treatment room was available. We also found that POCUS was utilized in triage for non-critical diagnostic purposes. Limitations include that our site had no set triage POCUS protocols thus utilization was dependent on the PIT physician's discretion. Further studies are warranted to examine how POCUS protocols can help triage workflow in busy EDs whose boarding and increased wait times cause delay in definitive care.



No, authors do not have interests to disclose

537 Utility of Point-of-Care Ultrasound Assisted Reduction of Long Bone Fracture Compared to Usual Care

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Study Objectives: To study the "First attempt Successful reduction rate" , rate of fracture re-reduction, time taken for fracture reduction, between the POCUS (study) and Usual care (control) group. To study the "performer ease for pocus" for ultrasound guided fracture reduction. To study the Acceptable (cutoff) ultrasound parameter for a successful fracture reduction in the POCUS group

Methods: (Figures 1 to 8) STUDY DESIGN: Prospective cohort , Department of Emergency medicine, Trauma centre, All India institute of medical sciences, New Delhi. September 2022 to May 2024

STUDY POPULATION: patients aged 18 years and older, (<48rs) onset of trauma associated distal end radius and both bone lower limb fractures

STUDY SIZE: 110 patients in POCUS group and 110 in usual care group.

INCLUSION CRITERIA -simple transverse fracture

EXCLUSION -Complicated fracture, fracture requiring primary operative treatment, Red triaged patient

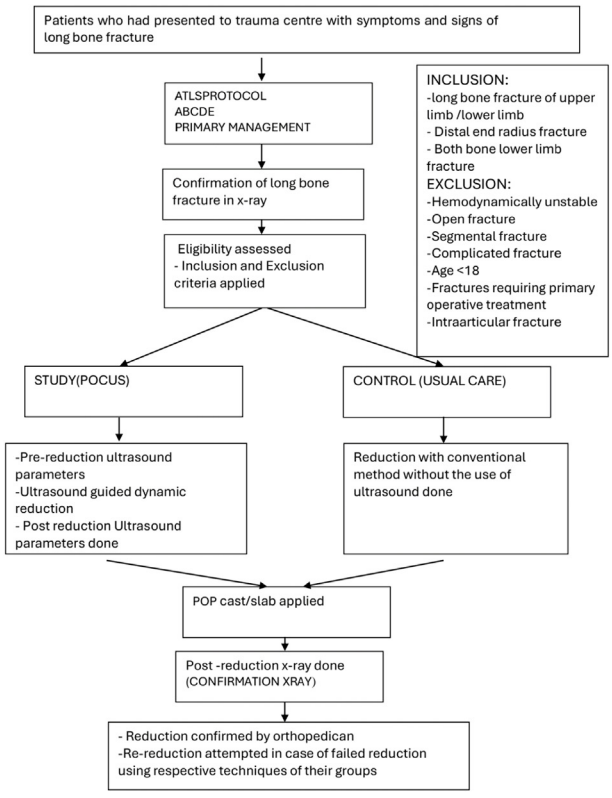
Patients who had long bone fracture (confirmed with Xray) and meeting inclusion and exclusion criteria were allocated (on convenience) into two groups- usual care and POCUS group. Those who had severe pain received fracture site hematoma block as per clinician decision. The usual group underwent conventional technique of traction and reduction without the use of ultrasound. In the ultrasound group, the fracture site was studied with high frequency linear probe about the location and displacement at the fracture in the dorsal and medial/lateral view. Then the traction was applied, and reduction was done with real time ultrasound until the cortical end of the fracture segment is in straight line as possible. post reduction displacement parameters are again noted in dorsal and lateral/medial views. After the reduction attempt, a radiograph was again done to confirm the reduction. In cases where attempted reduction was not meeting acceptable criteria by orthopedics team, the cast/slab is reopened, and another attempt was done.

Results: (Figure 9 to 13) The successful reduction at first attempt rate (SRFAR) was 90.9% in pocus and 80.9% in usual care with an absolute difference of 10% and a statistically significant p value of 0.033. SRFAR was also higher between the DER subgroups of POCUS DER (93.3%), usual care DER (86.7%) and similarly in BBLL subgroups of POCUS BBLL (85.7%), usual care (68.6%). SRFAR was higher in sedated (hematoma block) compared to non-sedated with 100% and 83.7%, respectively. The re-reduction was higher in the usual care group with 19.1% and in POCUS group with 9.1% with a p value of 0. 033.Mean time for fracture reduction was higher in pocus group with 4.21± 0.61mins compared to 2.81± 0.70 mins with a statistically significant p value of <0.001. The mean of performers ease of pocus (PEP) was 3.39± 0.54 In DER and 3.49± 0.51 in BBLL fracture with statistically insignificant p value of 0.406. Mean PEP was low in sedated group (2.93± 0.36) compared to non-sedated (3.49± 0.52) with statistically significant p value of <0.001. In DER fractures the post reduction cutoff for successful reduction in A-P view was ≤ 0.25cm and for MED- LAT view was ≤0.23 cm with a diagnostic accuracy of 100% and 96% respectively. And in BBLL fracture the post reduction cutoff for successful reduction in A-P view was ≤ 0.42cm and in MED-LAT view was ≤0.38cm with a diagnostic accuracy of 94.3% and 91.54%, respectively.

Conclusions: 1. POCUS during fracture reduction provided a dynamic feedback in real time and it increased the First attempt successful reduction rate of fractures like Closed extraarticular fractures of DER and BBLL thereby reducing the rate of re reduction; 2.Reducing the pain at the fracture with sedation such as hematoma blocks decreases the pain at the fracture site which helps in giving better traction, manipulation and reduction therefore increased the first attempt successful reduction rate; 3.Pocus guided dynamic reduction can be done with more ease if patient is sufficiently sedated and pain free; 4.The acceptable (cut off) ultrasound parameter for a successful fracture reduction in the POCUS group can be used if validated further with more research on wider population.

Research
Until Date of Presentation

WORKFLOW





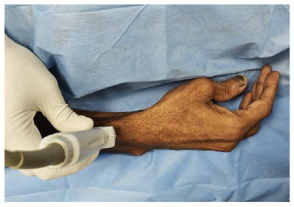
BBLL (Anterior-Posterior)



BBLL (medial – lateral)



DER Dorsal view (Anterior-Posterior)



DER Lateral view (Medial-lateral)

BBLL – BOTH BONE LOWER LIMB

DER – DISTAL END RADIUS



BOTH BONE LOWER LIMB FRACTURE

PRE-REDUCTION

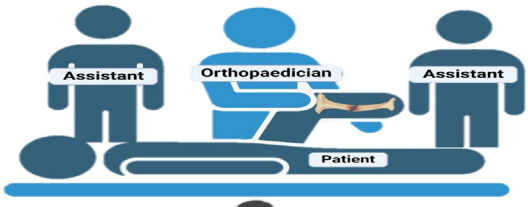


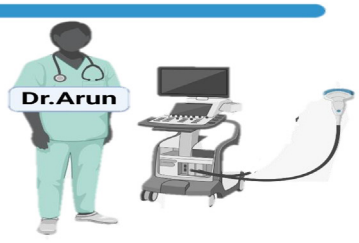


POST-REDUCTION



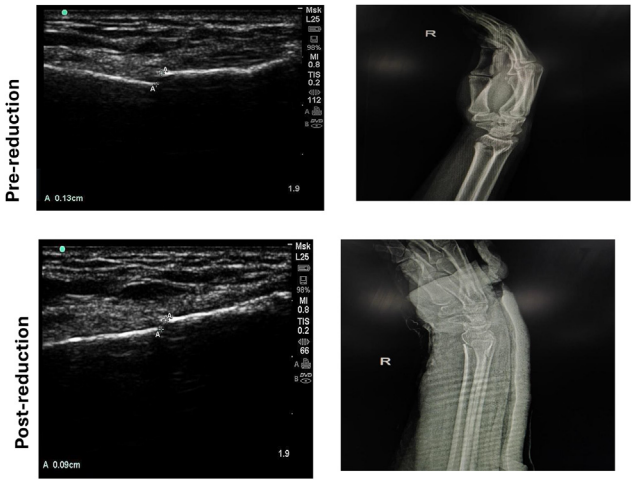




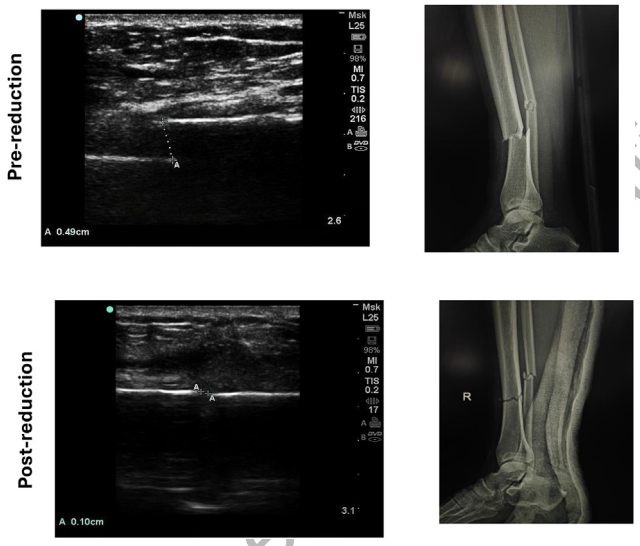


POCUS-ERGONOMICS

DER AP VIEW



BBLL AP VIEW



DER LAT VIEW



BBLL MEDIAL VIEW



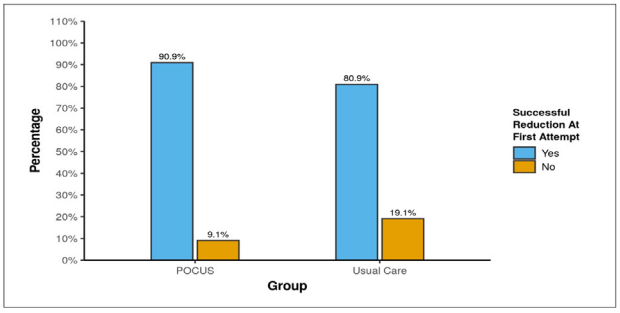
Research Embargoed Until Time

COMPARISION OF BASELINE CHARACTERESTICS BETWEEN TWO GROUPS

Parameters	Group: POCUS (n = 110)	Group: Usual Care (n = 110)	p value
Age (Years)	46.70 ± 18.06	47.44 ± 15.34	0.745[1]
Gender			0.686[2]
Male	58 (52.7%)	55 (50.0%)	
Female	52 (47.3%)	55 (50.0%)	
FRACTURE			
DER	75(68.2 %)	75(68.2 %)	1.000
BBLL	35(31.8 %)	35(31.8 %)	
Mechanism Of Injury			0.685[3]
Fall	66 (60.0%)	62 (56.4%)	
RTA	42 (38.2%)	47 (42.7%)	
Assault	2 (1.8%)	1 (0.9%)	
Pain Score (NRS)	7.42 ± 1.05	7.32 ± 1.10	0.424[4]
Sedation (Yes)	15 (13.6%)	15 (13.6%)	1.000[2]
Length Of Stay in ED (Hours)	5.58 ± 2.71	6.56 ± 4.56	0.172[4]

***Significant at p<0.05, 1: t-test, 2: Chi-Squared Test, 3: Fisher's Exact Test, 4: Wilcoxon-Mann-Whitney U Test*

COMPARISON OF FIRST ATTEMPT SUCCESSFUL REDUCTION RATE BETWEEN THE POCUS AND USUAL CARE GROUP



ASSOCIATION OF FIRST ATTEMPT SUCCESSFUL REDUCTION WITH SEDATION(HEMATOMA BLOCK

Successful Reduction at First Attempt	Sedation (Hematoma block)			Fisher's Exact Test	
	Yes(N=30)	No(N=190)	Total	χ2	P Value
Yes(N=189)	30 (100.0%)	159 (83.7%)	189 (85.9%)	5.698	0.010
No(N=31)	0 (0.0%)	31 (16.3%)	31 (14.1%)		
Total	30 (100.0%)	190 (100.0%)	220 (100.0%)		

DISTRUBUTION OF REDUCTION ATTEMPTS BETWEEN BOTH GROUPS

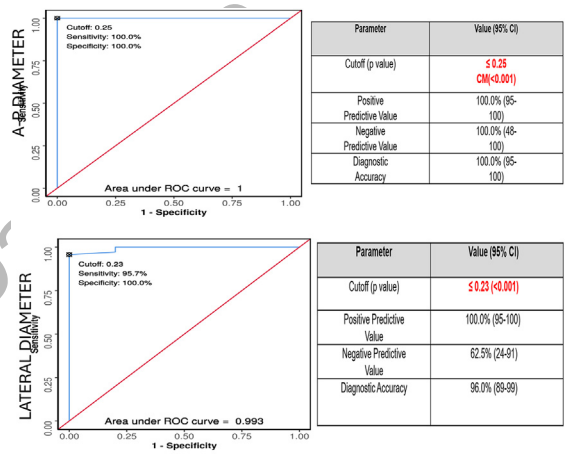
Reduction Attempts	Subgroup: POCUS (N=110)	Subgroup: Usual Care (N=110)	Total
1 Attempt	100(90.9%)	89(80.9%)	189(85.9%)
2 Attempt	10(9.1%)	18(16.3%)	28(12.7%)
3 Attempt	0 (0.0%)	3(2.8%)	3 (1.4%)
Total	110(100.0%)	110(100.0%)	220(100.0%)

DISTRUBUTION OF PERFORMERS EASE OF POCUS BETWEEN THE FRACTURES IN

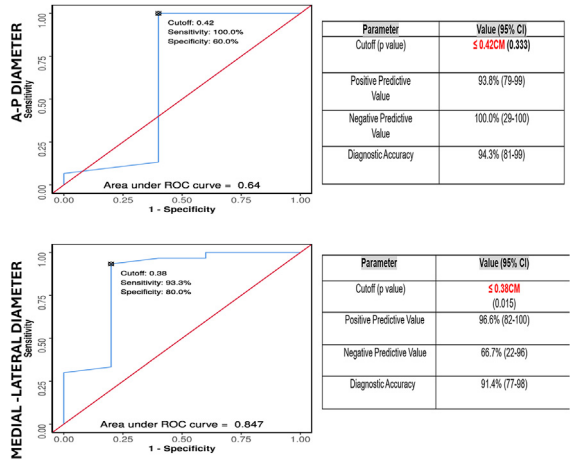
Performers Ease of POCUS (Likert)	Fracture: DER(N=75)	Fracture: BBLL(N=35)	Wilcoxon-Mann-Whitney U Test: W	Wilcoxon-Mann-Whitney U Test: p value
Mean (SD)	3.39 (0.54)	3.49 (0.51)	1199.500	0.406
Median (IQR)	3 (3-4)	3 (3-4)		
Min - Max	2 - 4	3 - 4		

COMPARISON OF TIME FOR FRACTURE REDUCTION(TFR) BETWEEN THE TWO GROUPS

Time For Reduction (Minutes)	Group: POCUS(N=110)	Group: Usual Care(N=110)	Wilcoxon-Mann-Whitney U Test: W	Wilcoxon-Mann-Whitney U Test: p value
Mean (SD)	4.21 (0.61)	2.81 (0.70)	11164.000	<0.001
Median (IQR)	4.1 (3.75-4.61)	2.67 (2.25-3.17)		
Min - Max	3.1 - 6.15	1.7 - 4.62		



CUTT OFF value in DER fracture in pocus group for first attempt successful reduction



(LEFT: A-P VIEW, RIGHT: LATERAL VIEW) of BBLL fracture

CUTT OFF value in BBLL fracture in pocus group for first attempt successful reduction

No, authors do not have interests to disclose

538 POCUS and Time to Definitive Imaging and Reperfusion Therapy for Patients With Pulmonary Embolism

White P, Keane A, Abdelnour A, Gormley MA, Gregory D, Eicken J/Prisma Health Upstate, Greenville, South Carolina

Study Objectives: Patients who are diagnosed with a pulmonary embolism (PE) in the emergency department (ED) can have variable presentations and risks of mortality. Those with high-risk pulmonary embolisms can experience hemodynamic instability, cardiac injury, and death. Thus, timely diagnosis of a high-risk PE is important because they may be candidates for reperfusion therapy, such as thrombolytic medication or thrombectomy, which can improve patient outcomes. In patients diagnosed with a PE, point-of-care ultrasound (POCUS) has the potential to expedite definitive diagnosis and treatment. This study assessed the association between POCUS and time to computed tomography (CT) acquisition and time to reperfusion therapy for patients diagnosed with a high-risk PE in the ED.

Methods: This was an IRB-approved multi-hospital retrospective chart review of adults (18+ years) diagnosed with a PE in the ED. Data were reviewed from seven hospitals in the Southeastern U.S. from 1/1/2023 to 12/31/2024. Two investigators performed an independent chart review to collect timestamps for each outcome, including: time to CT order and CT acquisition, time to alteplase, and time to thrombectomy. A third investigator reviewed all timestamps for POCUS. Chi-square and T-tests examined differences in demographic/clinical characteristics by POCUS status. Quantile regression assessed differences in the median time to CT order, CT acquisition, alteplase, and thrombectomy by POCUS status.

Results: The 803 eligible patients had a mean age of 61.3 (STD=17.6) and were mostly White (75.2%) and female (51.7%). All patients had CT imaging performed, 113 (13.9%) had POCUS, 28 (3.4%) received thrombolytics and 82 (10.1%) underwent thrombectomy. Patients were more likely to have POCUS performed if they were considered to have a high acuity (Emergency Severity Index 1 or 2) compared to the non-POCUS group (68.1% vs 52.4%, p=0.0018). On initial presentation, patients in the POCUS group had a higher HR (100.4 bpm vs 95.8 bpm, p=0.0262), higher RR (20.8 vs 19.3, p=0.0005) and lower SBP (131.5 mmHg vs 139 mmHg, p=0.0017). The median time to POCUS was 57 minutes (IQR=125). In patients who had POCUS, there was a decrease in the median time to CT order of 32 minutes (56 min vs 88 min, p= <0.0001) and a decrease of 24 minutes in median time to CT acquisition (135 vs 159, p=0.0050). The median time to thrombolytics was decreased by 12 minutes (p=0.7482) and median time to thrombectomy was decreased by 112 minutes (p=0.5896) in the POCUS group.

Conclusions: Use of POCUS in patients diagnosed with a PE was associated with a significant decrease in the time to CT order and CT imaging acquisition. Preliminary findings indicated a decrease in the median time to reperfusion therapy with either alteplase or thrombectomy. Decreasing time to definitive imaging and reperfusion therapy for patients diagnosed with PE in the ED has the potential to optimize patient care. Additional analysis should be performed on a larger sample size to confirm these relationships.

No, authors do not have interests to disclose

539 Medical Students as BLS Instructors: Assessment of Long-Term Retention in Infants Caregivers

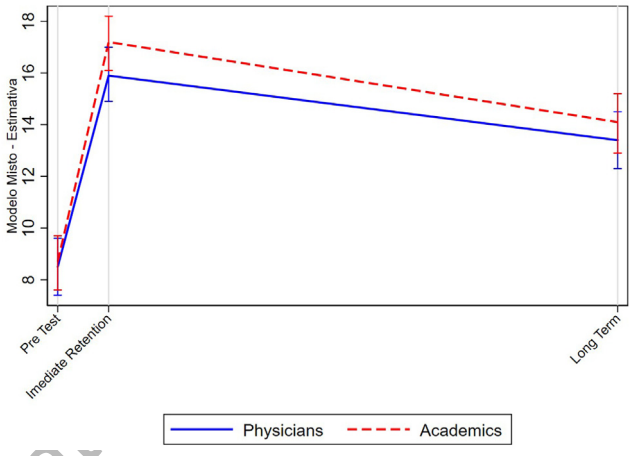
Franco Bueno CD, Franco IC, Silva M, Ferreira M, Rodrigues LA, Barbosa W, Araujo J, Rocha N, Martins D, Pazin-Filho A/University State of Para- Maraba, Marabá, Pará, Brazil

Study Objective: To assess the immediate and long-term (after 12 months) retention of knowledge and skills related to simulated Basic LifeSupport(BLS) and airway obstruction management among parents and caregivers of infants, comparing the effectiveness of training conducted by physicians and medical students.

Methods: Longitudinal, prospective study conducted with 59 participants, divided into two groups: one trained exclusively by physicians (G1, n=29) and another trained by medical students under physician supervision (G2, n=30). Participants underwent a structured course, consisting of a pre-test, followed by a demonstrative video lesson on BLS and airway obstruction in infants. After the theoretical content, participants performed a supervised practice with mannequins, led by the designated instructors of each group. Knowledge retention was assessed using standardized questionnaires, administered before training (pre-test), immediately after the course (post-test), and again after 12 months (long-term post-test). Responses were scored and statistically analyzed using mixed models for repeated measures, allowing for an evaluation of performance variation over time. Additionally, possible influences of socioeconomic factors on participant performance were analyzed.

