WestJEM

Volume 23, Issue 4 Supplement August 2022 Open Access at WestJEM.com ISSN 1936-900X

CORD *Abstracts Special Issue*

Supplement to

Western Journal of Emergency Medicine:

Integrating Emergency Care with Population Health

CORD EM

COUNCIL OF RESIDENCY DIRECTORS IN EMERGENCY MEDICINE

Innovation · Collaboration · Scholarship

Council of Residency Directors in Emergency Medicine

Advances in Education Research and Innovations

CALIFORNIA ACEP
AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

ACOEP
The American College of Osteopathic Emergency Physicians

UC Irvine Health

CALAAEM
CALIFORNIA CHAPTER DIVISION OF THE AMERICAN ACADEMY OF EMERGENCY MEDICINE

A Peer-Reviewed, International Professional Journal

Western Journal of Emergency Medicine
Volume 23, Issue 4 Supplement August 2022
Pages S1-S69

EM COACH

A CORD member benefit

Redefining Education for EM Boards

AI-Powered Boards Prep

EM Coach is the only platform with complete learning tools driven by AI that was built from the ground up by an emergency physician for emergency medicine.

According to a recent survey by EMRA, candidates who prepared for boards using online preparation materials had a **higher pass rate** than those who prepared using written or oral exam prep courses.

Customized Study Plans
Generate a personalized study plan with our AI-powered Coach

Exam-style Questions
Practice with over 2000 challenging questions and detailed explanations

High-yield Review Book
Quickly find the information you need with our exam-specific review book.

> *"I love the format, the answers are so educational without being too wordy and the graphics are phenomenal."*
>
> **Evie Marcolini, MD, FACEP, FAAEM, FCCM**
> Former Chair of the AAEM Scientific Assembly Planning Committee

Start your free trial today

www.EMCoach.org

CONTACT 956-655-3911 | support@emcoach.org


CORD
EM
JOB BOARD
DISCOVER YOUR NEW CAREER
www.cordem.org/jobboard


elevating
the business of
medicine
Coding
& Billing
Provider
Education
MIPS
Optimization
Practice
Management
Learn More
Brault

Western Journal of *Emergency Medicine*:

Integrating Emergency Care with Population Health

Indexed in **MEDLINE, PubMed, and Clarivate Web of Science, Science Citation Index Expanded**

Official Journal of the California Chapter of the American College of Emergency Physicians, the America College of Osteopathic Emergency Physicians, and the California Chapter of the American Academy of Emergency Medicine

Available in MEDLINE, PubMed, PubMed Central, CINAHL, SCOPUS, Google Scholar, eScholarship, Melvyl, DOAJ, EBSCO, EMBASE, Medscape, HINARI, and MDLinx Emergency Med. Members of OASPA.

Editorial and Publishing Office: *West*JEM/Depatment of Emergency Medicine, UC Irvine Health, 3800 W. Chapman Ave. Suite 3200, Orange, CA 92868, USA

Office: 1-714-456-6389; Email: Editor@westjem.org

Western Journal of *Emergency Medicine*:

Integrating Emergency Care with Population Health

Indexed in **MEDLINE, PubMed, and Clarivate Web of Science, Science Citation Index Expanded**

Official Journal of the California Chapter of the American College of Emergency Physicians, the America College of Osteopathic Emergency Physicians, and the California Chapter of the American Academy of Emergency Medicine

Available in MEDLINE, PubMed, PubMed Central, Europe PubMed Central, PubMed Central Canada, CINAHL, SCOPUS, Google Scholar, eScholarship, Melvyl, DOAJ, EBSCO, EMBASE, Medscape, HINARI, and MDLinx Emergency Med. Members of OASPA.

Editorial and Publishing Office: *West*JEM/Depatment of Emergency Medicine, UC Irvine Health, 3800 W. Chapman Ave. Suite 3200, Orange, CA 92868, USA
Office: 1-714-456-6389; Email: Editor@westjem.org

Western Journal of *Emergency Medicine*:

Integrating Emergency Care with Population Health

Indexed in **MEDLINE, PubMed, and Clarivate Web of Science, Science Citation Index Expanded**

This open access publication would not be possible without the generous and continual financial support of our society sponsors, department and chapter subscribers.