Results: Mean scores increased significantly in the immediate post-test ($\beta = 7.45$, 95% CI: 5.99 - 8.90, $p < 0.001$), indicating a positive effect of the intervention. However, after 12 months, scores decreased ($\beta = 4.88$, 95% CI: 3.41 - 6.35, $p < 0.001$), representing a 34.5% loss compared to the initial gain. No statistically significant differences were found between physicians and medical students ($\beta = 0.16$, 95% CI: -1.32 - 1.64, $p = 0.834$), suggesting that both groups were equally effective in teaching BLS. However, socioeconomic status had a significant impact, with participants from private-sector institutions scoring significantly higher than those from the public sector ($\beta = 1.37$, 95% CI: 0.46 - 2.29, $p = 0.003$). Nevertheless, the difference was considered small to moderate (Cohen's $d = 0.485$) and may not have major clinical relevance.

Conclusions: The results indicate that medical students can serve as effective multipliers of BLS training, achieving similar performance levels to physicians. The significant decline in retention after 12 months highlights the need for periodic reinforcement to optimize knowledge retention. Additionally, socioeconomic disparities may influence knowledge retention, underscoring the importance of accessible and inclusive teaching strategies to expand BLS training among laypeople.



No, authors do not have interests to disclose

540 Call Your Consultants

Shulimson S, Koo A, Chaudhry H, Carlberg D, Ladkany D, Palmer J, Damlamian A/MedStar Health/Georgetown University, Washington, District of Columbia

Study Objectives: Effective consultant communication is a vital skill to master as an emergency physician. The ACGME recognizes that communication skills are a critical component of emergency medicine training, yet there is no standardization of teaching these required skills. Kessler's 5 Cs of Consultation (Contact, Communicate, Core question, Collaborate, and Close the loop) is a validated approach for effective communication with consultants in the emergency department. Our group sought to use high-fidelity simulation, to determine if teaching and practice of the 5 Cs in small group settings can lead to improved communication with consultants in various clinical scenarios.

Methods: This study involved emergency medicine residents at MedStar Health Georgetown University. Three high-fidelity simulation cases were created and led by a resident. Each case had a consultant call that was recorded with faculty playing the role of the consultant. One month later, a lecture on the 5 C's was given during weekly didactics, with a breakout session where residents practiced challenging consultation scenarios with each other. Several weeks later, three more simulation cases were created, and the calls were recorded. All calls were sent to three faculty members who graded them based off a rubric comprised from Kessler's 5 Cs. The faculty were blinded to pre and post intervention recordings, and the three scores were averaged for each call. An unpaired T-test was used to compare the averages of the two groups. A total of 28 calls were recorded with 15 in the pre and 13 in the post intervention group. Two phone calls from the post intervention group had to be discarded as the whole conversation did not record, resulting in the lower sample.

Results: The faculty evaluated the recorded calls by a rubric focused on Kessler's 5 Cs. Each section was given a score of 1-4 with 1 being the lowest and 4 being the highest. The highest overall score was a perfect score of 20 and the lowest score was 8. The average score for the preintervention group was 16.1 and the average score for the postintervention group was 16.7. The t statistic was 1.0 which was below the t critical value of 1.7.

Conclusions: While the results did not show a statistically significant effect of the intervention, we still believe that the consultant lecture was beneficial to resident education. The low sample size of the intervention group (n=13) could have had an impact on the interpretation of the results. In addition, there is the possibility that the

Research Embargoed Until Da... entation

residents who made the phone calls on the second simulation day were not present for the consultant lecture, which could have misrepresented the scores in the post intervention group. Ultimately, we aim to broaden the scope of our study from a single residency site to multiple programs to enhance the sample size of our intervention. Future studies should also look at the residents' self-reported evaluation of their performance of the consultant calls to determine an improvement in self-efficacy. As more focus is being placed on interprofessional communication both to improve patient outcomes and for emergency medicine certification, effective consultant communication will continue to be a vital component of an emergency medicine curriculum.

Criteria	Excellent (4 points)	Good (3 points)	Needs Improvement (2 points)	Unsatisfactory (1 point)
Contact (Initiating the Consultation)	Clearly identifies the need for consultation, engages the appropriate consultant, and provides relevant background information.	Identifies the need for consultation and engages the appropriate consultant but provides limited background information.	Initiates consultation but may not involve the appropriate consultant or provide clear background.	Fails to identify the need for consultation or does not engage the appropriate consultant.
Communication (Clear and Effective Exchange)	Communicates concisely, uses appropriate terminology, and ensures mutual understanding through active listening and clarification.	Communicates effectively but may lack some clarity or completeness in information exchange.	Communication is unclear, overly technical, or lacks key details, causing misunderstandings.	Communication is poor, vague, or misleading, hindering effective consultation.
Clarification (Ensuring Shared Understanding)	Asks and answers relevant questions, confirms details, and verifies expectations to prevent ambiguity.	Seeks clarification when needed but may not confirm all expectations or key details.	Limited clarification; some misunderstandings may arise.	Fails to seek or provide clarification, leading to confusion or miscommunication.
Collaboration (Working Together Effectively)	Actively engages in problem-solving, values input from both parties, and fosters a cooperative approach.	Works collaboratively but may not fully engage in problem-solving or encourage input from all parties.	Minimal collaboration; approach may be one-sided or lack engagement.	Lacks collaboration, disregards input, or creates barriers to effective teamwork.
Closing the Loop (Follow-Up and Resolution)	Summarizes key points, confirms mutual understanding, follows up as needed, and ensures resolution.	Provides some summary and follow-up but may miss minor details.	Limited follow-up or summary, leading to potential gaps in resolution.	No follow-up or closure, leading to unresolved issues.

No, authors do not have interests to disclose

541 Procedural Proficiency While Performing Fiberoptic Intubation as a Function of Post-graduate Year

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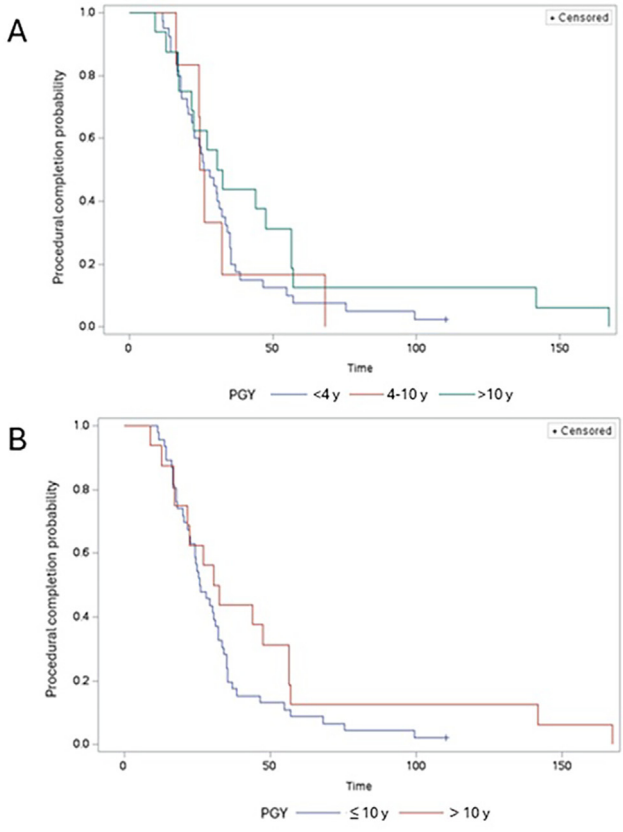
Study Objectives: Following residency training, there may exist less opportunities for emergency physicians to gain adequate exposure and training to maintain certain clinical skills. Clinical skills related to high acuity low occurrence (HALO) procedures may be the most vulnerable to decay over time. The primary objective was to assess procedural proficiency while performing fiberoptic intubation as a function of post-graduate year.

Methods: A prospective observational study of EM resident trainees and attendings was performed. Subjects were asked to perform fiberoptic intubation a total of two consecutive times on a Deluxe Difficult Airway Trainer (Laerdel, Wappingers Falls, NY) using a BFlex™ 2 single-use bronchoscope (Verathon Inc., Bothell, WA) connected to a GlideScope® Core™ System (Verathon Inc., Bothell, WA). Subjects were asked to self-report the year they graduated medical school, and the corresponding post-graduate year (PGY) was calculated. Subjects were classified into resident (PGY: <4 years), early career (PGY: 4-10 years), and senior (PGY: >10 years) physician cohorts. Procedural completion time and first-pass success were recorded. Summary statistics were calculated for each cohort. Kaplan-Meier curves illustrating time to completion and stratified by cohort were constructed. Cox regression analysis was performed using SAS® Studio v3.81 (SAS Institute Inc., Cary, NC), and the level of significance was set at $p < 0.05$, a priori. As part of a sensitivity analysis, resident and early career physician groups were combined, and statistical analysis was repeated.

Results: A total of 62 attempts were observed, and success was observed on first-pass during 61 (98.4%) attempts. Forty (64.5%), 6 (9.7%), and 16 (25.8%) intubations were performed by residents, early career physicians, and senior physicians, respectively. Median completion times were 27.0 s (95% CI: 21.8-33.4 s), 25.3 s (95% CI: 16.2-68.0 s), and 31.5 s (21.6-56.5 s) for resident, early career physician, and senior physician cohorts, respectively, and these differences were not statistically significantly different (p=0.62). After combination of the resident and early career physician groups, 46 (74.2%) and 16 (25.8%) intubations were performed by junior and senior physicians, respectively. Median completion times were 26.0 s (95% CI: 22.8-32.3 s) and 31.5 s (21.6-56.5 s) for junior and senior physician cohorts, respectively, and this difference was not statistically significantly different (p=0.17).

Conclusions: No significant differences in fiberoptic intubation completion times were observed across years of clinical practice when performed by emergency physicians in a simulated environment. Further research investigating procedural skill curves at various levels of training and longitudinally over physician clinical practice is warranted.

Figure: Kaplan-Meier curves illustrating fiberoptic intubation procedural completion times stratified across A) resident (PGY: <4 years), early career physician (PGY: 4-10 years), and senior physician (PGY: >10 years) cohorts, and B) junior physician (PGY: ≤10 years) and senior physician (PGY: >10 years) cohorts.



No, authors do not have interests to disclose

542 SCULL: Simulated Cranial Ultrasound for Longitudinal Learning - A Simulated Task Trainer

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Introduction: Point-of-care ultrasound (POCUS) is a valuable diagnostic modality for managing pediatric head trauma. It demonstrates high specificity in

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identifying skull fractures. However, it necessitates user proficiency in ultrasound navigation and pathology identification. Pediatric skull fractures are relatively uncommon, hence resident exposure remains inconsistent. A simulated task trainer of a pediatric skull may be an effective educational tool to enhance residents' exposure and confidence in utilizing ultrasound for pediatric head trauma assessment.

Study Objective: To develop an open-source, durable, and cost-effective pediatric skull model to enhance emergency medicine residents' skills and confidence in using POCUS for pediatric head trauma assessment.

Methods: In this study, we created a simulated pediatric skull model for ultrasound training by using ballistic gel and two skull replicas. One skull was intentionally fractured with fragmented sections reassembled using adhesive, while the other skull remained intact. Both skulls were subsequently covered in ballistic gel, resting on the skull base, to form a multi-layered coating (2-3 layers) on each model. This resulted in two distinct, ultrasound-compatible models that mimic anatomical features of pediatric skull fractures, offering a reproducible, cost-efficient training tool for emergency medicine ultrasound education.

Effectiveness/Impact: Ultrasound is safe and accessible in the emergency department, though its effectiveness is user-dependent. Following a focused group session with 14 emergency medicine residents, including a hands-on workshop using our ultrasound-compatible skull model, all participants (100%) found the session educational, and 86% reported increased confidence in identifying irregularities. Our goal for Emergency Medicine educators is to replicate this cost-effective model, expanding access to essential training for residents tosupportrapid and accurate diagnosis and management in critical patients.

No, authors do not have interests to disclose

543 Sonographer and Radiologist Agreement for DVT and Gallbladder Ultrasound in the Emergency Department

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Study Objectives: Prior studies have demonstrated high-rates of agreement between sonographer and radiologist interpretation of ultrasound images. In emergency medicine (EM), length of stay is an important quality measure. If the findings reported on sonographer worksheets are sensitive for conditions reported by radiologists, there may be opportunities to decrease length of stay.

Methods: A retrospective study of adult patients (age 18+) presenting to the emergency departments at Henry Ford Providence Southfield and Novi was conducted, reviewing ultrasounds ordered for deep vein thrombosis (DVT) and abdominal studies ordered for cholelithiasis or cholecystitis. Sonographer worksheets were considered positive for cholecystitis if at least two of the following were documented: gallstones, positive Murphy's sign, pericholecystic fluid, and gallbladder wall thickening. Radiologist reads were considered positive for cholecystitis if the interpretation was definitive or reported findings suggestive of cholecystitis, or if further imaging was recommended (ie, HIDA scan). Sample size calculations were performed based on an estimated 10% prevalence of disease, with an expected sensitivity of 95% for sonographer reads, using radiologist reads as the gold standard. The diagnostic accuracy of sonographer findings was assessed by constructing 2x2 tables.

Results: Radiologist and sonographer's interpretations were extracted for 223 DVT and 186 abdominal ultrasounds. The prevalence of DVT was 11.2%, while the prevalence of cholelithiasis and cholecystitis was 38.7% and 14.0%, respectively. There was 100% agreement between sonographers and radiologists for DVT studies. For gallbladder ultrasounds, the sensitivity for cholelithiasis was 98.6% (95% CI, 97.4-100%) and 69.2% for cholecystitis (95% CI, 61.6-75.9%)

Conclusions: At our institution, it may be reasonable to disposition patients awaiting results for DVT studies based on the sonographer worksheet alone. The same cannot be said for gallbladder ultrasounds. This discrepancy is likely caused by increased complexity of criteria for diagnosis of cholecystitis and that sonographers did not know their worksheets would be used for this purpose. Future studies should be performed to evaluate EM clinician willingness to disposition patients based on sonographer findings and the potential impact this may have on length of stay for various types of ultrasounds.

No, authors do not have interests to disclose

544 Study of the Impact of Virtual Simulation on Umbilical Vein Catheterization Among Emergency Medicine Residents

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Study Objectives: To assess whether Virtual reality (VR) technology has potential as a simulation tool for such procedures due to its ease of access, repeatability, and low relative cost; To survey EM residents on their perceptions around VR training in UVC placement; To analyze the performance of EM residents on the completion of simulated UVC placement on a mannikin; To teach EM residents to be proficient in high-acuity low opportunity (HALO) procedures including umbilical vein catheterization (UVC).

Methods: The study consisted of a non-randomized mixed convenience sample of EM residents (PGY 1-PGY 3) from an academic institution participating in didactic education on UVC placement. All residents were provided standard pre-learning education (n=27). The VR group received additional pre-learning with a VR UVC module (Vantari VR, Sydney AU) (n=9). The didactic session concluded with observed placement of a UVC on a task-trainer. Research assistants recorded time to completion for all learners. Standardized surveys were completed after VR pre-learning and UVC didactic simulation. Statistics using t-test or nonparametric testing were utilized where applicable.

Results: All residents were successful in placement of UVC catheter on a mannikin. The mean completion time of the UVC hands-on simulation was 287 seconds in the VR group and 319 seconds in the control group (difference 32, 95% confidence interval -51 to 116 seconds, p=0.432). Participants in the VR group rated their confidence in UVC placement at 4.13 (1-5 scale) average as compared to 3.55 in the control group (p=0.150). Surveys revealed that participants strongly agreed that VR is a valuable training modality, but level of agreement was mixed on whether VR was more valuable than hands-on simulation.

Conclusions: Qualitative data from the study shows that VR simulation increases confidence among residents in perception of procedural readiness and was shown to decrease their procedural time. The results of this small study did not reach statistical significance and further prospective research is needed to determine larger scale impact of VR on procedural training and patient-oriented outcomes.

No, authors do not have interests to disclose

546 InSitu Tabletop Simulation to Identify Latent Safety Threats in Emergency Department Workflow Change

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Study Objectives: Latent safety threats (LSTs) are hidden system vulnerabilities in healthcare that can lead to adverse events if unaddressed. Identifying LSTs is critical, as they often evade detection during routine operations but carry significant risks for patient safety. Prior to implementing a new patient flow model in the emergency department (ED), tabletop simulations were conducted using the actual blueprints and staffing models of the redesigned ED. These exercises aimed to identify and mitigate LSTs before the operational transition.

Methods: This cross-sectional descriptive study evaluated LSTs identified during three in-situ tabletop exercises at an academic ED within a quaternary referral center in the United States. More than 50 participants, including physicians, nurses, residents, and advanced practice providers, took part. The ED Patient Safety and Quality Improvement team assessed each LST using the Joint Commission's SAFER Matrix, which scores threats based on frequency and potential for harm. Each SAFER score (range: 1–6) was calculated by summing the frequency (1–3) and harm severity (1–3) ratings.

Results: Twenty LSTs were identified across the simulations. The distribution of LSTs included: 9 environmental, 4 cognitive heuristic, 4 electronic medical record-related, 2 equipment-related, and 1 communication-related. The environmental category yielded the highest cumulative SAFER scores, with a mean score of 3.88.

Conclusions: This study highlights the utility of modified in-situ tabletop simulations in identifying latent hazards within an ED setting. Incorporating this approach into patient safety and quality improvement initiatives can proactively enhance operational readiness and mitigate risks prior to implementing system changes.

No, authors do not have interests to disclose

Research Embargoed Until Date/Time of Presentation

547 Optimizing the FAST Exam in Pediatric Abdominal Trauma Through POCUS Stewardship

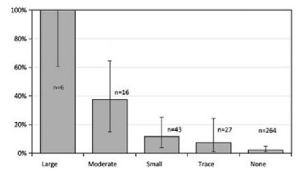
Montoya K, Weinstein R, Kharasch S, Shokoohi H/Massachusetts General Hospital, Boston, Massachusetts

Study Objectives: Point-of-care ultrasound (POCUS) stewardship is a framework to optimize ultrasound use by considering pre-test probability, sensitivity, specificity, and disease severity. While the FAST exam is widely used in adult trauma, its role in pediatric trauma is less defined. This review evaluates the novel application of POCUS stewardship to the pediatric FAST exam to improve accuracy and minimize false positive/negatives in pediatric trauma care.

Methods: We conducted an evidence-based review to evaluate evidence pertaining to the components of POCUS stewardship in the context of the pediatric FAST exam for blunt abdominal trauma. The main criteria include clinician pre-test probability of intra-abdominal injury requiring intervention, variations of sensitivity and specificity of the FAST exam based on patient stability and clinical decision making impacted by trauma severity and free fluid volume. We included studies that provided data on pre-test probability and its effects on FAST outcomes, CT use based on FAST results, and variations in FAST sensitivity, specificity, and predictive values based on stability, free fluid volume, and trauma severity.

Results: The likelihood of need for intervention increases from 0.4% in patients with <1% pre-test probability of intraabdominal injury to 41.4% in those with >50%. In unstable patients evaluated within two hours, FAST demonstrated 80% sensitivity and 100% specificity for predicting early surgical intervention, while stable patients had 64.3% sensitivity and 83.3% specificity. Combining the FAST with physical exam and modified pre-test probability improved not only sensitivity but also the negative predictive value to 100% for identifying injuries requiring acute intervention. In cases with significant free fluid sensitivity increased to 89% and specificity to 99% for detecting intra-abdominal injury. Additionally, Incorporating the FAST exam reduced CT use in lower-risk cases, with rates dropping from 22.5% to 18.6% for <1% suspicion, from 68.4% to 55.2% for 1%-5% and from 92.3% to 78.9% for of 6-10%.

Conclusions: Our novel reviewsupportsthe use of POCUS stewardship principles to optimize theFASTexam in blunt pediatric trauma care. By incorporating pre-test probability, patient stability, injury severity, and physical exam findings, we can ensure the FAST exam is used more judiciously, improving its sensitivity and specificity for detecting intrabdominal injury while reducing CT use in lower risk cases.

POCUS Stewardship Component	Definition	Clinical Implication in Pediatric FAST	Supporting Data/References
Pre-Test Probability	Likelihood of intra-abdominal injury based on mechanism of injury, clinical findings, and history	- High pre-test probability: Negative FAST should be followed by adjunct imaging (e.g., CT) - Low pre-test probability: Negative FAST may be sufficient to rule out major injuries	Mahajan et al,[7] → Higher pretest probability higher likelihood of IAI undergoing acute intervention 11,919 enrolled → 203 IAI with acute intervention <1% → 0.4% 1%-5% → 2.2% 6%-10% → 6.5% 11%-50% → 21% >50% → 41.4% Meneker et al, [5] →Rate of CT use based on clinical suspicion for IAI based on FAST use Clinical Suspicion →Rate of CT use FAST used/Not used **<1% →18.6%/22.5%** **1-5% →55.2%/68.4%.** **6-10% →78.9%/92.3% Offers greater reduction in CT** 11-50% →94.4%/95.2% >50% →95.3%/97.9% Conclusion: Use of the FAST increased as clinician suspicion for IAI increased. When clinicians had a lower suspicion, they were significantly less likely to order a CT scan, if a FAST examination was performed.
Dynamic Sensitivity & Specificity	Sensitivity and specificity vary based on hemodynamic stability	- Higher specificity in hemodynamically(HD) unstable - Lower sensitivity for small or subtle injuries	Long et al, [3] →Performance of ED FAST with free fluid to predict early surgical intervention (ESI) in both stable and unstable patients. <4hrs HD Unstable → Sens 83.3% /Spec 50% HD Stable → Sens 68.4% /Spec 88.9% <2hrs HD Unstable → Sens 80% /Spec 100% HD Stable → Sens 64.3% /Spec 83.3% Conclusion: positive FAST exam enhances the ability to predict both early surgical intervention and FF in pediatric patients with blunt abdominal trauma, particularly FF at 2 hours after arrival to the ED in those who are HD unstable Fox et al, [9] → prospective observational study of children (0-17) who required trauma activation for blunt abdominal trauma (BAT) and received CT or laparotomy from 2004-2007  **Figure 1.** Percentage* of patients with positive FAST by FF on CT. *Excludes one patient who went to surgery with unquantified FF (n = 356; p < 0.0005). CT = computed tomography; FAST = focused abdominal sonographic exam for trauma; FF = free fluid Conclusion: With increasing amounts of free fluid FAST positivity increases
Spectrum Effect	Diagnostic accuracy increases with the severity of the condition being evaluated	- Severe trauma (leads to higher detection accuracy - Mild trauma (e.g., minor injuries) requires more caution, with possible serial exams or adjunct imaging - In unstable patients a negative FAST should prompt alternative causes	Riera et al, [6] →Retrospective chart review for performance of concerning FAST (cFAST) compared to CT for greater than physiologic free fluid in pediatric blunt abdominal trauma with clinically significant intraabdominal injury (csIAI) csIAI IAI cFAST Sens 89%/Spec 99% Positive FAST Sens 80% /Spec 99% Kornblith et al, [8] →retrospective chart review over 20 motnhs at level 1 trauma center looking atIAI and IAI requiring acute intervention associated with FAST and physical exam findings exFAST requiring acute intervention → Sens 100%/Spec70%/NPV 100% exFAST for IAI →Sens 88%/Spec71%/NPV 97% Physical Exam Alone → Sens 74%/Spec 84%/NPV95% FAST Alone → Sens 74%/Spec 84%/NPV 95%
			Conclusion: Combination of FAST and physical exam have greater sensitivity and NPV then either FAST or physical exam alone. Sensitivity and NPV 100% exFAST for children requiring acute intervention.

No, authors do not have interests to disclose

548EMF White-Board Style Explainer Video Enhances Knowledge of Buprenorphine in People Who Use Drugs

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Study Objectives: Opioid use disorder (OUD) is a leading cause of death among young adults in the United States. Medications for opioid use disorder (MOUD) like buprenorphine decrease the risk of death from overdose by over 50% and have the potential to prevent many of these deaths, but less than 25% of Americans with OUD receive them. Due to complex factors including lack of knowledge about buprenorphine, stigma, and widely circulating myths among people who use drugs, uptake of buprenorphine has been limited. In this study, our objectives were to 1.) create a short educational video that explains the benefits of buprenorphine and addresses common myths and 2.) evaluate if this video improved knowledge and decreased belief in myths about buprenorphine in people who use drugs.

Methods: Building upon prior research on barriers to initiation of buprenorphine, we crafted a short (4-minute) white-board style video using simple language that explains what buprenorphine does in the body, how it protects people with OUD, and common myths. Next, we pilot tested the video by partnering with a community organization who serves women who use drugs. We evaluated if the video improved understanding of buprenorphine via pretest-posttest design. Participants completed a survey including a self-assessment of buprenorphine knowledge and a series of true/false knowledge questions before and after watching the video.

Results: In our pilot period, 17 women completed the pre- and post-test assessments. More than half (59%) had high school equivalent or less education and the majority (82%) reported having used non-prescription opioids, with 47% reporting taking opioids within the last day. The majority (88%) reported having tried buprenorphine

before. Self-reported knowledge of buprenorphine did not correlate with pre-video true/false knowledge scores ($R = 0.17$, $p = 0.53$). Knowledge scores significantly improved from the pre-video (average 35% correct) to post-video (average 59% correct) knowledge assessments ($p = 0.003$, paired t-test). Notably, the number who correctly answered knowledge questions assessing two key messages in the video improved substantially: 1. buprenorphine reduces risk of death (6% correct pre-video, 53% correct post-video), and 2. buprenorphine reduces daily cravings and withdrawals (29% pre-video, 82% post-video). The majority (94%) said the video was helpful, and 76% said watching the video was the same or better as getting information from a doctor.

Conclusions: Video-based educational interventions are effective tools for teaching people who use drugs about the benefits of buprenorphine, and may be deployed in the ED to address myths and common questions about buprenorphine initiation.

Yes, authors have interests to disclose

Disclosure: Dr. Melnick reports receiving grants from the National Institute on Drug Abusenot directly related to this research. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Edward Melnick

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549 Improving SUD Patient Discharge and Reducing Readmissions

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Introduction: Emergency departments (EDs) serve as critical initial access points for patients with alcohol use disorder (AUD) and substance use disorder (SUD), yet these patients face significant barriers to continued treatment, including unmet health-related social needs, contributing to ED recidivism which hinders long-term recovery. Recognizing this, our health system launched a quality improvement initiative to address this and facilitate timely transitions to post-discharge care, SUD, and AUD treatment within 14 days, emphasizing early treatment initiation and adherence strategies.

Study Objectives: To evaluate the possible impact of a standardized Transition of Care Bundle (TOCB) on treatment initiation, ED return visits, and readmission outcomes for ED patients with AUD and SUD. To consider metrics required to track results, measure improvements, and maintain community partnerships for program sustainability.

Methods: Setting: 10 hospitals of the HMH network in NJ

Participants: Adults 18-65, seen in the ED with a primary diagnosis of AUD or SUD.

Study Design: Retrospective analysis of ED patients enrolled in the program in 2024.

Program Process: Using Lean Six Sigma and Agile project management methodologies, we developed and implemented a TOCB across all 10 acute care hospitals in our network. Lean Six Sigma guided our root cause analysis and process improvement cycles to reduce delays in care linkage, while Agile allowed for rapid feedback loops and cross-functional collaboration. The bundle included: (1) screening for SDoH, (2) transportation assistance, (3) medication and Naloxone provision, (4) referral to treatment within 14 days, and (5) coordination of primary and behavioral health follow-ups. A dedicated care team of navigators followed up with patients post-discharge.

Results: 1,343 patients were evaluated. Of these, 316 (23.53%) had a primary diagnosis of AUD, 118 (8.79%) SUD, 442 (32.91%) a behavioral health (BH) diagnosis, and 467 (34.77%), a medical diagnosis. Among AUD patients: 11 initiated AUD treatment within 14 days; only 1 had a return ED visit within 30 days. 218 did not initiate treatment- 11 were readmitted. 71 refused treatment; 16 were readmitted. Among SUD patients: 7 initiated treatment within 14 days; 0 were readmitted. 95 did not initiate treatment; 7 were readmitted. 8 refused treatment; 1 was readmitted. These findings highlight a positive trend for patients who received timely treatment initiation, with substantially lower readmission rates compared to those who declined or were unable to access care.

Conclusions: This multidisciplinary approach and structured discharge planning process in the ED, shows a promising reduction in ED return visits and readmissions while improving continuity of care for patients with AUD/SUD. However, significant barriers persist, particularly for underserved populations who may be uninsured or have unresolved immigration status. New strategies are urgently needed, as the current political climate is likely to worsen access for these populations. Future works plan to engage patients before discharge and train our program's staff on motivational techniques tosupporttreatment initiation within 14 days.

No, authors do not have interests to disclose

550 Comfort With and Barriers to Medication-Assisted Therapy Initiation in the Emergency Department

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Study Objectives: This project aimed to investigate the attitudes and practices of emergency medicine (EM) providers towards initiation of medication-assisted treatment (MAT) for opiate use disorder (OUD) in the emergency department (ED), as well as assess for potential biases and barriers to treatment initiation.

Methods: We conducted a prospective, cross-sectional survey that was distributed among emergency physicians, residents, and Advanced Practice Providers (APPs). The survey was listed on the Council of Residency Directors (CORD) in Emergency Medicine forum, the Society for Academic Emergency Medicine (SAEM) forum, and the EM Docs Facebook group. Prescribers were surveyed on demographics, rates of OUD treatment, comfortability with and attitudes toward MAT, and attitudes toward patients suffering from OUD.

Results: Ninety-three responses were returned. Of respondents, 53.4% were female, and median time in practice was 8 years (range 1-44 years). Of respondents, 86.4% held an MD or equivalent degree and 76.1% reported working in an academic setting, mostly in the Midwest (85.2%). Sixty percent of respondents reported having formal training on MAT for OUD, and 47.7% held an X-Waiver. Fifty five percent of respondents reported treating OUD at least every 3 shifts, and 37.3% reported always offering MAT for patients in opiate withdrawal, while only 12.0% reported always prescribing MAT for acute withdrawal. Prescriber attitudes regarding patients in consideration for MAT are detailed inTable 1. Most respondents (78.8%) deny an explicit bias toward patients seeking MAT. Nearly three-quarters (72.5%) agreed that all patients suffering from OUD should be offered MAT. Most prescribers (68.8%) reported feeling capable of determining whether someone is an appropriate candidate for MAT. Of prescribers, 78.0% reported feeling comfortable prescribing MAT, and 71.9% felt it was their responsibility to prescribe MAT. More than half of prescribers (55.1%) report feeling they can help more people after the dissolution of the X-waiver. In regard to potential barriers to treatment, just 5% of prescribers felt that MAT was futile because patients will likely use opioids again. However, 23.8% agreed that MAT alone will not make enough of a difference to a patient's care. Of respondents, 17.6% reported fear that a patient may abuse medications prescribed for MAT.

Conclusions: ED providers are on the front line of the opioid epidemic. Our data indicates that while most prescribers report comfort with as well as duty to patients regarding MAT prescribing, there still exist barriers to widespread therapy. While only a few respondents reported explicit bias against patients with OUD, nearly a quarter of respondents endorsed feelings of futility with MAT, and almost 1 in 5 reported a fear that patients may abuse medications prescribed as MAT. This data is limited by a small sample size as well as by its survey-based nature, as a Hawthorn effect may undermine reporting of bias. More research is needed to examine why rates of MAT prescribing are lower than expected given the reported comfort of EM prescribers. While most prescribers reported comfort with MAT prescribing, there is still room for improvement as 22% of ED prescribers were not comfortable prescribing MAT. Standardized education among ED prescribers, whether in residency training, hospital guidelines, or national-level guidelines, is likely to be helpful in increasing the proportions of eligible patients who are offered MAT.

	Disagree	Neutral	Agree
I feel I am biased against patients seeking MAT for OUD.	78.8%	16.3%	5%
I feel that all patients suffering from OUD should be offered MAT.	6.3%	21.3%	72.5%
I feel capable of determining who is an appropriate patient for MAT with buprenorphine.	7.6%	23.8%	68.8%
I feel comfortable prescribing MAT for OUD.	11.0%	11.0%	78.0%
I feel it is my responsibility to prescribe MAT for OUD.	8.6%	19.5%	71.9%
I am able to help more people now that the X-waiver is dissolved.	7.5%	37.5%	55.1%
I feel like there is no point in prescribing MAT because patients will probably use again.	88.8%	6.3%	5.0%
I feel like MAT alone will not make enough difference to my patients' care.	60%	16.3%	23.8%
I am worried that my patients may abuse a drug prescribed as MAT.	60.1%	22.5%	17.6%

Table 1: Prescriber attitudes toward patients seeking MAT for OUD.

No, authors do not have interests to disclose

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551 Racial and Ethnic Differences in Emergency Department Treatment Coordination Preferences for Opioid Use Disorder

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Study Objectives: Significant racial and ethnic disparities in receipt of emergency department (ED)-initiated buprenorphine and engagement in subsequent treatment exist, despite strong evidence insupportof this practice. Little is known about the preferences for how opioid use disorder (OUD) is addressed during and after an ED encounter and whether they compare by race and ethnicity. This study explores and compares preferences for the ED coordination of OUD treatment among Black, Latino, and White participants with OUD.

Methods: We conducted semi-structured telephone individual interviews with 57 participants (20 Black, 20 White, 17 Latino) previously enrolled in the National Institute on Drug Abuse Clinical Trials Network (NIDA CTN)-0099, a multi-site randomized clinical trial comparing two formulations of ED-initiated buprenorphine for untreated OUD. Participants were recruited from eight ED sites: Cooper (NJ), Grady Memorial (GA), Henry Ford (MI), Maine (ME), University of New Mexico (NM), University of Utah, and the Alameda Health System (CA): Highland and San Leandro Hospitals. Data were coded and categorized using the Health Care System domain of the National Institute on Minority Health and Health Disparities Research Framework.

Results: Black participants highlighted the need to motivate patients towards treatment. Latino participants stressed the need for addiction education, while White participants also emphasized addiction education and addressing regulations in access to medications for OUD. Participants from all three racial and ethnic groups emphasized: 1) recognition and appreciation of hospitals' efforts in providing ED-initiated buprenorphine; 2) the importance of improving efficiency in ED addiction care; 3) a lack of preference for racial concordance of ED clinicians when discussing addiction; 4) the value of compassion when discussing OUD; 5) the importance of improving accessibility and providing options in OUD treatment post-ED encounter.

Conclusion: Black participants underscored the desire to be motivated to pursue treatment, while White and Latino participants expressed the importance of receiving addiction education. All groupssupportedED-initiated buprenorphine and improving accessibility in OUD treatment post-EDencounter. Future ED-based studies should develop and evaluate models that enhance treatment coordination to improve equity in OUD care.

No, authors do not have interests to disclose

552 Technology Engagement and Trust in Health Care: Health Literacy and Language Are Key Factors

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Study Objective: Diminishing trust in healthcare providers, especially during the COVID-19 pandemic, is a growing concern. Technology engagement in health, such as portals, telehealth, and digital resources, may foster trust. This cross-sectional study explores whether ED patients at LAG who engaged with digital health technologies reported higher trust in providers and examines health literacy and language proficiency as moderating factors.

Methods: Student research associates screened 2,024 individuals in the ED at LA General for eligibility. 1,031 patients were excluded due to critical illness, discharge, altered mental status, language barriers, custody, psychiatric hold, or other reasons, 353 declined participation, and 19 withdrew after starting the survey. The participants who enrolled in a cross-sectional study completed iPad-administered survey instruments covering demographics, housing, substance use, healthcare access, food insecurity, and digital technology capacity. Participants were categorized as tech-engaged or non-tech-engaged based on their use of portals, telehealth, or digital sources. Trust in providers, the primary outcome, was assessed by how participants ranked their most trusted medical information source: family, medical providers, TV, internet, AI, social media, or homeopathic providers. Ordinal logistic regression models calculated odds ratios (ORs), adjusting for demographics, with stratified analyses by health literacy and language.

Results: This study included a diverse patient population, predominantly Hispanic/Latino (80%), with 56% primarily Spanish speaking. Tech-engaged patients had significantly higher trust in providers (cumulative OR: 2.18; 95% CI: 1.60, 2.99; $p < 0.001$) compared to non-tech-engaged individuals. Subgroup analysis showed tech engagement increased trust among adequate literacy patients (cumulative OR: 3.66; 95% CI: 2.41, 5.56) but not low literacy patients (cumulative OR: 1.13; 95% CI: 0.69, 1.87). Among English speakers, tech engagement significantly increased trust (cumulative OR: 4.97; 95% CI: 2.96, 8.35), while it was not significant for Spanish speakers (cumulative OR: 1.44; 95% CI: 0.95, 2.18). Primary care access did not differ by tech engagement ($p = 0.222$).

Conclusion: Tech engagement is linked with higher trust in providers, especially for those with adequate literacy and English proficiency. However, patients with low literacy or limited English proficiency showed no association between trust and tech engagement, potentially due to language barriers in effective technology use or differences in how healthcare information is communicated to them. Interventions to increase trust via technology need to be tailored for low-literacy and limited English proficiency patients to ensure they can also benefit from these tools. Addressing these gaps may require multilingual tools, digital literacy training, culturally tailored telehealth, and digitalsupportprograms. These strategies could bridge healthcare trust gaps and enhance digital health interventions.

Table 1: Relationship Between Tech Engagement and Various Factors

Factor	Not Tech Engaged	Tech Engaged
Trust in MD		
- No Trust	33% (n=83)	10% (n=38)
- Low Trust	19% (n=48)	30% (n=115)
- High Trust	47% (n=117)	60% (n=225)
Primary Care Access (within 2 years)	73% (n=152)	77% (n=292)
Age (Mean)	41.35 years (95% CI: 40.51–42.19)	38.94 years (95% CI: 38.12–39.76)
Race		
- Hispanic/Latino	86% (n=212)	74% (n=279)
- Black	8% (n=20)	11% (n=42)
- Other	3% (n=8)	6% (n=24)
- White	3% (n=7)	9% (n=33)
Language		
- Spanish	66% (n=163)	45% (n=168)
- English	34% (n=83)	55% (n=209)
Insurance Type		
- Medi-Cal	64% (n=159)	64% (n=242)
- Medicare	13% (n=31)	7% (n=25)
- No Insurance	8% (n=19)	10% (n=36)
- Other	8% (n=20)	10% (n=39)
- Private	8% (n=19)	9% (n=34)
Stable Housing	81% (n=171)	89% (n=336)

No, authors do not have interests to disclose

553 Outcomes of Emergency Department-Initiated Buprenorphine for Adolescents With Opioid Use Disorder

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Study Objective: The increasing prevalence of pediatric opioid use disorder (OUD) and overdose underscores the need for timely interventions in emergency departments (EDs). The 2023 National Survey on Drug Use and Health estimated that between 2022 and 2023, the number of adolescents aged 12–17 meeting criteria for OUD rose from 265,000 to 316,000. Despite this growing crisis, access to medications for opioid use disorder (MOUD), such as buprenorphine, remains limited for adolescents. Studies suggest that early MOUD initiation reduces mortality by up to 50% in adults, yet pediatric populations are far less likely to receive treatment. A significant barrier is provider hesitation, with ED clinicians citing a lack of experience and uncertainty regarding optimal dosing. This study aims to evaluate ED-initiated buprenorphine in adolescents, assessing induction dosing, withdrawal symptom response, and retention in care over time.

Methods: This retrospective case series analyzed adolescents aged 13–21 who presented to a tertiary pediatric ED between November 2022 and October 2024 and were identified as at-risk for opioid-related harm through a best practice advisory (BPA) in the electronic medical record. Inclusion criteria included receiving or being prescribed buprenorphine during the ED visit and an International Classification of Diseases (ICD-10) diagnosis related to OUD.

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Clinical Opiate Withdrawal Scale (COWS) scores were recorded before and after induction, and primary outcomes included initial dosing, withdrawal symptom resolution, adjunct medication use, 30-day return ED visits, and prescription refills within weeks, at 3, and 6 months.

Results: Seventeen adolescents met inclusion criteria, with a mean age of 16 years. All had documented opioid withdrawal, and 41% had a recorded pre-treatment COWS score (mean 12), while 29% had post-treatment scores (mean 5.6), indicating symptom improvement. Two dosing strategies emerged: 41% received 4/1 mg of buprenorphine/naloxone, while 59% received 8/2 mg. Adolescents receiving the higher dose demonstrated greater symptom resolution (25% mean COWS reduction vs 13.6% in the lower-dose group) and were less likely to require adjunct medications (20% vs 71%). Among those prescribed MOUD, 63% refilled their prescription at 1 month, 59% at 3 months, and 53% at 6 months—significantly higher engagement than reported in adult cohorts from the ED.

Conclusion: This is the largest case series of ED-initiated buprenorphine in adolescents reported. ED-initiated MOUD was safe, well-tolerated, and associated with high retention in care. Additionally, only 29% of adolescents returned to the ED within 30 days, often for unrelated concerns. No opioid overdoses were reported in the 6-month follow-up period. These findings suggest that EDs play a crucial role in initiating MOUD for pediatric patients and that higher initial buprenorphine doses may improve withdrawal symptom relief and reduce adjunct medication use. Given the worsening overdose crisis, larger prospective studies are needed to refine dosing protocols and optimize long-term outcomes for adolescents with OUD.

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554 Long-Term Outcomes of Emergency Department Patients With Hallucinogen Use

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Study Objectives: The prevalence of hallucinogen use has increased in the United States over the past decade, accompanied by growing interest in hallucinogen-assisted psychotherapy in controlled settings. This study examines the five-year risk of mortality, suicide, and psychosis among individuals presenting to the emergency department (ED) following hallucinogen use.