Professional Society Sponsors

American College of Osteopathic Emergency Physicians

California ACEP

California Chapter Division of American Academy of Emergency Medicine

Academic Department of Emergency Medicine Subscriber

Albany Medical College
Albany, NY

Allegheny Health Network
Pittsburgh, PA

American University of Beirut
Beirut, Lebanon

AMITA Health Resurrection Medical Center
Chicago, IL

Arrowhead Regional Medical Center
Colton, CA

Baylor College of Medicine
Houston, TX

Baystate Medical Center
Springfield, MA

Bellevue Hospital Center
New York, NY

Beth Israel Deaconess Medical Center
Boston, MA

Boston Medical Center
Boston, MA

Brigham and Women's Hospital
Boston, MA

Brown University
Providence, RI

Carl R. Darnall Army Medical Center
Fort Hood, TX

Cleveland Clinic
Cleveland, OH

Columbia University Vagelos
New York, NY

Conemaugh Memorial Medical Center
Johnstown, PA

Crozer-Chester Medical Center
Upland, PA

Desert Regional Medical Center
Palm Springs, CA

Detroit Medical Center/ Wayne State University
Detroit, MI

Eastern Virginia Medical School
Norfolk, VA

Einstein Healthcare Network
Philadelphia, PA

Eisenhower Medical Center
Rancho Mirage, CA

Emory University
Atlanta, GA

Franciscan Health
Carmel, IN

Geisinger Medical Center
Danville, PA

Grand State Medical Center
Allendale, MI

Healthpartners Institute/ Regions Hospital
Minneapolis, MN

Hennepin County Medical Center
Minneapolis, MN

Henry Ford Medical Center
Detroit, MI

Henry Ford Wyandotte Hospital
Wyandotte, MI

INTEGRIS Health
Oklahoma City, OK

Kaiser Permenante Medical Center
San Diego, CA

Kaweah Delta Health Care District
Visalia, CA

Kennedy University Hospitals
Turnersville, NJ

Kent Hospital
Warwick, RI

Kern Medical
Bakersfield, CA

Lakeland HealthCare
St. Joseph, MI

Lehigh Valley Hospital and Health Network
Allentown, PA

Loma Linda University Medical Center
Loma Linda, CA

Louisiana State University Health Sciences Center
New Orleans, LA

Louisiana State University Shreveport
Shereveport, LA

Madigan Army Medical Center
Tacoma, WA

Maimonides Medical Center
Brooklyn, NY

Maine Medical Center
Portland, ME

Massachusetts General Hospital/Brigham and Women's Hospital/ Harvard Medical
Boston, MA

Mayo Clinic
Jacksonville, FL

Mayo Clinic College of Medicine
Rochester, MN

Mercy Health - Hackley Campus
Muskegon, MI

Merit Health Wesley
Hattiesburg, MS

Midwestern University
Glendale, AZ

Mount Sinai School of Medicine
New York, NY

New York University Langone Health
New York, NY

North Shore University Hospital
Manhasset, NY

Northwestern Medical Group
Chicago, IL

NYC Health and Hospitals/ Jacobi
New York, NY

Ohio State University Medical Center
Columbus, OH

Ohio Valley Medical Center
Wheeling, WV

Oregon Health and Science University
Portland, OR

Penn State Milton S. Hershey Medical Center
Hershey, PA

State Chapter Subscriber

Arizona Chapter Division of the American Academy of Emergency Medicine

California Chapter Division of the American Academy of Emergency Medicine

Florida Chapter Division of the American Academy of Emergency Medicine

Great Lakes Chapter Division of the American Academy of Emergency Medicine

Tennessee Chapter Division of the

American Academy of Emergency Medicine Uniformed Services Chapter Division of the American Academy of Emergency Medicine

Virginia Chapter Division of the American Academy of Emergency Medicine

International Society Partners

Emergency Medicine Association of Turkey

Lebanese Academy of Emergency Medicine

Mediterranean Academy of Emergency Medicine

Norwegian Society for Emergency Medicine

Sociedad Argentina de Emergencias

Sociedad Chileno Medicina Urgencia

Thai Association for Emergency Medicine

To become a *West*JEM departmental sponsor, waive article processing fee, receive print and copies for all faculty and electronic for faculty/residents, and free CME and faculty/fellow position advertisement space, please go to http://westjem.com/subscribe or contact:

Stephanie Burmeister
*West*JEM Staff Liaison
Phone: 1-800-884-2236
Email: sales@westjem.org

Western Journal of *Emergency Medicine*:

Integrating Emergency Care with Population Health

Indexed in **MEDLINE, PubMed, and Clarivate Web of Science, Science Citation Index Expanded**

Council of Residency Directors in Emergency Medicine

Advances in Education Research and Innovations

The Council of Residency Directors in Emergency Medicine Advances in Education Research and Innovations Forum presented a peer-reviewed selection of emergency medicine graduate and undergraduate educational research and innovations in both oral and poster formats at CORD Academic Assembly 2022. Emphasis was placed on novel research questions and designs. Innovation submissions included curricular designs, computer applications, faculty development, recruitment processes or similar topics.