Methods: This retrospective, propensity-matched study utilized the TriNetX database, analyzing records from 120,547,358 patients across 70 U.S. healthcare organizations (2005–2020). Young adult patients (18-40) admitted to the ED associated with hallucinogen use were compared to those not using hallucinogens. Propensity matching was performed for demographics and pre-existing conditions associated with mortality. The primary outcomes were all-cause mortality, suicide attempts, and schizophrenia diagnosis within five years of the ED visit. A secondary analysis was performed comparing those who presented to the ED for cannabis/alcohol related visits and hallucinogen use to those with cannabis/alcohol related visits and no hallucinogen use.

Results: A total of 8,112,347 ED patients aged 18-40 were identified within the designated time period, of which 25,052 were associated with hallucinogen use and 8,087,295 which were not. After exclusions and propensity matching, there were a total of 47,414 patients with 23,707 in each cohort. Patients who arrived at the ED for hallucinogen use were associated with significantly higher rates of all-cause mortality (3.45% vs 0.86%; RR 4.00, 95% CI 3.44-4.67), suicide attempt (1.00% vs 0.14%; RR 7.21, 95% CI 5.01-10.38), and schizophrenia (5.35% vs 0.68%; RR 7.91, 95% CI 6.71-9.33) within five years of the visit. Trends were similar for the secondary analysis.

Conclusion: Individuals presenting to the ED for hallucinogen use face a significantly higher risk of mortality, suicide, and psychosis compared to the general ED population. These risks are also elevated among those using hallucinogens in combination with alcohol or cannabis, compared to individuals seeking emergency care for alcohol or cannabis use alone.

No, authors do not have interests to disclose

555 Non-Psychostimulant Medication and Subsequent Intoxication in Patients With Stimulant Use Disorder

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Study Objectives: The American Society of Addiction Medicine (ASAM) published updated guidelines in 2023 for the management of stimulant use disorder, highlighting the potential use of pharmacologic intervention to promote reduction and abstinence. The purpose of this study is to investigate the use of non-psychostimulant medication prescriptions in office and emergency departments (ED) and to identify the rates of subsequent stimulant-related intoxication across patient populations with a history of stimulant use disorder.

Methods: We used Epic Cosmos, a national electronic health record database to identify patients with an ICD-10 diagnosis of cocaine-related disorders who were prescribed either topiramate or bupropion, or patients with an ICD-10 diagnosis of amphetamine-related disorders who were prescribed topiramate, bupropion, mirtazapine, or bupropion in combination with naltrexone. Patient populations were either prescribed medications at an office visit, or after acute intoxication or overdose in the ED. The primary outcome was a subsequent clinical diagnosis for intoxication or overdose within 90 days. Statistical analysis was performed using Chi-square analyses to determine significance.

Results: Of the 196, 214 patients aged 15 or older who presented for an office visit with an active problem of cocaine-related use disorder between November 2023 and February 2025, the percent of patients being prescribed medication included 2.03% topiramate, 4.55% bupropion. Of the 75,702 office visits for patients with amphetamine-related disorders, 1.95% were prescribed topiramate, 8.58% bupropion, 3.13% mirtazapine, and 0.91% naltrexone + bupropion. There were increased subsequent diagnoses for intoxication or overdose at 90 days in patients prescribed medications compared to those not prescribed in cocaine users: topiramate 34.38% bupropion 23.72%, no prescription 12.42%, $p < .001$. A similar trend was seen in amphetamine users: topiramate 21.91%, bupropion 25.96%, mirtazapine 25.61%, naltrexone + bupropion 35.22%, no prescription 16.81%, all $p < .0001$. Of the 41,774 patients initially presenting to the ED with a diagnosis of cocaine-related intoxication or overdose, 0.52% were prescribed topiramate or bupropion (0.15%, 0.37%, respectively). The percentage of patients with a subsequent overdose or intoxication within 90 days was higher in both treatments compared to no prescription (topiramate 34.38%, bupropion 23.72%, no prescription 15.53%, all $p < .01$). There were 10,459 patients presented to the ED with amphetamine-related intoxication or overdose, with 2.68% prescribed one of the four medication options. Patients prescribed bupropion had a higher rate of overdose or intoxication within 90 days compared to those not prescribed medication, (31.58% vs 19.71, $p < 0.01$).

Conclusion: Patients prescribed non-psychostimulant medications are likely at the highest risk of subsequent overdose and intoxication. However, both office and ED prescriptions of non-psychostimulant medications were low in comparison to the amount of people with stimulant use disorders. Those prescribed in the ED were at high risk of subsequent intoxication or overdose. Prescribing medications to a higher proportion of patients with cocaine and amphetamine related disorders would allow for a better understanding of its efficacy.

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556 Precipitated Withdrawal Following Emergency Department-Initiated Buprenorphine

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Study Objectives: Initiation of buprenorphine treatment of emergency department (ED) patients in opioid withdrawal may be offered less frequently as is indicated due to clinician concerns regarding precipitated withdrawal (PW). The objective of this study is to determine the proportion of patients who develop PW following ED buprenorphine administration to inform standardized protocols and enhance clinician comfort with medications for opioid use disorder.

Methods: This is a retrospective observational study of adults seen in one of the 15 EDs within a statewide medical system who were experiencing opioid withdrawal and

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were initiated on buprenorphine treatment between January 1, 2019 and December 31, 2023. Potentially eligible patients were identified through a search for those who were administered buprenorphine while in the ED. Patients were excluded if they were given buprenorphine to continue an established treatment regimen, had buprenorphine ordered by an inpatient clinician, or did not have a Clinical Opiate Withdrawal Score (COWS) recorded prior to buprenorphine treatment. The primary outcome determined by chart review was development of PW after treatment with buprenorphine in the ED, defined either as a ≥ 5-point increase in COWS or any increase in COWS that compelled treatment with additional buprenorphine or an opioid agonist within 4 hours of the original buprenorphine dose.

Results: Overall, 1,229 patients who received buprenorphine in the ED during the study period. 990 were excluded; of these, 229 were continuing established buprenorphine regimen and 615 did not have COWS scores collected during the hospital encounter. Of the remaining 239 eligible patients, 152 (63.6%) were male and the median age was 38 years. We identified 16 cases of PW (6.69%, 95% CI [3.53% - 9.86%]). No association was found between development of PW and COWS at initiation, treatment with naloxone-containing buprenorphine products, fentanyl use, or the initial dose of buprenorphine given.

Conclusion: PW is a relatively uncommon complication following ED-initiated buprenorphine treatment. However, the proportion of patients who developed PW in our study was substantially higher than reported in some previous studies. PW rates may vary due to differences in research protocols, COWS documentation, and drug supply. Patients should be counseled regarding the possibility of PW prior to treatment, and clinicians should be prepared to address the symptoms of PW when they occur.

Characteristic	Precipitated Withdrawal (n=16)	No Precipitated Withdrawal (n=223)	Absolute Difference (%) [95% CI]
Age (y), median (IQR)	35 (25.5)	38 (22)	
Male, n (%)	9 (56.3)	143 (64.1)	-7.8 [-33, 17.2]
Race, n (%)			
Black or African American	6 (37.5)	101 (45.3)	-7.8 [-32.4, 16.8]
White	8 (50)	107 (48)	2.0 [-23.3, 27.4]
Asian	0 (0)	1 (0.4)	-0.4 [-1.3, 0.4]
Other	2 (12.5)	14 (6.3)	6.2 [-10.3, 22.7]
ED Disposition, n (%)			
Discharge	7 (43.8)	174 (78.0)	-34.2 [-59.2, -9.4]
Admit	7 (43.8)	34 (15.2)	28.6 [3.7, 53.3]
Observation	2 (12.5)	14 (6.3)	6.2 [-10.3, 22.7]
Deceased	0 (0)	1 (0.4)	-0.4 [-1.3, 0.4]
Given Buprenorphine products that contain Naloxone, n (%)	15 (93.8)	197 (88.3)	5.5 [-7.2, 18]
COWS Scores prior to buprenorphine initiation, n (%)			
Mild (COWS ≤ 12)	9 (56.3)	150 (67.3)	-11.0 [-36.1, 14.1]
Moderate (13 ≤ COWS ≤ 24)	6 (37.5)	69 (30.91)	6.6 [-17.9, 31]
Severe (COWS ≥ 25)	1 (6.3)	4 (1.8)	4.5 [-7.5, 16.4]
Initial Buprenorphine dose, n (%)			
Sublingual/Tablet	15 (93.8)	210 (94.2)	-0.4 [-12.7, 11.8]
2mg	4 (25)	66 (30)	-5.0 [-26.6, 17.5]
4mg	1 (6.3)	29 (13)	-6.7 [-19.4, 5.9]
8mg	10 (62.5)	123 (55.2)	7.3 [-17.3, 31.9]
Injection	1 (6.3)	13 (5.8)	0.5 [-11.8, 12.7]
0.1mg	1 (6.3)	7 (3.1)	3.2 [-9, 15.2]
0.3mg	0 (0)	5 (2.2)	-2.2 [-4.2, -0.3]
0.6mg	0 (0)	1 (0.4)	-0.4 [-1.3, 0.4]
Reported fentanyl use prior to ED Presentation, n (%)	6 (37.5)	93 (41.7)	-4.2 [-28.8, 20.4]

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557 A Randomized Study Comparing Rapid Versus Standard Induction to Buprenorphine Extended-Release Injection

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Study Objectives: This multi-center, randomized, open-label sub-study (NCT04995029), evaluated treatment retention using standard induction (SI) vs rapid induction (RI) onto buprenorphine extended- release (BUP-XR; SUBLOCADE (R)) injection in treatment-seeking participants who frequently inject opioids or use fentanyl/high doses of opioids.

Methods: Participants were randomized at a 2:1 ratio to RI (a single dose of 4 mg transmucosal [TM] buprenorphine [BUP]) or SI (≥7days of TM-BUP) before BUP-XR injection 1. Randomization was stratified by the same-day urine drug screen (UDS) fentanyl result. The primary endpoint, retention rate difference at injection 2 (administered 1 week after injection 1), was estimated by a Bayesian approach. The posterior probability was evaluated for superiority of RI to SI (RI – SI >0) using a 96% critical value for overall 1-sided Type I error <10%. Investigator assessed precipitated opioid withdrawal (POW) was reported.

Results: There were 729 randomized participants who initiated treatment with TM-BUP per protocol (255 SI, 474 RI) with 406 males and 323 females, mean age of 41 years, mean opioid use of 15 years, and 78% fentanyl positive by UDS. RI was superior to SI: The difference in retention rates with its 95% highest posterior density intervals and posterior probabilities for RI superior to SI at injection 2 was 11.8% (4.3-19.0%) and 99.9% for the overall population, and 14.8% (6.5-23.7%) and 100.0% for the fentanyl positive subpopulation. The proportion of participants who completed the study was 51.0% SI vs 58.9% RI (difference 7.9% [0.2-15.3]). The proportion of participants with investigator assessed POW symptoms was 18.0% SI vs 24.1% RI. In RI, POW did not result in increased discontinuation compared to SI. Between injections 2 and 3, no individual adverse event was observed in ≥5% of participants.

Conclusion: Compared to SI, RI improved treatment retention without significantly increasing POW in this high-risk population. Administration of injection 2 one week after injection 1 was well tolerated. The shorter time necessary for RI may increase retention on BUP-XR treatment.

Learning objective: 1. Understand that a rapid induction protocol is a safe option for starting BUP-XR injection that improves treatment retention relative to standard induction. 2. Understand that a second injection of BUP-XR can be safely administered one week after the first injection.

Financial support: This study wasfundedbyIndiviorInc., North Chesterfield,VA,USA.

Table: Treatment retention and study completion by fentanyl subpopulation (evaluable population).

	Fentanyl positive N = 560		Fentanyl negative N = 163		Total N = 723	
Category	RI (N = 366)	SI (N = 194)	RI (N = 104)	SI (N = 59)	RI (N = 470)	SI (N = 253)
Proportion of participants who received injection 2, %[a,b]	62.8	47.9	78.8	76.3	66.4	54.5
Difference in retention rate at injection 2, RI–SI (95% HPD), %[c]	14.8 (6.5, 23.7)		3.0 (−10.5, 16.1)		11.8 (4.3, 19.0)	
Posterior probability of RI non-inferior to SI, i.e., RI–SI >−10%, %	100.0		97. 5		100.0	
Posterior probability of RI superior to SI, i.e., RI–SI > 0, %[d]	100.0		66.3		99.9	
Proportion of participants who received Injection 3, %[e]	56.6	44.8	67.3	71.2	58.9	51.0
Difference in retention rate at Injection 3, RI–SI (95% HPD), %	11.6 (3.1, 20.2)		−3.5 (−18.2, 10.6)		7.9 (0.2, 15.3)	
Posterior probability of RI superior to SI, i.e., RI–SI > 0, %	99.6		31.4		97.9	

[a]Retention at injection 2 definition: proportion of participants receiving injection 2 (n) among the evaluable population (m).
[b]The numerator is the number of participants who (a) received Injection 2 at the Week 2 (nominal) visit, or (b) missed Injection 2 at Week 2 but received Injection 3 at Week 6 Day 36 visit. The denominator is the evaluable population.
[c]Estimated by Bayesian beta-binomial model using non-informative uniform prior, i.e., Beta (1,1), within individual induction arms.
[d]Since non-inferiority of RI to SI is observed, the posterior possibility of retention rate difference (RI - SI) greater than 0 was estimated to evaluate superiority.
[e] Retention at injection 3 definition: the proportion of participants receiving injection 3 (n) among the evaluable population (m).
BUP-XR, extended–release buprenorphine; HPD, highest posterior density region; RI, rapid induction; SD standard deviation; SI, standard induction.

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558EMF Functional and Cognitive Outcomes After Emergency Department Visits Among Older Adults With Dementia

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Study Objectives: Over half of the six million U.S. persons living with Alzheimer's disease and related dementias (PLWD) visit U.S. emergency departments (EDs) each year. Functional status and cognition are top concerns for PLWD, and prior research shows ED visits can negatively impact these outcomes among older adults. However, no studies have specifically examined functional and cognitive changes after ED visits among PLWD. This study aims to describe the trajectory of functional and cognitive status and identify predictors of functional and cognitive decline among PLWD receiving home health services who visit U.S. EDs.

Methods: We are conducting a retrospective cohort study using 2018–2019 data from the Outcome and Assessment Information Set (OASIS), which includes functional and cognitive assessments for Medicare beneficiaries receiving home health services—35% of whom have dementia. These data are being linked to a 20% national sample of MedicareFee-for-Service claims and Medicare Advantage encounters. OASIS provides validated, longitudinal measures of Activities of Daily Living (ADLs) and cognitive status, assessed by home health clinicians at least every 60 days. First, we will compare changes in functional and cognitive outcomes after ED discharge between three matched cohorts of community-dwelling older adults with dementia: those with an ED visit and discharge home, those hospitalized after an ED visit, and those with no ED visit (control). Primary outcome is change in composite ADL score 30 days post-ED visit. Secondary outcomes include ADL score at 6 months and cognitive impairment at both time points. Next, we will identify predictors of functional and cognitive decline six months after ED discharge. Predictors include demographic (age, sex, race, rural/urban location), clinical (ED diagnosis, comorbidities, behavioral impairments), and social factors (Medicaid eligibility, living alone, financial insecurity). Outcome measures are changes in ADL and cognitive status at 6 months.

Results: Data analysis is ongoing. We anticipate that PLWD discharged from the ED will experience functional and cognitive decline relative to controls, but to a lesser extent than those hospitalized after ED evaluation. We hypothesize that Black race, Medicaid eligibility, rural residence, living alone, financial insecurity, and higher clinical risk will be associated with worse outcomes.

Conclusion: This study addresses a critical gap in understanding the functional and cognitive trajectories of older adults with dementia following ED visits. By leveraging novel data linkages and a large, national cohort, findings from this study will inform future interventions and policies to reduce avoidable ED visits and improve post-ED outcomes for this high-risk population.

No, authors do not have interests to disclose

559 Board Prep to Bedside: Navigating Hard Conversations for Emergency Medicine's New Certifying Exam

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Study Objectives: Physicians working in emergency medicine (EM) are often faced with difficult situations that require adept communication skills. In 2026, the American Board of Emergency Medicine (ABEM) will change the certifying exam for EM residency graduates. A core competency of the exam will be "high stakes communication and difficult conversations." Simulation based education (SBE) has become an essential tool for resident education due to its reflective practice. To better prepare trainees for exam success and for bedside clinical practice, we created a simulated experience for navigating difficult conversations and death notifications. This simulated curriculum was developed in partnership with the Cleveland Clinic's Simulation and Advanced Skills Center to ensure best practices with trained simulation staff and resources. The goal of our pilot intervention is to expose residents to ABEM recommended resources for communication skills and practice these skills in the safety of a simulated environment.

Methods: We designed a SBE experience to best mirror the expected structure of the new certifying exam. 1 week prior to the simulation, all residents in a 3-year program were provided with flipped-classroom reading on recommended structures for death notification published by ABEM. Critical actions and competencies were developed using the same evidence-based frameworks cited by ABEM for the updated exam. The simulation prompt set the scene in a resource-scarce ED where EMS arrives with a coding pediatric patient after sustaining extensive traumatic injuries from a motor vehicle collision. Residents were required to determine when resuscitation was futile and then engage the parent in a difficult conversation, including death notification. The parent was played by a physician with both emergency medicine and palliative care medicine training. At the conclusion of the simulation, all residents attended a 25-minute structured debrief to discuss critical actions for the case and highlight communication learning points. Post-simulation surveys were completed to assess residents' exposure to prior education in difficult conversations, usefulness of the pre-reading, and perception of the simulation's effectiveness in preparing for the ABEM certifying exam.

Results: 21 residents, in groups of 4-5, participated in the simulation. Each group included senior and junior residents. Thirteen residents responded to the voluntary post-participation survey. 69.2% of respondents came to the simulation with some prior education on difficult conversations, while 30.8% reported no prior formal education. 92.3% of respondents had reported that they completed the pre-reading, and all agreed it was helpful. The survey included a free-text item for residents to report on how they felt the simulation would prepare them for the ABEM certifying exam. All comments were positive with one stating; "if the case is similar to how the certifying exam will be run, I feel like it was a nice opportunity to run through the full scenario in a controlled environment to practice those skills."

Conclusion: The upcoming changes to the ABEM certifying exam will necessitate a greater emphasis on simulation-based training. Developing high-quality SBE that assesses residents in a standardized manner—especially in previously untested areas such as difficult patient interactions—will be a challenge for all residency programs. Our pilot SBE scenario on the topic of difficult conversations was well received by residents. The level of engagement, positive feedback, and perceived relevance to the upcoming ABEM certifying exam suggest that this training approach is both valuable and effective. Incorporating similar simulations modeled specifically toward the new certifying exam into residency curricula may help bridge this gap and better prepare trainees for both the certification process and real-world clinical challenges. Future efforts should explore longitudinal integration of such simulations with robust survey data to assess their impact on long-term communication skills and exam performance.

No, authors do not have interests to disclose

560 Impact of Junior Physicians' Mass Resignation on Outcomes of Out-of-Hospital Cardiac Arrest

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Study Objectives: In February 2024, following the government's announcement of new healthcare policies, including an increase in medical student quotas, more than 90% of resident physicians resigned in South Korea. The mass resignation of resident

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physicians may influence the treatment outcomes of critical patients, particularly those experiencing out-of-hospital cardiac arrest (OHCA). This study aims to evaluate the impact of this resignation on the in-hospital treatment and outcomes of OHCA patients.

Methods: This multicenter retrospective observational study analyzed adult patients (≥18 years) who experienced OHCA of medical etiology in a metropolitan city during two distinct periods: a compare period (March 1, 2023 – December 31, 2023) and a resignation period (March 1, 2024 – December 31, 2024). Primary outcomes were survival to hospital discharge and favorable neurological outcome, defined as Cerebral Performance Category (CPC) scores of 1–2. Demographic and clinical characteristics were compared between periods, and logistic regression analyses were conducted to evaluate associations between study periods and patient outcomes.

Results: A total of 1516 OHCA patients were included: 736 from the compare period and 780 from the resignation period. Demographic characteristics, including age, sex, and comorbidities, were similar between the two groups. In-hospital treatments, including coronary angiography, targeted temperature management, and extracorporeal membrane oxygenation, showed no significant differences between periods. The adjusted odds ratio for good neurological outcomes was 1.33 (95% CI, 0.87–2.01), and the adjusted odds ratio for survival to discharge was 1.40 (95% CI, 0.94–2.05).

Conclusion: The mass resignation of resident physicians did not significantly affect short-term survival or neurological outcomes in OHCA patients. These results suggest that, despite physician shortages, the emergency medical system demonstrated resilience in the treatment of out-of-hospital cardiac arrest patients. Further research is necessary to assess the long-term effects and sustainability of emergency medical systems under continued physician shortages.

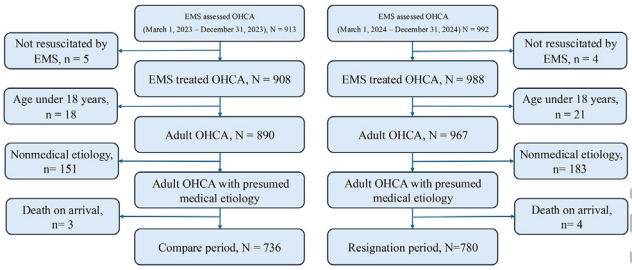


Figure 1. Study Population

Table 1. Comparison of Demographic Characteristics, In-Hospital Treatment, and Outcomes of OHCA Patients Between the Compare and Resignation Periods

	Total		Compare period		Resignation period		
	N = 1516	%	N = 736	%	N = 780	%	p-value
Age under 65	499	32.9%	242	32.9%	257	32.9%	1.000
Age, years (IQR)	56	(49.0, 61.0)	55.5	(48.0, 61.0)	56	(49.0, 60.0)	0.310
Female sex	504	33.2%	234	31.8%	270	34.6%	0.267
Comorbidity							
Hypertension	617	40.7%	293	39.8%	324	41.5%	0.527
Diabetes mellitus	430	28.4%	204	27.7%	226	29.0%	0.627
Heart disease	170	11.2%	83	11.3%	87	11.2%	0.632
Cerebrovascular accident	184	12.4%	95	12.9%	89	11.4%	0.416
Public place	174	11.5%	81	11.0%	93	11.9%	0.632
Witnessed arrest	740	48.8%	338	45.9%	406	52.1%	0.016
Bystander CPR	828	54.6%	412	56.0%	416	53.3%	0.326
Initial shockable rhythm	252	16.6%	117	15.9%	135	17.3%	0.504
Response time (min) (IQR)	9	(7.0, 11.0)	9	(7.0, 11.0)	8	(7.0, 11.0)	0.156
On-scene time (min) (IQR)	16	(13.0, 19.0)	16	(13.0, 20.0)	17	(14.0, 19.0)	0.436
Transport time (min) (IQR)	7	(5.0, 11.0)	7	(5.0, 11.0)	7	(5.0, 11.0)	0.797
Hospital treatment							
Coronary angiography	143	9.4%	66	9.0%	77	9.9%	0.372
Targeted temperature management	91	6.0%	45	6.1%	46	5.9%	0.615
Extracorporeal membrane oxygenation	36	2.4%	20	2.7%	17	2.2%	0.823
Any ROSC in hospital	455	30.0%	209	28.4%	246	31.5%	0.482
Early termination of CPR	213	14.1%	110	14.9%	103	13.2%	0.067
Length of ED stay, h (IQR)	0.7	(0.4, 2.5)	0.6	(0.4, 2.7)	0.7	(0.4, 2.4)	0.711
Prehospital ROSC	331	21.8%	146	19.8%	185	23.7%	0.077
Good neurologic outcome	107	7.1%	48	6.5%	59	7.6%	0.202
Survival to discharge	163	10.8%	69	9.4%	94	12.1%	0.110

CPR, Cardiopulmonary resuscitation; ROSC, return of spontaneous circulation

Table 2. Multivariable logistic regression analysis according to the study periods

	Total	Outcomes		Unadjusted		Adjusted	
	N	n	%	OR	95% CI	OR	95% CI
Good neurologic outcome	1516	107	7.1%				
compare period	736	48	6.5%	1.00		1.00	
resignation period	780	59	7.6%	1.34	(0.88, 2.03)	1.33	(0.87, 2.01)
Survival to discharge	1516	163	10.8%				
compare period	736	69	9.4%	1.00		1.00	
resignation period	780	94	12.1%	1.42	(0.96, 2.09)	1.40	(0.94, 2.05)

OR, odds ratio; CI, confidence interval; Adjusted for age, sex, comorbidity(hypertension, diabetes mellitus, heart disease, cerebrovascular accident), witnessed arrest, performed bystander CPR, initial ECG rhythm, response time interval, scene time interval, transport time interval

No, authors do not have interests to disclose

561 Intra-Arrest Arterial Line Placement Is Associated With High Success Rate: Video Review-Based Study

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Study Objectives: Arterial lines (A-lines) in cardiac arrest allow for improved return of spontaneous circulation (ROSC) and re-arrest detection, as well as real-time feedback on cardiopulmonary resuscitation (CPR); however, their placement in cardiac arrest in the emergency department (ED) remains uncommon. Many practitioners avoid placing A-lines during cardiac arrest due to concerns about time constraints and procedural difficulty. We aim to investigate the feasibility of intra-arrest A-line placement in ED cardiac arrest patients, describing patient characteristics, success rates, number of attempts, and time to placement. We also examine outcomes, including ROSC, survival to hospital admission, and survival to discharge and evaluate the association between placement success and repeated attempts.

Methods: This is a single-center, video-review registry-based, retrospective cohort study of adult cardiac arrest patients at a quaternary care ED between 01/2018 and 11/2024. The inclusion criteria were at least one A-line placement attempt during CPR. All A-line placement attempts were performed using ultrasound guidance, and overwhelmingly by ED attendings. Data on patient demographics, cardiac rhythms, and A-line insertion attempts, including duration and success rates, as well key outcomes including ROSC, survival to hospital admission, and survival to discharge were collected. We used descriptive statistics, t-tests, and Kruskal-Wallis tests to assess differences in times and success rates between groups.

Results: Of 375 patients, 49 (13.1%) had an A-line placement attempt, and were analyzed. 46 of 49 patients (94.0%) had successful A-line placement. Overall median age of the cohort was 78 years (interquartile range (IQR): 64-87, A-line attempt group 75 years) and 168 of 375 (44.8%) female (23 of 49 (46.9%) A-line group). There was no significant difference between the A-line and non-A-line groups in estimated downtime (30 vs 35 minutes, $p = 0.95$) or incidence of shockable rhythm (4.10% vs 11.7%, $p = 0.12$). However, a significantly higher proportion of patients in the A-line group achieved ROSC (71.4% vs 44.8%, $p = 0.01$). Survival to hospital admission (28.6% vs 28.8%, $p = 0.90$) and survival to discharge (0% vs 6.9%, $p = 0.14$) did not differ significantly. Among the 49 patients who underwent A-line placement, 82 A-line placement attempts were made (median: 1 attempt per patient, IQR: 1-2), with a median overall attempt duration of 102 seconds (IQR: 71-143 seconds). The median time from first attempt to successful placement was 226 seconds (IQR: 99-252). There was no statistically significant difference in placement duration between attempts ($p = 0.80$), but after the third attempt, success rates for each subsequent attempt were 25% or lower (Fig. 1A). Similarly, cumulative success steadily increased from the first through third attempt, reaching 90.0%, but plateaued afterwards (Fig. 1B).

Conclusion: Arterial line placement during cardiac arrest resuscitation is feasible, with a high success rate and relatively short duration of insertion in select populations. However, placement success rate declines after three attempts, dropping below 25%. The association with improved ROSC is likely confounded by selection bias. Further studies are needed to explore its long-term impact on patient outcomes and procedural techniques.

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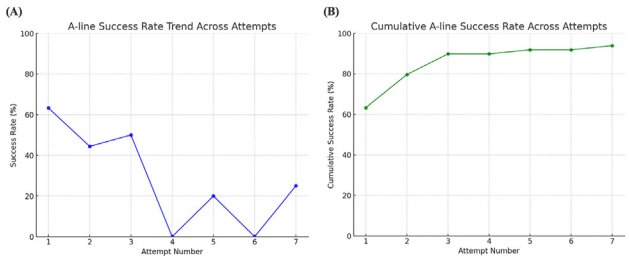


Figure 1. (A) A-line success rate trend across attempts. **(B)** Cumulative A-line success rate across attempts.

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562 Increasing PrEP Awareness Through Outreach for Patients in an Emergency Department

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Study Objectives: Pre-exposure prophylaxis (PrEP) for HIV prevention is 99% effective and yet, uptake is low. An urban hospital, serving the south and west sides of Chicago, implemented a PrEP outreach program for patients seen in their emergency department (ED) and Urgent Care Clinic. The initiative outreaches patients 18 years or older with a history of Syphilis, Chlamydia or Gonorrhea infection in the past year and without documented HIV diagnosis to offer PrEP education, HIV risk assessment, and linkage to a PrEP outpatient clinic appointment. Patients are outreached by phone or in-person. This study was performed to evaluate the outreach program whose primary focus was to create awareness about PrEP and in turn, increase PrEP uptake in the vulnerable population at an elevated risk for HIV acquisition.

Methods: Data from Electronic Health Record (EHR) and program outreach database were cleaned using Python to summarize demographic characteristics and PrEP literacy among those outreached, reached and connected to PrEP between 07/01/2023 and 02/28/2025.

Results: The initiative outreached 1333 patients (90% by phone and 10% In-person) and successfully reached 754 patients (56%). Of those outreached, the majority were female (75%), Black (80%), and insured by Medicaid (66%), and on average, 30 years of age. Over 19% of patients required more than one attempt to reach them. The majority of those reached (77%) reported being unaware of PrEP previously. Of those reached, 16% expressed interest in PrEP and 9% were linked to a PrEP navigator at an outpatient clinic of their choice. Of those people who reported a reason why they were not interested in PrEP at the time, the majority reported low perception of HIV risk (62%). Sixty-two patients were scheduled for a PrEP appointment and 16 (26%) attended the scheduled appointment. Of those scheduled for a PrEP appointment 77% were women and of those who attended the appointment all but one (94%) were women. Of the 16 patients who attended their PrEP appointment, 13 were prescribed PrEP. Three patients were not prescribed PrEP at their appointment, because they reported having changed their mind about PrEP.

Conclusion: Only 2% of patients reached were linked to a PrEP appointment. However, another key outcome was that all patients reached were made aware of PrEP and the risk factors for HIV acquisition, including the overwhelming 77% of patients who reported being previously unaware of PrEP. Furthermore, of the 15 women who attended a PrEP appointment (n=12), 80% were Non-Latinx Black women - a key population for PrEP outreach. Exploring other modalities of outreach, such as messaging through email or secure chat through the EHR, may help reach more patients and encourage more patients to self-assess their risk for HIV acquisition. These alternative modalities may prove to be more efficient given they require little to no dedicated healthcare personnel time.

Yes, authors have interests to disclose
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563 Incidence of Heat-Related Illness in the Emergency Department: A Comparative Analysis

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Study Objectives: Global temperatures are rising. Texas, the fourth hottest U.S. state, will experience a four-fold increase in 100°F days by 2036, raising concerns about the public health impact of heat-related illness (HRI), a spectrum of conditions ranging from heat cramps to heat stroke. Previous studies showed that rising temperatures are associated with increased hospitalizations and mortality, with vulnerable populations—such as minorities, low-income individuals, and those living in areas with inadequate housing—disproportionately affected due to social determinants of health. However, limited research focused on the incidence of HRI in Texas. This study assesses the incidence of HRI and demographic characteristics of emergency department (ED) visits in Texas by comparing 2022-2023 to a historical control period (2015-2016). We hypothesize that total ED visits for HRI increased over time, while other demographic characteristics remained stable.

Methods: This retrospective study analyzed ED data from a high-volume healthcare network in Central and North Texas. Subjects were identified by querying the electronic medical record for HRI-related ICD-10 codes diagnosed during the study period. There were no exclusion criteria. The following variables were collected: age, sex, race, ethnicity, urban-rural, and base populations (HRI and total). The incidence of HRI in the study and control groups were compared. A chi-square analysis was performed to assess associations. A p-value <0.05 was considered statistically significant. The Institutional Review Board approved the study.

Results: The overall incidence of HRI increased from 0.08% (434 out of 520,937) in the historical control period (2015-2016) to 0.15% (2,628 out of 1,752,467) in the study period (2022-2023) ($p < 0.001$). Patients aged 64-97 years showed a higher incidence of heat-related illness in the study period than historical controls ($p = 0.033$). Hispanic or Latino patients experienced a 37.8% increase in HRI incidence ($p = 0.005$). Additionally, core urban areas had a 27.7% increase in HRI incidence compared to rural areas ($p < 0.001$).

Conclusion: The findings indicate a significant increase in the incidence of HRI in North and Central Texas from 2015-2016 to 2022-2023, with a higher prevalence among older adults and Hispanic and Latino populations. It is possible that if temperatures continue to rise, certain demographic groups may be disproportionately affected. The increased incidence in urban areas compared to rural areas may reflect more significant exposure to urban heat islands. There is a need for targeted interventions to mitigate HRI, particularly for older adults. Public health initiatives should focus on raising awareness for clinicians and providing resources to high-risk populations. Further research is needed to investigate the incidence and demographic characteristics of HRI.

No, authors do not have interests to disclose

564 Older Adults Board Longer in the Emergency Department After Admission Longer Than Younger Adults

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Study Objective: Prolonged boarding in the emergency department (ED) after hospital admission is common but may cause harm, particularly for older adults, who are at higher risk for developing delirium and deconditioning. As a result, metrics on

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ED boarding specifically for older adults were included in the new Age-Friendly Hospital Measure from the Centers for Medicare & Medicaid Services. Little is known about how ED boarding times for older adult patients compare to those for younger adults. Our goal was to compare ED boarding times after hospital admission for older adult patients to younger adults.

Methods: We examined ED boarding times for all adult patients (aged ≥18) admitted from 1/1/21-12/31/24 to a large, 1042-bed urban hospital system with both an academic and a community hospital site. We compared ED boarding times between older adults (aged ≥65) and younger adults (aged 18-64).

Results: A total of 98,921 adult patients were admitted during this period, with 53.8% of these aged ≥65. The median ED boarding time was 8 hours 37 minutes for older adults and 7 hours 45 minutes for younger adults. Among older adults, 74.3% boarded ≥4 hours, 52.2% ≥8 hours, 43.5% ≥12 hours, 25.6% ≥24 hours, and 8.6% ≥48 hours. Among younger adults, 70.6% boarded ≥4 hours, 49.1% ≥8 hours, 40.1% ≥12 hours, 22.6% ≥24 hours, and 7.3% ≥48 hours. Median boarding times were 8 hours 30 minutes for patients aged 65-74, 9 hours 6 minutes for patients aged 75-84, and 8 hours 13 minutes for patients aged ≥85. Median boarding times by month for older adults ranged from 6 hours 18 minutes in 6/23 to 16 hours 48 minutes in 1/24.

Conclusion: Despite increased potential for poor outcomes, older adults board in the ED for longer than younger adults. Future research should explore the impact of prolonged boarding on these older adult patients and the potential for interventions to ameliorate this.

No, authors do not have interests to disclose

565 Feasibility of Tools to Assess Stress Levels in Care-Partners of Persons Living With Dementia

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Study Objectives: We hypothesized that the stress of being a care-partner for a person living with dementia (PWLD) may lead to repeat emergency department (ED) visits. The workflow and pace in the ED may limit the time that would be needed to perform an extra assessment on care partners. The purpose of this pilot was to assess and compare the feasibility of administering two care partner stress assessment tools, a brief 3-item, 0-4 point Likert scale screening version of the Zarit Burden Interview (ZBI-S) and the Stress Thermometer, to care partners of PLWD during an encounter in a busy ED.

Methods: This observational descriptive study was conducted at the Penn State Hershey Medical Center ED from October 2024 through March 2025 with IRB approval. Care partner-PLWD dyads were recruited if the patient was ≥60 years old, met criteria for cognitive impairment, lived in a community-based or independent living setting, and planned for discharge back home or to observation status from the ED. Care partners were included if they lived with the PLWD or provided weekly in-person/phonesupport. Exclusion criteria included PLWD who lived in nursing homes or assisted living settings, who were admitted to the hospital, or if either member of the dyad declined participation. Participants were identified via chart review and screened using the Aging and Dementia (AD8) screening interview. After consent, care partners completed the ZBI-S questionnaire (burden assessment) and the Stress Thermometer (visual analog scale with open-ended questions). The time measured in seconds to complete each tool was recorded.

Results: Twenty-six participants were enrolled and completed both tools. Time to complete the ZBI-S ranged from 24 to 470 seconds with a mean of 76.08 seconds (SD 93.88), and a median of 49.00 seconds. Time for 26 participants to complete the Stress Thermometer assessment with open-ended questions ranged from 105 to 783 seconds with a mean of 295.65 seconds (SD 183.30) and a median of 257.50 seconds. The ZBI-S was significantly faster (300%) to administer with a mean difference between the two test of 169.92 seconds ($p < 0.001$, Wilcoxon Signed-Rank Test).

Conclusion: Our pilot study demonstrates that both tools, the ZBI-S and Stress Thermometer, can be feasibly administered in the ED setting within 5 minutes, with a 100% completion rate. The ZBI-S offers extremely rapid screening (<1 minute median time), while the Stress Thermometer provides richer qualitative data at the cost of longer administration time. Further analyses may reveal how well the ZBI-S and Stress Thermometer correlate with one another and which stressors predict greater care partner burden or stress level.

No, authors do not have interests to disclose

566 Mild Head Trauma in Older Adults: When to Scan?

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Study Objectives: Each year, 50–60 million people worldwide (2.5 million in Europe) sustain a mild head injury (MHI), most of which (60–95%) are mild. These injuries are the leading cause of structural brain damage. CT imaging is essential for detecting life-threatening lesions and guiding prognosis, but its use must be balanced against costs and radiation exposure to ensure appropriate application in healthcare systems. The aim of this study is to analyze the clinical characteristics of mild traumatic brain injury over a three-year period and to evaluate the indications for CT imaging, with particular attention to its prognostic value.

Methods: This retrospective observational study analyzed hospital records from an emergency department serving a population of approximately 300,000 people. It included 3,606 patients aged 14 years and older who were diagnosed with mild head injury (MHI)—defined as acute, closed head trauma with a Glasgow Coma Scale (GCS) score between 13 and 15—between 2019and2022. The study covered both pre-pandemic and pandemic periods, including the months of confinement, and examined incidence trends, causes, and injury frequencies. A multivariate analysis was conducted to identify risk factors associated with the need for radiological imaging in the emergency setting.

Results: Analysis of patient characteristics revealed that 46.3% were women, with a median age of 77 years (IQR: 60–80); notably, 45.3% were over the age of 75. During the pre-pandemic period, 1,339 patients with mild head injury presented to the emergency department. Interestingly, during the pandemic—and despite partial or complete isolation measures, particularly among the elderly—the number of cases increased to 1,935 for a comparable time frame. A risk prediction model was developed to guide the indication for cranial CT in patients with mild head trauma. Significant variables associated with increased risk of injury included: age over 75 years (25-fold higher risk compared to individuals under 30), hypertension (1.7 times higher risk), history of chronic respiratory disease (2.6 times), anticoagulant therapy (9.6 times), antiplatelet therapy (5.1 times), and high-impact trauma (1.5 times more likely than low-impact). The model demonstrated excellent diagnostic accuracy, with an area under the ROC curve (AUC) of 0.88 (95% CI: 0.86–0.89), indicating strong predictive performance.

Conclusion: Mild head injury is a prevalent and growing concern, particularly among the elderly, as reflected by its sustained incidence even during pandemic-related confinement. The findings of this study highlight the importance of structured and evidence-based approaches to CT imaging in emergency settings. The proposed risk model demonstrated excellent diagnostic performance and offers a reliable tool to guide CT scan decisions, ensuring appropriate resource use while maintaining patient safety. Its application is especially relevant for high-risk populations, such as older adults and those on anticoagulant or antiplatelet therapy. Implementing such decision-supporttools can enhance clinical efficiency, reduce unnecessary radiation exposure, and support more sustainable healthcare practices.

No, authors do not have interests to disclose

567 Palliative Care in a Brazilian Emergency Department Reduces Futile Resuscitation in Poor-Prognosis Patients

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Study Objectives: To evaluate the association between palliative care (PC) consultation in the emergency department (ED) and the attempts of cardiopulmonary resuscitation (CPR) in patients with poor prognosis.

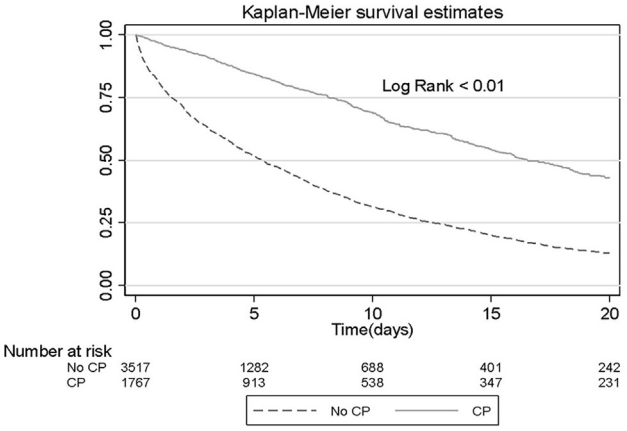
Methods: A retrospective cohort study was conducted in a tertiary hospital ED, including adult patients admitted between 2014 and 2024. The primary outcome was the occurrence of CPR during hospitalization. Patients were classified based on PC consultation, and time to CPR was analyzed using Cox proportional hazards models. Adjustments were made for age, sex, comorbidities, surgical interventions, cancer diagnosis, and admission year. The performance of automated classification using natural language processing (NLP) was validated against manual chart review (gold standard), with a Kappa agreement of 0.70 (95% CI: 0.61–0.79).

Results: Among 5,284 patients, 1,767 (33.5%) received PC consultation. PC was associated with a significantly lower risk of CPR, with a hazard ratio (HR) of 0.32 (95% CI: 0.29–0.36; $p < 0.001$) compared to those without PC. The association

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remained robust after adjusting for confounding factors. In a sensitivity analysis restricted to patients who died within 24 hours of admission, the HR was 0.16 (95% CI: 0.09–0.28; $p < 0.001$).

Conclusion: Palliative care consultation in the ED was independently associated with a significant reduction in CPR attempts among patients with limited prognosis. These findings underscore the importance of early PC integration in emergency settings to promote goal-concordant care and avoid potentially futile interventions.



No, authors do not have interests to disclose

568EMF The Impact of Race and Ethnicity on Early Do Not Attempt Resuscitation Order Placement and Survival

Raymond-King C, Wan X, Cook R, D'Onofrio G, Raymond-King L, Chan P, Perman S/ Yale University, New Haven, Connecticut

Study Objectives: Black and Hispanic patients have worse outcomes after in-hospital cardiac arrest than white patients. One unexplored factor that may contribute to this gap is the placement of early Do Not Attempt Resuscitation (DNAR) orders. While international guidelines recommend waiting 72 hours after Return of Spontaneous Circulation to begin neuroprognostication, some patients may have prematurely placed DNAR orders that signal the beginning of Withdrawal of Life Sustaining Care. Little research has explored if early DNAR orders are placed for non-white patients at different rates than white patients, and if this contributes to the survival gap to hospital discharge following in-patient cardiac arrest. The objective of this project was to understand if Black, Hispanic or American Indian/Alaskan Native patients have different rates of early DNAR orders versus white patients, and if placement of early DNAR orders impact survival to hospital discharge for these patients.

Methods: We used the American Heart Association's Get With the Guidelines – Resuscitation dataset to conduct our study. We included patients with in-hospital cardiac arrest on an inpatient unit from 2018 to 2023 who were at least 18 years old. We used generalized linear mixed-effects models with a logistic link function to analyze data. In the first model, we evaluated the relationship between race and ethnicity and placement of early DNAR orders. We defined very early and early DNAR as within 12- or 72- hours post-resuscitation respectively. In the second model, we limited the dataset to include patients who had very early or early DNAR orders placed and evaluated the relationship between race and survival to hospital discharge. To account for clustering within hospitals, we used a random intercept and adjusted for key hospital-level covariates.

Results: From 2018 to 2023, we identified 93,843 patients who survived in-hospital cardiac arrest. After resuscitation from cardiac arrest, 25.3% and 37.4% of white patients had DNAR orders placed at 12 hours and 72 hours, respectively, versus 22.2% and 33.2% of Hispanic patients, 21.4% and 32.7% of Black patients, and 21.3% and 33.4% of American Indian/Alaskan Native patients. Black, Hispanic, and American Indian/Alaskan Native (AI/AN) patients were all less likely to have DNAR orders placed within 12 hours or within 72 hours than white patients (Table). Among all patients, 22,226 (39.0%) white patients survived to hospital discharge, versus 2,417 (34.5%) Hispanic patients, 7,168 (33.7%) Black patients, and 813 (34.2%) AI/AN patients. Among patients with an early DNAR order placed before 72 hours, Hispanic, Black, and AI/AN patients were all less likely to survive to hospital discharge than white patients (Table).

Conclusion: Black, Hispanic and AI/AN patients were less likely to have early DNAR orders placed than white patients. Notably, the non-white cohort were also less likely to survive to hospital discharge if an early DNAR order was placed. More research is needed to understand the dynamic relationship between patient race/ethnicity and the decision for DNAR order, timing of DNAR order and overall outcomes from in-hospital cardiac arrest.

Covariate	Odds Ratio	Confidence Interval (95% CI)	
Do Not Attempt Resuscitation order <72 hours			
Hispanic	0.89	(0.83, 0.97)	***
Non-Hispanic Black	0.73	(0.69, 0.77)	***
American Indian/Alaskan Native	0.86	(0.76, 0.98)	***
Asian	1.14	(0.91, 1.43)	
Native Hawaiian or Pacific Islander	1.13	(0.83, 1.54)	
Unknown	0.81	(0.74, 0.88)	***
Do Not Attempt Resuscitation order <12 hours			
Hispanic	0.90	(0.82, 0.99)	***
Non-Hispanic Black	0.74	(0.69, 0.79)	***
American Indian/Alaskan Native	0.78	(0.67, 0.91)	***
Asian	1.03	(0.79, 1.35)	
Native Hawaiian or Pacific Islander	1.15	(0.80, 1.65)	
Unknown	0.79	(0.71, 0.87)	***
Do Not Attempt Resuscitation order <72 hours among patients with predicted good neurologic outcome *			
Hispanic	1.21	(0.95, 1.54)	
Non-Hispanic Black	0.69	(0.59, 0.82)	***
American Indian/Alaskan Native	0.73	(0.48, 1.13)	
Asian	1.22	(0.67, 2.20)	
Native Hawaiian or Pacific Islander	1.01	(0.43, 2.38)	
Unknown	0.81	(0.63, 1.05)	
Do Not Attempt Resuscitation order <12 hours among patients with predicted good neurologic outcome *			
Hispanic	1.07	(0.78, 1.45)	
Non-Hispanic Black	0.68	(0.55, 0.84)	***
American Indian/Alaskan Native	0.53	(0.30, 0.95)	***
Asian	0.77	(0.35, 1.70)	
Native Hawaiian or Pacific Islander	1.11	(0.39, 3.10)	
Unknown	0.67	(0.48, 0.93)	***

No, authors do not have interests to disclose

570 Basic Emergency Care: Clinical Implementation in Belize

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Study Objectives: Strengthening healthcare capacity is a strategic priority for Belize, who re-launched a campaign to train healthcare workers (HCWs) in the World Health Organization (WHO)'s Basic Emergency Care (BEC) in 2022. Southern Belize was prioritized due to a historically under-resourced healthcare system and longer distance to higher level of care hospitals. A majority of HCWs at the government-run Punta Gorda Community Hospital (PGCH) were trained in BEC by the spring of 2023, and BEC clinical implementation began in the summer of 2023. This study looks at the impact of BEC training and implementation on clinical outcomes at PGCH.

Methods: Standardized WHO clinical forms were introduced for clinical care utilization in June 2023 once a majority of HCWs had been trained in BEC at PGCH. These forms served as both a protocol and standardized documentation of clinical care and were utilized to audit adherence to clinical guidelines taught in BEC with a focus on key clinical indicators. Clinical data was collected from January-June 2022 prior to BEC training (pre-BEC) and July-December 2023 following implementation (post-BEC) via retrospective randomized chart review. The data was analyzed and stratified into respiratory, altered mental status (AMS), shock, and maternal emergency subgroups. Pre-and post-implementation mortality, admission, transfer, and key clinical interventions were analyzed utilizing the chi-square ($\chi 2$) statistic as applicable.

Results: A total of 1,390 patient visits occurred in the pre-BEC period. The ED disposition of these visits included 705 (51%) admissions, 168 (12%) transfers,

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and 5 (2%) deaths. A total of 2,098 patient visits, including 891 (43%) admissions, 190 (9%) transfers, and 5 (2%) deaths occurred in the post-BEC period. Maternity data was analyzed independently for PPH and pre-/eclampsia outcomes; there were 303 (22%) cases triaged to maternity in the pre-BEC period and 281(13%) in the post-BEC period ($p < 0.01$). There was no significant difference in admission, transfer or mortality rates in either time period. Patient charts were reviewed for data extraction and key clinical interventions were analyzed and compared between pre- (n=281) and post-BEC (n=220) groups. Despite utilization of the WHO form in the post-BEC cohort, there was poor documentation of key clinical indicators such as capillary refill, spinal immobilization, or Glasgow Coma Scale. Thus, data was extracted based on completeness and objective clinical signs. Traditional signs, including hypotension and tachycardia, were utilized as an indicator of potential shock for the purposes of chart review and identified 28 (9%) of patients and 37 (12%) in the pre- and post-BEC cohorts respectively. There was no significant difference in intravenous fluids given in the 15 pre-BEC (54%) and 20 post-BEC (54%) shock cohorts (p=0.95). Blood glucose was checked in 14 (58%) of the pre- and 8 (89%) of the post-BEC AMS cohorts (p=0.10). GCS and AVPU were both used during documentation and thus both extracted for analysis. Difficulty in breathing was recorded in various forms throughout charts with oxygen saturation under 95% being the most uniform when evaluating for intervention. Oxygen administration was documented in 5 (56%) of the pre- and 8 (67%) of the post-BEC hypoxic patients (p= 0.604). Appropriate interventions were documented in 28 (100%) of the pre- and 31 (94%) of the post-BEC postpartum hemorrhage cases and 6 (100%) of the pre- and 6 (100%) of the post-BEC preeclampsia cohorts. Due to the overall low incidence of cases that met inclusion criteria for maternal outcomes (16%), none met statistical significance.

Conclusion: BEC implementation faced many challenges including inconsistent implementation and limited sample size. Despite overall numbers, relevant emergency cases were sparse and clinical documentation often missed key data elements despite utilizing standardized forms. Future efforts should utilize a formal implementation framework among HCWs, as well as a larger patient population to optimize sample size and implementation.

No, authors do not have interests to disclose

571 Stroke Admission Delays at Bernard Mevs Hospital in Haiti: Associated Factors and Outcomes

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Study Objectives: A delay in hospital admission among patients with stroke, one of the leading causes of death worldwide, reduces their chance to receive optimal treatment and the likelihood of a favorable outcome. Low-income countries like Haiti face limitations on access to hospital and availability of treatment. This study aims to examine factors associated with hospital admission delay and its relationship with length of hospital stay and mortality among adult patients admitted for stroke at Bernard Mevs Hospital (HBM) in Haiti.

Methods: This retrospective cohort study included patients aged 18 years and older admitted to HBM, a non-stroke unit hospital, for an acute stroke from July 2016 to June 2022. Sociodemographic, clinical and radiological information were collected from chart review, excluding patients without head CT scan. Admission occuring more than 4 hours and 30 minutes after the onset of symptoms were classified as delayed, while those withing this time frame were considered early. Data analysis was performed with Epi-Info software version 7.2.3, using chi square for the associations with sociodemographic and clinical characteristics, linear and logistic regression for the relationship with length of hospital stay and mortality, adjusted for age, sex, referral from another hospital, stroke type, cardiovascular risk factors, stroke complications, and time elapsed between the onset of symptoms and the CT scan.

Results: Among the 556 patients, 50.36% were aged 45-64 years, 58.99% were female, 32.37% were referred by another hospital, 15.11% were admitted early, 46.40% had hemorrhagic stroke, 91.55% had at least one cardiovascular risk factors, and 72.30% had at least one complications. Factors associated with delayed admission were living far away (outside the Western department, p=0.04), and being referred by another hospital (p=0.00004). Atrial fibrillation, hemorrhagic stroke, and some complications such as seizures and need for mechanical ventilation were associated with early admission ($p < 0.05$). The hospital stay lasted 7.83 days ± 7.52 on average, and 29.68% of patients had died. There was no evidence that delayed admission was associated with length of hospital stay (ß= 0.91, p=0.30) or mortality (OR 0.58, 95% CI 0.33 – 1.01) even after adjustment for afore mentioned covariates.

Conclusion: In this study, a very small percentage of patients with stroke arrived early (within 4 hours and 30 minutes), and they were less likely to be referred by another hospital and more likely to be critically ill. The admission delay had no significant impact on the hospital stay and patient mortality. The fact that more critically ill patients were admitted early may have diluted the associations. Efforts should be made to improve both pre-hospital and hospital care for patients with stroke, as well as to educate the public about the urgency of seeking care quickly, regardless of the severity of the stroke.

No, authors do not have interests to disclose

572 Automated Sampling of Arterial Blood Pressure Waveforms During Cardiopulmonary Resuscitation

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Introduction: Arterial blood pressure (ABP) waveform has been widely used to assess cardiac output in emergency and critical care settings. Theoretically, it may also serve to monitor cardiac output generated by chest compressions during cardiopulmonary resuscitation (CPR) and potentially aid in identifying the area of maximal compression (AMC) as observed on resuscitative transesophageal echocardiography (TEE). However, significant inter-individual variability in ABP waveforms during CPR poses challenges for waveform sampling and analysis. Consequently, high-quality studies investigating ABP waveforms in this context remain limited.

Study Objective: To develop a reliable machine learning (ML) model to automatically sample ABP waveforms recorded during CPR to facilitate future waveform-based research.

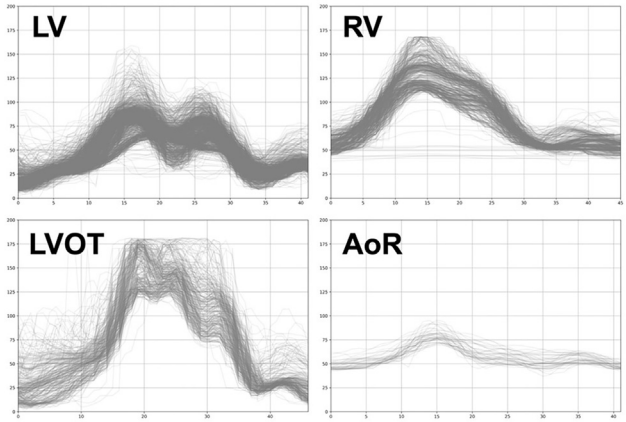
Methods: This secondary analysis was based on data from a prospective observational cohort of out-of-hospital cardiac arrest (OHCA) patients who underwent resuscitative TEE and femoral ABP monitoring during cardiopulmonary resuscitation (CPR) in the emergency department (ED). One emergency physician independently labeled each ABP waveform segment recorded during CPR to serve as the gold standard. A machine learning model based on a matched filtering algorithm was developed to automatically detect and sample valid ABP waveform segments. Model performance was evaluated using precision, recall, F1-score, and accuracy. Representative waveforms corresponding to different AMCs were also presented.

Results: Of the original 76 patients, 30 had both usable ABP waveform data recorded during CPR and corresponding TEE images confirming the AMC at the same time point. Of the 32,486 waveform segments identified by the physician, the ML model successfully detected 29,935, achieving a precision of 99.54% (95% CI: 99.534 – 99.546), recall of 93.82% (95% CI: 93.734 – 93.906), accuracy of 93.43% (95% CI: 93.344 – 93.516), and F1-score of 96.44% (95% CI: 96.390 – 96.490). Representative waveforms for different AMCs are shown inFigure 1; however, no consistent visual patterns were observed that would allow reliable AMC identification based on waveform morphology alone.

Conclusion: The ML model demonstrated high performance in automatically sampling ABP waveforms recorded during CPR, laying the groundwork for future waveform-based investigations. However, visual differentiation of AMCs based solely on waveform morphology remains limited. Further studies are warranted to explore the relationship between waveform features and chest compression effectiveness.

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Figure 1. Representative Arterial Waveforms Corresponding to Different Areas of Maximal Compression.



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573 Characterizing the Epidemiology and Injury Severity of Road Traffic Injuries in Kandy, Sri Lanka

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Introduction: Sri Lanka's public health indicators—such as life expectancy and maternal/newborn mortality—are comparable to those of the United States, yet it faces a disproportionately high burden of road traffic injuries (RTIs). RTIs claim nearly nine lives daily, comparable to Haiti and Cambodia, and account for 3–5% of the nation's GDP, surpassing the total national health budget. While efforts have been made to improve trauma care, RTI data remain lacking. Kandy District in central Sri Lanka was selected to develop a prospective RTI dataset critical for shaping policy and directing resources.

Study Objectives: The objective of this study was to characterize RTI patterns in Kandy District—including patient demographics, injury characteristics, healthcare utilization, and resultant disabilities—to guide future health system investments, resource allocations, and research efforts.

Methods: A prospective, hospital-based study was conducted over six months evaluating RTI-related injury characteristics, healthcare utilization, and financial impact in Kandy District, Sri Lanka. Patients admitted to the National Hospital-Kandy with RTIs were recruited via convenience sampling. A structured questionnaire was administered, and clinical data were extracted from patient records.

Results: Analysis included 567 RTI patients. Mean age was 37.8 years (SD 16.8; range: 6–83 years), median 34 years. Most were male (77.1%), Sinhalese (84.0%), and Buddhist (82.4%). The most common educational level was Advanced Level (high school equivalent; 43.9%). Many injured were unemployed (18.5%), service/sales workers (17.1%), or professionals (11.3%). Motorcycle drivers (36.5%) and pedestrians (15.8%) were most frequently injured. Nearly half (48.5%) arrived by ambulance; however, only 20.7% received pre-hospital care. Timely arrival was challenging—only 52.9% reached care within one hour post-injury; 15.3% arrived after four hours. The most injured body regions were lower extremities (56.1%), upper extremities (50.6%), and head (25.4%). Less frequent injuries were chest (8.5%), abdomen (3.7%), neck (1.4%), and pelvis (1.4%). Mean Kampala Trauma Score (KTS; range: 5 severe–10 mild) was 8.29 (SD 1.38). Injuries were mild (61.6%), moderate (22.0%), or severe (14.8%). Mean WHO Disability Assessment Schedule (WHODAS) scores (0 no disability– 100 full disability) were 19.9 (SD 8.47) at discharge, decreasing to 15.0 (SD 7.91) at three weeks, and 14.0 (SD 7.51) at six weeks post-injury.

Conclusion: Findings highlight vulnerable groups disproportionately impacted by RTIs, including males, motorcyclists, pedestrians, Sinhalese ethnicity, and unemployed individuals. The disproportionate RTI impact on unemployed and economically productive individuals underscores significant socioeconomic consequences, including lost productivity and financial strain. Despite mild initial injury assessments, many patients experienced lasting disabilities, highlighting RTIs' persistent burden. Delays in hospital arrival and limited pre-hospital care indicate substantial gaps in emergency response systems. Strengthening pre-hospital infrastructure, optimizing trauma care pathways, and addressing financial and rehabilitative needs must be prioritized. Targeted investments will reduce RTIs' public health impact,supportvulnerable populations, and guide strategic health system improvements in Sri Lanka.

No, authors do not have interests to disclose

574 Managing Cosmetic Surgery Complications in a Miami Emergency Department and Trauma Center

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Study Objectives: Elective cosmetic surgeries are rapidly increasing in prevalence in the United States, in part due to the abundance of low-cost, high-volume cosmetic surgery clinics. However, procedures at these clinics do not come without risk; Providers are often unequipped to handle intraoperative complications and provide minimal postoperative care. As a result, Emergency Medicine (EM) providers have become responsible for stabilizing and managing these postoperative surgical patients who can present with life-threatening complications. Miami is one of the most popular locations for domestic cosmetic surgery tourism. Due to patient safety concerns, the Florida Legislature enacted stricter regulations for cosmetic surgery in May 2024. Recognizing the acuity of these patients, a local Emergency Medical Service (EMS) agency also updated its Trauma Alert Criteria to direct critical postoperative plastic surgery patients to Trauma Centers (TC). Our study aims to assess the management of postoperative cosmetic surgery patients in both the emergency department (ED) and TC setting, focusing on the collaboration of EM and Acute Care Surgery (ACS) providers and identifying barriers to optimal care delivery.

Methods: Jackson Memorial Hospital (JMH) in Miami has both an ED and a standalone Level 1 TC. Acute Care Surgeons manage patients in the TC and are available for consult in the ED. A retrospective chart review was conducted of postoperative cosmetic surgery patients who presented to our ED or TC and were evaluated by ACS between May 2021 and March 2025. Hospital course, blood transfusions, surgical consults, and delays in care were analyzed using two-sample t-tests assuming unequal variances.

Results: 30 charts were identified and met criteria; 16 presented to the ED and 14 to the TC. The average patient age was 38 years and all but 1 were female. Most patients had multiple procedures performed, the most common being liposuction (n=23), gluteal autologous fat transfer (n=20), and abdominoplasty (n=11). 63% of patients presented to JMH the same day as their surgical procedure; For 13% of patients, the surgical center called EMS directly due to intraoperative complications. Resuscitative blood transfusions were required in 70% of patients. 30% of patients were directly admitted to the ICU, 47% to inpatient units, 17% to observation, and 7% were discharged home.

The time to first resuscitative blood transfusion was significantly longer for patients presenting to the ED versus to the TC (5.60±12.11 hrs vs 0.34±0.10 hrs, p=0.002) along with the time to initial hospital disposition (8.56±11.46 hrs vs 3.88±5.31 hrs, p <0.001). Similarly, ACS evaluation was delayed in the ED group with an average consult time of 5.54±2.86 hrs (versus upon patient arrival in the TC). Plastic Surgery was consulted in 50% of patients presenting to the ED compared with 14% in the group presenting to the TC. The hospital length of stay was significantly longer in the ED group (8.53±75.95 days vs 2.82±1.44 days, p=0.044). No patients from the TC group required surgery, while 6 patients from the ED group did.

Conclusion: This review highlights key challenges in caring for postoperative cosmetic surgery patients in the ED, including delays in transfusion, surgical involvement, and hospital disposition. These challenges are likely due to significantly higher patient volume and limited provider capacity in the ED as compared to a TC. This is compounded by confusion about whether these postoperative patients should

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be managed by Plastic Surgery or ACS. We recommend that hospitals evaluate their trauma alerts and protocols for nontraumatic hemorrhage to ensure rapid resuscitation, hemorrhage control, and surgical response for critical postoperative cosmetic surgery patients. Additionally, developing prehospital triage criteria with input from EM, ACS, and EMS may streamline care, improve resource utilization, and improve patient outcomes.

No, authors do not have interests to disclose

575 A Descriptive Study of a Urine Reflex to Culture System at an Academic Medical Emergency Department



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Study Objectives: Proponents of aggressive urine culture (UC) use argue that this contributes to appropriate antibiotic use. Because of their perceived importance, many EDs have an automatic urinalysis (UA) with reflex to culture system: when the urine dipstick or microscopy has signs of infection, a UC is automatically ordered. However, there are concerns that the importance of the UC is overemphasized. The benefit is limited—most UTI patients will do well without UC results. In contrast, the harm of treating asymptomatic bacteriuria is clear: inappropriate treatment is common. There is debate about the reflex to culture system: does it decrease unnecessary cultures and tailor antibiotics? Or does it lead to overtreatment of asymptomatic bacteriuria. In this descriptive work, we explore the benefits and harms of a reflex to culture system by comparing UAs ordered with a reflex system and compared outcomes to UA ordered without reflex to culture.

Methods: This was a retrospective review conducted at two tertiary care EDs. All patients seen in 2024 with a urinalysis were included. Queried data included patient demographics, urine testing results, laboratory signs of systemic inflammation, potential alternative sources of fever, pharmacist call-back, and 72-hour ED return. The rate of UC was generally considered a good outcome; that is, a reflex system can potentially decrease unnecessary UCs. Repeat visits were considered a safety outcome, and the presence of a pharmacist's note was a resource utilization variable. In this institution all UCs that generate a bacterial isolate are reported as positive; we compared the institution positivity rate to a literature-based definition of a positive UC. Means were compared with the independent samples T-test; proportions were compared with Pearson's chi-squared test.

Results: The 2024 census for the two EDs in our academic system was 90,634; 30% of these patients had a UA. Among those who received a UA, 95% had a reflex to culture UA (Table). The populations were different; the non-reflex UA patients were more likely to be admitted, have a fever, laboratory signs of systemic inflammation, and have a potential non-urinary source. The UA positivity rate was about 36% for both groups; however, almost half the non-reflex patients had a UC ordered independently of the UA, so the UC rate was about 12% higher in the non-reflex group. The incidence of our safety outcomes was rare and similar between the two groups. Using a stricter definition of a positive UC compared to the institution's would have decreased positivity rate by several points. Reflex patients required more pharmacist follow-up.

Conclusion: During 2024 at an academic ED, urine testing was common. Outcomes between the reflex and non-reflex group are difficult to compare as the patients were different. The reflex group had a lower incidence of UC utilization—a potential positive outcome. However, the reflex group required more pharmacist follow-up; this could be a positive or negative outcome depending on patient outcomes. Future work on this dataset will determine the symptomatology of patients. If the reflex system is associated with increased treatment of asymptomatic bacteriuria, it may be worthy of randomized study.

	Non-Reflex (n=1,353)	Reflex (n=26,248)	p
Age (mean)	56.2	54.2	<.001
Female	50.3	60.0	<.001
Admitted	60.3	40.2	<.001
Indwelling catheter	10.7	6.8	<.001
Fever	20.9	7.0	<.001
UA positive	36.0	35.6	.763
UC completed	47.8	36.2	<.001
UC positive by institutional standard	14.8	15.5	.450
UC positive by guideline standards	10.3	12.1	.059
Extended-Spectrum Beta-Lactamase (ESBL)	3.0	2.4	.162
Laboratory signs of systemic inflammation	30.4	21.6	<.001
Potential non-urinary source	60.7	39.9	<.001
72 hours repeat ED visit resulting in admission	5.9	5.9	.963
72 hours repeat ED visit resulting in admission	2.7	2.2	.239
72 hours repeat ED visit resulting in ICU admission	0.1	0.1	.752
Pharmacist follow-up note	4.3	7.2	<.001
ED discharge antibiotic prescription	7.1	11.5	<.001

No, authors do not have interests to disclose

576 Evaluating a Blended Emergency Medicine Training Diploma Certificate Program in Vietnam



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Study Objective: Between 2023 and 2024, faculty from the University of Utah, University of California San Francisco-Fresno, and University of California Davis collaborated with Cho Ray Hospital and University Medical Center (UMC) in Ho Chi Minh, Vietnam, to evaluate an intensive, hybrid Emergency Medicine (EM) curriculum. Initially designed as an 18-month course with both virtual and in-person components, the program transitioned to a fully virtual model during the COVID-19 pandemic. As COVID-19 travel restrictions lifted, the program became hybrid, with U.S.-based faculty leading monthly modules on core EM topics through asynchronous materials, weekly virtual sessions, and periodic in-person workshops and training in Vietnam. This evaluation aimed to assess the effectiveness of the program one year after condensing the program into a 12-month blended format.

Methods: A quasi-experimental design was implemented with qualitative anonymous surveys administered to participants to assess barriers, perceived success, and relevance of the educational content and garnering effectiveness of the course through pre- and post-course multiple choice questions. Feedback from instructors regarding engagement and attendance was integrated. These qualitative findings were analyzed with mid- and end-of-year knowledge retention assessment of multiple-choice tests with a paired T-test compared pre- and post-test results by each participant.

Results: All participants reported feeling better prepared as EM clinicians, with course content perceived as highly relevant to their practice. Key barriers to attendance included time off from work and scheduling conflicts. However, there were no barriers to accessing asynchronous materials, which participants found manageable. Instructors noted diverted attention when balancing lecture attendance during shifts, and some attrition was observed past the mid-year evaluation. All students achieved above 50% on the mid-year assessment, with an average score of 79% and a high of 96%. The 12-month post-assessment had an average of 69%, with a high of 88% and a low of 48%. The paired T-test showed an average loss of 13%, but the difference was not statistically significant ($p = 0.12$). A post-course needs assessment indicated demand for further discussions on current practices and ultrasound utilization.

Conclusion: While challenges remain, such as adapting curriculum to local practices and mitigating absenteeism, the modified hybrid model was well-received and effective based on trainee perceptions. The curriculum addressed key issues for in-country EM providers, and there is potential for replicating this approach in other resource-limited settings developing EM as a specialty. While not a substitute for full residency training, it offers a valuable educational tool for countries lacking capacity to establish EM residency programs. To our knowledge, no other training program like this exists with this structure and given its early success, a similar training model could

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be used in other resource-limited settings to improve medical education and specifically, EM training.

No, authors do not have interests to disclose

577 Quality Improvement in Simulated Handoffs Optimizes Safety and Informs Pediatric Trauma Team Training

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Study Objectives: Emergent transport of a traumatically injured pediatric patient from the Children's Emergency Department (CED) to the Operating Room (OR) is an infrequent yet high stakes situation. Due to the infrequency of these events, it is difficult to conduct team training and challenging to identify latent safety threats (LST). To address these concerns, we proposed leveraging simulation-based training to enhance interprofessional collaboration and preparedness. Simulating the transfer process using in-situ simulation (ISS) within a controlled environment provides the opportunity to practice and refine protocols for critical scenarios in a safe setting. ISS was used in our facility to identify and mitigate LST and enhance the readiness of multidisciplinary pediatric trauma teams. Quality improvement can aid in such processes, however performing repeated tests of change is not feasible in these live clinical settings. We hypothesize that application of a Plan-Do-Study-Act (PDSA) framework to ISS can provide opportunities to identify and rapidly address LST that are applicable to clinical workflows and can inform interprofessional training.

Methods: PDSA cycles were applied to a pair of two trauma simulations in our American College of Surgeons Verified Level 1 Pediatric Trauma Center. Participants included a multidisciplinary team of healthcare professionals who respond to pediatric trauma activations. Through a series of study team and stakeholder meetings, project aims and simulated outcomes were developed. Prior to Cycle 1, a checklist was developed by anticipating critical actions. Each simulated case began in the CED as a trauma activation and was subsequently transported to the OR with a remote manikin and accompanying simulation operations specialist with wireless software. The trauma response team accompanied the manikin to the OR where operating room staff was met and all engaged in a live handoff session of the unstable simulated patient. Study members met after Cycle 1 to review successes and challenges related to LST for incorporation into Cycle 2. Data was collected through live observations of the simulation, notes from the participant debriefing, and a review of the usefulness of the developed checklist. Key features of the aims and simulated outcomes from each PDSA Cycle were applied to a modified Failure Mode and Effect Analysis (FMEA) structure to identify and prioritize observed or anticipated LST by assigning Risk Priority Numbers (RPN) (Figure).

Results: In Cycle 1, a latent safety threat was identified with a missing field for pediatric weight on a necessary OR transfer document, resulting in a prompt change. Live debriefing yielded team misalignment on priorities for the handoff, with an ED focus on providing critical information about patient history/interventions, and an OR focus on rapidly transferring the manikin to the operating table without awaiting the handoff report. Knowledge of an existing OR transfer document emerged, not previously known by the CED team. Review of the developed checklist found it to be inferior to live observations of emerging team needs generated through participant debriefing and was therefore abandoned in Cycle 2 in favor of prioritizing transfer route resources and communication for respective team handoff needs. The FMEA framework assigned severity, occurrence, and detection scores to the process over 3 phases: pre-implementation, Cycle 1, and Cycle 2. An improvement was seen in detection scores after each phase due to implementing a control process for potential failures. The numeric assessment of risk subsequently decreased in each phase demonstrated by a dropping RPN (Figure).

Conclusion: Combining quality improvement methodology with translational simulation practices led to rapid identification and correction of LST captured in a FMEA framework with ability for actionable use. Nuanced information emerged from live team debriefings that were not anticipated despite optimal preparatory efforts. Furthermore, the ability to hold live participant debriefing within the context of PDSA cycles led to co-created solutions by the involved teams.

Figure 1: FMEA framework with scores during the pre-planning, Cycle 1, and Cycle 2 phases with percentage of change between cycles.

Pre-Implementation

Process	Severity Score: Potential Failures	Occurrence Score: Potential Failure Causes	Detection Score: Current Stop Controls	Risk Priority Number
CED to OR Transport	5.0	3.0	5.0	75.0
CED to OR Handoff	5.0	2.5	5.0	62.5
Total Average Score	5.0	2.8	5.0	68.8

14.5% Drop

PDSA Cycle 1

Process	Severity Score: Potential Failures	Occurrence Score: Potential Failure Causes	Detection Score: Current Stop Controls	Risk Priority Number
CED to OR Transport	5.0	3.0	4.5	67.5
CED to OR Handoff	5.0	2.5	4.0	50
Total Average Score	5.0	2.8	4.3	58.8

53.2% Drop

PDSA Cycle 2

Process	Severity Score: Potential Failures	Occurrence Score: Potential Failure Causes	Detection Score: Current Stop Controls	Risk Priority Number
CED to OR Transport	5.0	3.0	2.0	30.0
CED to OR Handoff	5.0	2.5	2.0	25.0
Total Average Score	5.0	2.8	2.0	27.5

Net Overall Drop of 60.0%

*Scoring Legend

Severity Score	
Very High	5
High	4
Moderate	3
Low	2
Nil	1

Occurrence Score	
Very High	5
High	4
Moderate	3
Low	2
Nil	1

Detection Score	
Very High	1
High	2
Moderate	3
Low	4
Nil	5

No, authors do not have interests to disclose

578 Enhancing Emergency Department Efficiency: Introducing the Post Discharge Results Now Program

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Study Objectives: Efficiency of practice is vital in healthcare as it directly influences both patient outcomes and clinician well-being. The Stanford Model of Professional Fulfillment (1) identifies efficiency of practice, along with a culture of wellness and personal resilience, as key factors in achieving professional fulfillment among healthcare workers. Streamlined workflows, effective systems, and supportive work environments empower healthcare professionals to deliver high-quality care while preserving their own well-being. To improve efficiency of practice in the emergency department (ED), the Post Discharge Results Now program was introduced within the Emergency Medicine Service Line at Northwell Health. This program centralizes the delivery of post-discharge radiology and laboratory results through a dedicated team of ACPs across eight emergency departments, with the goal of providing results as close to real-time as possible. Its goal is to reduce provider workload, minimize time away from patient care, and improve staff well-being.

Methods: The team utilizes Microsoft Dynamics (ListApp) and PeerVue Radiology call-back systems to serve as a centralized hub for managing laboratory and imaging results post-discharge. A dedicated Advanced Care Provider (ACP) team was established to facilitate this process. To assess the program's impact on patient care and staff well-being, a brief survey was distributed to physicians and ACPs responsible for conducting the callbacks. The pre survey consisted of three questions, rated on a five-point Likert scale:

Calling patients with post-discharge results increases my workload.

The process of calling patients back takes time away from delivering direct patient care in the emergency department.

Calling patients back adversely affects my wellbeing.

Results: The results demonstrated that sites with a dedicated call-back role, where staff were not actively seeing patients, experienced minimal impact on staff well-being since the process did not interfere with clinical responsibilities. In contrast, at sites without a designated call-back position, the task reduced the time available for direct

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patient care. Across all sites, there was consensus that patient call-backs diverted attention from clinical duties.

Key findings include: 85% of respondents agreed or strongly agreed that calling patients with post-discharge results increased their workload. 77% of respondents agreed or strongly agreed that the process of calling patients takes time away from delivering direct patient care in the emergency department. 55% of respondents agreed or strongly agreed that the process of calling patients back adversely impacted their wellbeing.

Conclusion: Process improvement initiatives, such as the Patient Discharge Results Now program, can reduce the administrative burden associated with patient call-backs, which increases provider workload, pulls time away from patient care, and affects staff well-being. A centralized process can help minimize these challenges and improve overall efficiency of practice.

No, authors do not have interests to disclose

579 Communicating Crowding Status: Developing and Validating a Traffic Light Framework for Surge Scores

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Study Objective: Quantifying levels of emergency department (ED) crowding that can be incorporated into healthcare system 'surge' description requires accounting for variation in hospital size and structure while still reflecting local levels of strain. The National Emergency Department Overcrowding Scale (NEDOCS) developed in 2004, is a validated communication tool used to quantify ED crowding. However, applying NEDOCS across diverse ED settings presents challenges related to generalizability. The objective of this project was to develop and validate a standardized approach for defining thresholds of ED crowding across variably sized EDs allowing more meaningful integration into a systemwide surge score.

Methods: This study was conducted within a health system that includes an urban academic level 1 trauma center (D), four community and mixed academic hospital EDs (J, M, Wy, and WB), and five freestanding EDs (FSED) (B, C, F, P, S). Recognizing that the original NEDOCS variable, number of ventilated patients, underestimates the burden of critical care delivered in the today's ED's, we modified the score by substituting this variable with the number of critical care or ICU boarders. Initial validation began at the urban academic ED, which sees the highest patient volume in the system. ED crowding thresholds were defined using a traffic light-style color schema: Green, Yellow, and Red. Project stakeholders and hospital throughput leaders were mindful of the risk of desensitization if the Red threshold was set too low. An Excel-based modeling tool was used to create "what if" scoring scenarios across a wide range of variable combinations used in the modified NEDOCS (mNEDOCS) calculation. For modeling purposes, "ED Beds" and "Hospital Beds" were treated as fixed values. These "what if" scenarios were created to test our assumptions, identify leverage points, assess tactics and set thresholds. To validate thresholds across EDs in the system, each ED Medical Director selected one of two approaches: (1) prospective collection of mNEDOCS variables and perception of crowding at specific times of day to determine best-fit thresholds, or (2) use of the Excel-based "what if" tool to simulate score scenarios and identify Green, Yellow, and Red thresholds based on local conditions.

Results: The urban academic level 1 trauma center was the first ED in the health system to validate the mNEDOCS model. Thresholds selected established a traffic light-based communication tool describing ED crowding, categorizing states as Green (not busy, busy, and extremely busy but not overcrowded), Yellow (overcrowded and severely overcrowded), and Red (dangerously overcrowded) (Figure 1). For system-wide expansion, each Medical Director selected the "what if" analysis tool for validation. Among the three highest-volume EDs (D, J, M), identical thresholds were set for all crowding categories. The next two mid-sized EDs (Wy, WB) established the same threshold for dangerously overcrowded, but this was 20 points lower than the larger EDs' threshold. Among the five freestanding EDs (FSEDs), there was significant variation in the dangerously overcrowded threshold, ranging from 106 to 180, a 75-point spread. The geometric mean threshold among FSEDs was 141.5 (SD = 23.8), with a median of 145.

Conclusion: Development and validation of a standardized tool using a modified NEDOCS (mNEDOCS) score to describe ED crowding across a health care system is feasible. By establishing locally meaningful thresholds mapped to a traffic light schema, the tool enables consistent communication of crowding across diverse ED settings. In larger health systems with centralized coordination of transfers and bed placement, mNEDOCS has the potential to inform resource allocation, identify operational leverage points, andsupportsystemwide surge response.

Traffic Light Color Schema for ED Crowding Levels	Customized mNEDOCS Thresholds By ED Site									
Hospital Type & Annual ED Visits	D Academic 90,000	J Community 70,000	M Community 60,000	Wy Community 50,000	WB Community 44,000	F Freestanding 66,000	B Freestanding 29,000	S Freestanding 25,000	P Freestanding 17,000	C Freestanding 13,000
Not Busy	0-20	0-20	0-20	0-80	0-20	0-20	0-20	0-40	0 - 20	0-20
Busy	21-60	21-60	21-60	81-110	21-40	21-60	21-59	40-90	21 - 50	21-60
Extremely Busy But Not Overcrowded	61-100	61-100	61-100	111-130	41-80	61 - 85	60-80	91-110	51 - 80	61-100
Overcrowded	101-140	101-140	101-140	131-150	81-120	86 - 120	81-95	111-120	81 - 110	101 - 140
Severely Overcrowded	141-180	141-180	141-180	151-160	121-160	121 - 145	96-105	121-140	111 - 145	141 - 180
Dangerously Overcrowded	>180	>180	>180	>160	>160	>145	>105	>141	>145	> 180

No, authors do not have interests to disclose

580 Expedited Final Radiology Reads: A Virtual Pathway to Streamline Trauma Care

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Study Objectives: Timely and effective care is critical for trauma patients, particularly those classified as Level 1 or 2. At our academic medical center, in alignment with American College of Surgeons guidelines for high-risk imaging, our trauma service mandates final radiology interpretations of computed tomography (CT) scans prior to patient discharge. However, during evening and overnight hours, preliminary interpretations are frequently provided by radiology residents, with final attending radiologist reads delayed until the following morning. This delay can hinder patient throughput and unnecessarily prolong hospital stays. To address this challenge, a new workflow was implemented in which CT scans of the brain and spine are routed to a virtual radiology service between 8:00 PM and 4:00 AM to expedite turnaround times (TAT). The objective of this study was to evaluate whether this intervention resulted in a significant reduction in TAT for CT brain and spine interpretations, and to assess its impact on length of stay and discharge efficiency.

Methods: This retrospective study evaluated turnaround times (TAT) for CT brain and spine imaging in Level 1 and 2 trauma patients across two six-month intervals: one prior to implementation (baseline) and one following implementation of the virtual radiology pathway. To isolate the impact on discharge efficiency, only patients who were not admitted to the hospital were included. TAT was defined as the interval from CT scan completion to final interpretation by an attending radiologist. The primary outcome was the comparison of median TAT between the pre- and post-intervention periods. Paired t-tests were used to assess differences in TAT and emergency department length of stay (LOS). Secondary analyses examined whether TAT, consulting service involvement, method of arrival, trauma level, and the number of CT scans performed (1–4 vs $\geq$5) influenced LOS.

Results: Implementation of the virtual radiology service was associated with a statistically significant reduction in both turnaround time (TAT) and emergency department length of stay (LOS) for Level 1 and 2 trauma patients. For all four CT scan types analyzed—head, cervical spine, thoracic spine, and lumbar spine—TAT was significantly shorter post-implementation ($p < 0.001$;Table 1). Additionally, the average LOS for leveled trauma patients decreased from 615 minutes pre-intervention to 487 minutes post-intervention, representing a statistically significant improvement. Across both time periods, the presence of a consulting service was independently associated with increased LOS. However, no significant differences in LOS were observed based on TAT, number of scans performed, method of arrival, or trauma level.

Conclusion: The implementation of virtual radiology services during overnight hours was associated with a significant reduction in turnaround time (TAT) and a concurrent decrease in emergency department length of stay (LOS). While these findings suggest a positive impact on patient flow and trauma throughput, further analysis is needed to determine whether the observed improvements are causally linked or influenced by other confounding factors.

Imaging Study		CT Head	CT Cervical Spine	CT Thoracic Spine	CT Lumbar Spine
Read Time (Hours)	Pre	4.7810	5.2907	5.3652	5.3672
	Post	1.5387*	1.9344*	2.0811*	2.3727*

Table 1: Radiology turnaround time pre- and post-implementation of virtual radiology.
*denotes statistical significance

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581 Factors Influencing Patient Decision Regarding Transfer to Sister Community Hospitals for Capacity

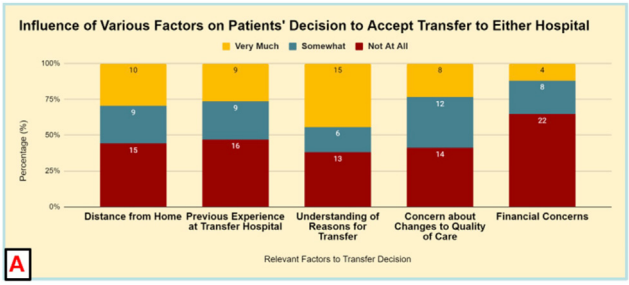
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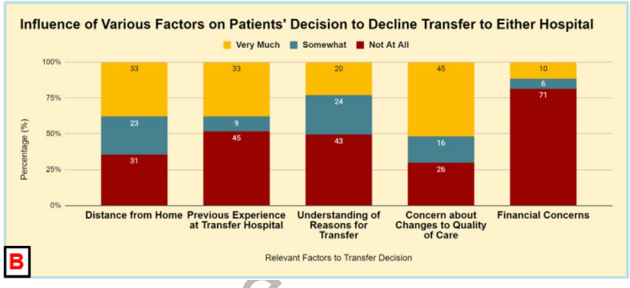
Study Objectives: Available inpatient and intensive care unit (ICU) beds at many hospitals, especially tertiary care centers, have often remained at capacity since the start of the COVID-19 pandemic. A solution at one U.S. tertiary care hospital was to offer transfer of admitted patients from the emergency department to one of two nearby community hospitals in the same health system. These sister hospitals are not often at capacity and can care for patients without specific subspecialty needs. Increasing transfer of patients to these hospitals would allow for more capacity for patients with subspecialty needs at the tertiary care center. However, most patients decline these transfers. Determining patients' reasons for declining or accepting transfers may help adjust the approach of the healthcare team to encourage eligible patients to accept transfers to less crowded hospitals. Our objectives are to observe the rate of patients eligible for transfer declining transfer to sister hospitals compared to patients accepting transfer, to inquire about the reasons behind these decisions, and to identify patterns among the responses, possibly recognizing areas where a healthcare team can adjust their approach.

Methods: Patients presenting to the tertiary care center emergency department and requiring inpatient or ICU admission were screened for transfer eligibility and thus eligibility for study participation. Patients filled out a survey discussing their decision to accept or decline transfer, their understanding of reasons for transfer, concerns regarding change in quality of care, financial concerns, previous experiences at the sister hospitals, their perception of the severity of their medical condition, as well as an area to articulate any additional thoughts. Statistical analysis was performed: univariable binary logistic regression models estimated unadjusted effects of patient-reported reasons contributing to hospital transfer decisions and patient-reported severity of current medical concerns on the logit of rejection of transfer to community hospital 1, to community hospital 2, or to either hospital, separately. Odds ratio estimates were reported for each predictor effect, along with corresponding Wald 95% confidence intervals and Wald Chi square p-values. Type 3 Wald Chi square p-values were also reported for the overall effects of these predictors.

Results: 121 surveys were conducted. Estimated rate for accepting transfer to either hospital was 28.10%, and for rejecting transfer was 71.90%. For proposed transfers to either hospital, concerns about changes to quality of care ($p = 0.02$) and financial concerns ($p = 0.05$) had significant overall effects on transfer rejection. Odds of declining a transfer to either hospital were much higher for patients who said concerns about changes to quality of care very much contributed to their decision, as compared to patients who said concerns about changes to quality of care did not at all contribute to their decision ($p = 0.03$). The percentage of patients reporting that concerns about changes to quality of their care very much contributed to their transfer decision was higher among patients declining a proposed transfer to either community hospital (51.72%) than among patients accepting a proposed transfer to either hospital (23.53%). (see Figure 2) In addition, the percentage of patients assessing the severity of their current medical concerns to be "high" was higher among patients declining transfer than among patients accepting transfer. (see Figure 3)

Conclusion: Given the analysis of the survey data, patients declining transfer generally were concerned their quality of care might change. These patients are more likely to assess their medical concerns as severe and may be apprehensive about being transported to a smaller hospital with less services. These concerns should be addressed to alleviate patient apprehension during a transfer proposal. Future studies might look at effective methods of offering transfer and related patient education.





No, authors do not have interests to disclose

582 Feasibility of Implementation of Tiered STEMI Activation in an Academic Safety Net Hospital

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Introduction: Patients with persistent ST elevation on ECG and symptoms of myocardial ischemia benefit from timely percutaneous intervention. Emergency physicians in specialized STEMI receiving centers (SRC) are tasked with timely recognition of STEMI patients based on ECG and a limited clinical information. Many SRCs allow for emergency physician activation of interventional cardiology suite to facilitate PCI initiation within 90 minutes of arrival. These bundled activations ("Code STEMI") alert not only the interventional physician but may also mobilize nursing, technicians, custodial services, and other personnel. While European Society of Cardiology and American Heart Association guidelines describe distinct ECG criteria to define a STEMI, these criteria may not be sufficiently sensitive to capture all patients who could benefit from timely cardiac intervention, conversely, some ECG morphologies with ST-elevations may be concerning for ischemia but reflect a demand state demand state driven by other pathology (such as massive pulmonary embolism, intracerebral hemorrhage, etc.). This clinical uncertainty can lead to both false positive and false negative activations. There is no current published gold standard of sensitivity or specificity for "Code STEMI" activation rate.

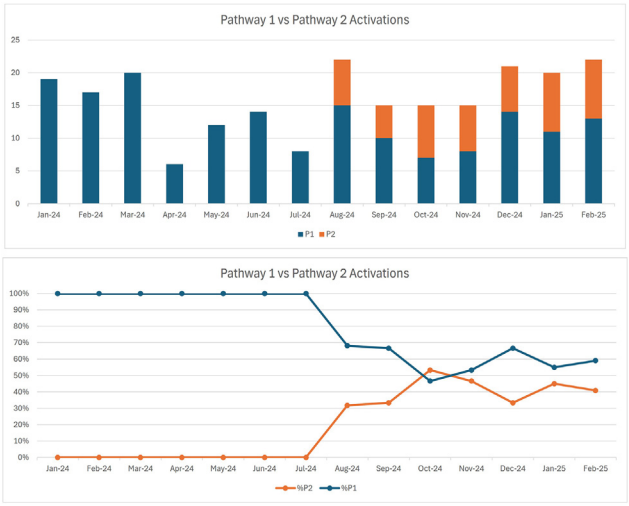
Study Objective: Delays in STEMI activation may adversely impact patient outcomes, program accreditation, and mandated quality metrics. However, low-specificity STEMI activations may come at a cost of time, personnel and resources and in rare cases, may delay investigation of other alternative life-threatening diagnoses. Therefore, an opportunity exists to refine the activation process by introducing a tiered approach, allowing for timely expert consultation without concurrent activation of the interventional cardiology suite when the diagnosis is uncertain. This study aims to evaluate the feasibility of a tiered STEMI activation pathway in an urban, academic, safety-net hospital, whereby Tier 1 activates the entire interventional team (Code STEMI) and Tier 2 activation facilitates expedited consultation to the interventional cardiology physician on call.

Methods: In collaboration with investigators at UCSF, Emergency Department and Cardiology leadership at LAGMC reviewed current STEMI guidelines and criteria and established criteria for Tier 1 and Tier 2 pathways. The electronic health record (EHR) was updated to include a Pathway 2 consultant pager, which placed a timestamp on all pages. The new workflow was disseminated in Grand Rounds and departmental faculty meeting and published to an internal refence site. Activations were reviewed on an ongoing basis to determine appropriateness and timeliness of response.

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Results: The tiered STEMI activation model was launched in August 2024. In the pre-intervention period, the median number of Tier 1 activations per month was 14; this decreased to 11 per month following implementation. Post-intervention, 32%–53% of STEMI pages were initiated as Tier 2 consultations. Additionally, the median number of canceled Tier 1 activations dropped from 7 pre-intervention to 4 post-intervention.

Conclusion: Implementation of a shared, tiered STEMI activation model is feasible and was rapidly adopted in our large safety-net institution. This approach maysupportmore nuanced decision-making in complex clinical presentations and facilitates timely cardiology input without immediate resource-intensive mobilization. The model may enhance diagnostic accuracy, reduce unnecessary utilization, and improve care for patients with atypical or uncertain ECG findings.



No, authors do not have interests to disclose

583 How Often Do Patients Not Meeting Laboratory Criteria for DKA Actually Have DKA?

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Study Objectives: Point of care blood glucose (POCG) and ketone (POCK) measurements are common strategies used at triage to identify patients at risk for diabetic ketoacidosis (DKA), but many of these patients do not subsequently meet criteria for DKA when lab tests have resulted. Though common non-DKA causes of ketosis and hyperglycemia are known, the distribution of these among the at-risk population is not reported for the emergency department (ED). Moreover, while consensus-derived laboratory criteria for DKA are established, DKA is ultimately a clinical diagnosis. Though this phenomenon is not well described in the endocrinology literature, emergency clinicians know that diabetic patients may present early in their course with signs and symptoms that will surely evolve into DKA in the absence of treatment. We sought to understand the landscape of diagnoses and dispositions of patients who were initially hyperglycemic and ketotic and the extent to which these may reflect early DKA.

Methods: We conducted a retrospective observational study using electronic medical record data (01/01/2019-02/28/2023) for adult ED patients with initial glucose >300 mg/dL and initial ketone >1.1 mmol/L. Patients missing arterial/venous pH or bicarbonate level or missing an ED diagnosis were excluded. We identified ED diagnoses for all patients, to determine whether these identified or suggested the etiology for hyperglycemia and ketosis at triage. We also evaluated whether patients as were treated with insulin with a single or multiple doses, signaling whether this might reflect treatment of ongoing hyperglycemia or early DKA. Multiple diagnoses in a single visit that were redundant (eg uncontrolled diabetes and hyperglycemia) were counted only once per patient, but diagnoses describing different symptoms or conditions within the same encounter were captured separately. The analysis was descriptive, reporting frequencies and proportions for all outcomes.

Results: Among 1,580 eligible patients, 330 were excluded for missing pH or bicarbonate values and 35 for missing an ED diagnosis, leaving 1,215 included in the analysis, 57% of whom met lab criteria for DKA (21% mild, 21% moderate, and 14% severe DKA). Among the 525 (43%) whose initial values did not meet laboratory criteria for DKA, ED diagnoses included: DKA (169, 32.2%); Hyperosmotic Hyperglycemic State (17, 3.2%); Hyperglycemia or Diabetes with or without ketosis (316, 60.2%), Starvation Ketoacidosis or GI diagnoses with nausea/ vomiting/ dehydration potentially suggestive of starvation ketosis as an etiology for their findings at triage (98, 18.7%) and other Ketosis (62, 11.8%). Another 114 (21.7%) had a primary diagnosis of an Infection and the remainder (53, 10.1%) had only unrelated diagnoses. The majority of patients (506, 96.4%) were treated with insulin, with 39 (7.4%) receiving a single dose of insulin and 467 (89.0%) receiving multiple doses of insulin. Ninety-six (18.3%) were discharged and 398 (75.8%) were admitted.

Conclusion: In this single center study using 4 years of data, 43% of diabetic patients who were hyperglycemic and ketotic by triage point of care testing did not meet laboratory criteria for DKA. However, nearly one-third of these patients received a clinical ED diagnosis of DKA. Nearly all patients not meeting lab criteria for DKA were treated with insulin, the large majority with multiple doses indicating ongoing treatment in the ED. A sizable proportion of patients not initially meeting laboratory criteria for DKA are diagnosed with and treated for early DKA, a number which is likely underestimated in this retrospective study using ED diagnosis alone for this purpose. A deeper review will provide refined details and numbers. This study affirms that DKA is a clinical diagnosis. An increased focus on the phenomenon of early or 'pre-DKA' might allow for earlier diagnosis and treatment. This should then be evaluated for potential impacts on abbreviated or avoided hospital admissions.

No, authors do not have interests to disclose

584 Multi-Disciplinary Pathway Creation for Transferring Veterans to a VA Hospital

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Study Objectives: With the implementation of the MISSION Act in 2018, there has been a surge in Veterans receiving community-based emergency medical care. The proportion of non-VA emergency department (ED) visits by Veterans versus the VA increased from 18% to 37% between 2016 and 2022[1], causing emergency care and its associated hospitalizations to total $7.7 billion dollars in 2024.[2] These non-VA ED visits lead to fragmentation of care within multiple healthcare systems, however it is unknown whether Veterans choosing non-VA ED are doing so for clinically appropriate reasons. To improve care coordination between an academic emergency department and its affiliated VA medical center, a care pathway was developed to streamline the transfer process. A tracking dashboard was created to track Veteran transfers and identify non-VA ED visits that may have been managed at the VA.

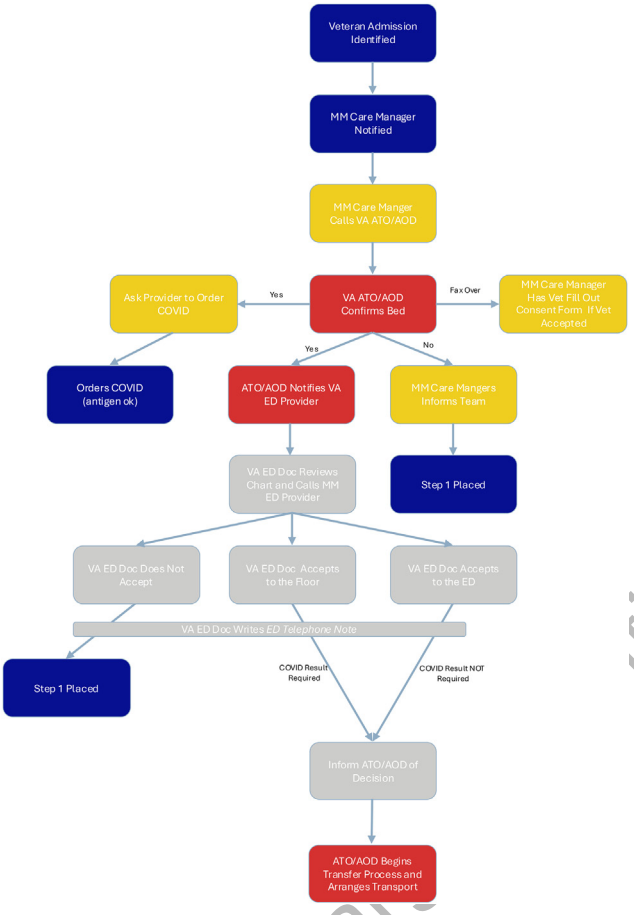
Methods: A multi-disciplinary team from the VA Ann Arbor Healthcare System (VAAAHS) and Michigan Medicine (MM) ED developed a pathway between both health systems (Figure 1), addressing identified barriers to transfer, including identification of Veteran status, unclear responsibilities between healthcare providers in the transfer process, and challenges in expedited reviews by the admitting hospitalist at VAAAHS. Veterans are identified within the EHR upon registration at MM ED. If admission is required for care available at VAAAHS, a MM care manager directly notifies the VA of the transfer request to initiate the transfer. The accepting provider at VAAAHS is the ED provider, who will directly accept Veterans to the inpatient ward and provide handoff to the hospitalist. The team created a dashboard to track all Veterans seen in MM ED, the total number of transfers to VAAAHS, and admissions to MM.

Results: The transfer pathway went into effect in January 2025 and 1 veteran has been successfully transferred for admission from the MM ED. Data is still being collected and the process continues in the PDSA cycle to make the transfer pathway easier for all providers. The process combined multiple approaches to streamline the transfer process, including early identification of Veteran status, and allowing ED providers to triage and accept direct admissions to inpatient wards. It is anticipated that more Veterans will be able to be transferred as the process is refined. Furthermore, the dashboard allows for tracking of the disposition of all Veterans seen in MM ED. This allows monitoring for Veteran transfers and discharges for low acuity conditions that could have been managed at the VA. It will also capture Veterans who were admitted to MM for clinically appropriate indications, such as care unavailable to the VA or established subspecialty care. While self-perceived severity of the condition is the most cited factor if a Veteran presents to a non-VA ED compared to an equidistant VA ED[3],

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it is unknown whether these non-VA ED visits are appropriately self-triaged. Evaluating Veteran admission to MM can help evaluate if Veterans are self-triaging appropriately. This would have implications for future policy makers to maintain VA access to community EDs despite the significant cost in community care spending.

Conclusion: A multidisciplinary process was developed to streamline and track transfers between a community ED and its affiliated VA, utilizing EHR modifications and direct communications between providers. This will maintain care for Veterans within the VA health system and help reduce community care costs, but also increase understanding whether community emergency care is appropriately self-selected by Veterans.



No, authors do not have interests to disclose

585 Waterfall Schedule and Modified Physician-in-Triage to Reduce Left-Without-Being-Seen Rates

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Study Objectives: For decades, congestion and overcrowding have been pervasive in emergency departments (EDs) nationwide, contributing to serious patient harm. Wait times are, in turn, prolonged, and some ED patients leave without being seen (LWBS), a situation defined as departing before a medical screening examination is initiated. The LWBS disposition represents a failure in care access, where patients seek emergency treatment but leave without receiving a medical evaluation, and this has been linked to increased morbidity, mortality, delayed diagnoses, negative patient experiences, and poor revenue capture. To mitigate crowding and reduce LWBS, many centers have introduced modifications to front-end operations, such as the provider-in-triage (PIT) model, which has demonstrated modest improvements to LWBS rates and length of stay. A so-called 'physician waterfall schedule' (PWS) combines a modified PIT structure with staggered physician start times and has been associated with reduced LWBS rates, door-to-doctor times, door-to-disposition times, and elopement rates. In our ED, we experienced high rates of LWBS, an average 8.8% in 2023, far exceeding national averages. To address this issue, we designed and implemented a combined PWS and modified PIT workflow, with a primary goal of reducing LWBS rates by > 33% and secondary goals of improving timeliness metrics and patient experience.

Methods: This single-site, retrospective study assessed the impact of our combined intervention between January 2023 and September 2024. Adult patients presenting to the ED during this timeframe were eligible for study inclusion, with no patients excluded. In January 2024, we implemented the combined PWS and modified PIT model, which we hypothesized would better align physician resources with the distribution of unseen patients by maximizing physician presence in the triage area. This staffing model deploys physicians in a sequential and overlapping format, such that all physician teams begin their shifts in the triage area of the ED and transition to the main ED after 2-3 hours. While in triage, physicians evaluate patients and place orders for diagnosis and treatment, with orders being executed in an adjacent multi-patient treatment space. Once complete, patients return to the waiting room or are moved to a main ED room. After the PIT segment of their shift is complete, physicians transition to the main ED. At this time, physician teams retain patients whose workup they have started, receive handoff from the outgoing teams, and assume responsibility for newly arrived patients who require significant resuscitation rendering them unsuitable for evaluation in triage. After implementation, we reinforced this new process with regular education to physicians and nursing staff and tracked data on LWBS and other metrics at least weekly. An interrupted time series analysis using a Poisson segmented regression was used to compare the monthly proportion of LWBS before and after the intervention. Descriptive analyses were used to assess timeliness metrics and patient satisfaction.

Results: The LWBS rate was 55.5 per 1,000 patients in January 2023. In the year before the intervention, the underlying trend for LWBS was increasing (incident rate ratio (IRR): 1.08; 95% CI: 1.04, 1.13; p-value <0.001). Immediately after the intervention, we found a 61.4% decrease in the level of LWBS (IRR: 0.39, 95% CI: 0.31, 0.47, p <0.001) but there was no evidence of change in the trend after the intervention (IRR: 0.94; 95% CI: 0.88, 1.01; p=0.103). The time from door to doctor, door to disposition, discharge length of stay, rate of elopements, and leaving against medical advice remained the same. Patient experience improved by 1.9%.

Conclusion: This study is the first to evaluate the impact of a PWS and modified PIT in reducing LWBS rates. Initial findings suggest these interventions may benefit other similar institutions that are also challenged by high LWBS rates secondary to overcrowding and significant hospital boarding.

No, authors do not have interests to disclose

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