The *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health* would like to thank the Council of Emergency Medicine Residency Directors Board of Directors for helping to make this collaborative special issue possible. CORD abstracts are archived at: http://westjem.com/cord-abstracts and http://escholarship.org/uc/uciem_westjem.

Best Of Best Research Abstracts

Best Of Best Innovation Abstracts

Research Abstracts

1. **Resident Clinical Exposure Variability at Graduation**
   Benjamin Schnapp, Lauren McCafferty, Corlin Jewell, Dann Hekman, Aaron Kraut

2. **Don't Break Their Hearts - Discharging Patients with Moderate Risk HEART Scores from the Emergency Department**
   Nadia Lehtihet, Allison Becker, Jessica Waters, Rory Spiegel, Rahul Bhat

3. **Emergency Medicine Resident RVU Trends at an Academic Medical Center**
   Meredith Von Dohlen, Lauren Evans, Meryll Bouldin, Amanda Young, Sarah Greenberger, Rachael Freeze-Ramsey, Travis Eastin, Carly Eastin

4. **Exposure of Emergency Medicine Clerkship Students to Psychiatric Emergencies**
   Connor Knowles

5. **High sensitivity troponin - 6 hours is the magic number**
   Omoyemen Blue, Michael Nguyen, Huyen-Trang Thai, Hayley Harvey, Maria Cacciapuoti, Rory Spiegel, Rahul Bhat

6. **Temporizing Medications for Nonpregnant Patients Discharged from the Emergency Department with Abnormal Uterine Bleeding at a Single Urban Teaching Hospital**
   Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart

7. **Creating a New Social Emergency Medicine Curriculum: A Needs Assessment**
   Ashley Vuong-Goldshear, Lauren Fryling, Alexander Garrett, Amanda Amen, Hannah Janeway, Natasha Wheaton, Jaime Jordan

8. **Female Mentorship in Academic Emergency Medicine**
   Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart

9. **Improving Diversity Consciousness: Initiatives for Increasing Emergency Medicine Residency Diversity Recruitment**
   Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart, Kathryn Sulkowski

10. **Racial Bias in Medical Student Standardized Letters of Evaluation (SLOE)**
    Al'ai Alvarez, Alexander Mannix, Dayle Davenport, Katarzyne Gore, Sara Krzyzaniak, Melissa Parsons, Danielle Miller, Daniel Eraso, Sandra Monteiro, Teresa Chan, Michael Gottlieb

11. **The Influence of Patient Recognition of Resident Name on Patient Perception of Resident Empathy and Satisfaction in an Emergent Care Setting**
    Hao Wang, Alexandra Bulga, Chad Holmes, Charles Huggins, Heidi Knowles

12. **Female Mentorship in Academic Emergency Medicine**
    Paula Diaz, Barbara Debbage, Danielle Miano, Leila Getto

13. **Patient, Physician, or Observer: Qualitative Analysis of a Peer Role-play for Developing Communication Skills**
    Jordan Feingold-Link, Lauren McCafferty, Maria Poluch, Nethra Ankam, Shruti Chandra, Jared Kilpatrick, Danielle McCarthy, Kristin Rising, Deborah Ziring, Dimitrios Papanagnou

14. **Residents' Perception of the Feedback They Receive**
    Brian Walsh, Frederick Fiesseler, Corrine Espinosa, Nicole Riley

15. **The effects of Covid-19 pandemic on the post graduate plans of emergency medicine residents**
    Megan Marcom, Susan Miller, Linda Papa, Josef Thundiyil, Jay Ladde, Chrissy Van Dillen

16. **Residency Case Mix Impact on In-Service Training Exam Scores**
    Michael Kern, Dann Hekman, Corlin Jewell, Benjamin Schnapp

17. **CORD COVID-19 Task Force Report on the Pandemic Impact on Undergraduate Medical Education**
    Melissa Platt, Shannon Moffett, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Bryan Kane, Eric Lee, Stephen Miller, Brian Milman, Lauren McCafferty, Lisa Stoneking, Taylor Surles, Amy Cutright, Isaac Shaw

18. **FOAM authorship: Who's teaching the learners?**
    Andrew Grock, Tiffany Fan, Max Berger, Jeff Riddell

19. **A Computerized Google Sheets Tracking System for ACGME Procedures Increases Reporting Numbers**
Brian Walsh, Frederick Fiesseler, Renee Riggs, Shannon O'Toole

20. **Emergency Medicine Program Director Perceptions of the Resident Selection Process Following the Transition to a Pass/Fail USMLE Step 1**
Kevin Bray, Kaitlin Burge, Om Patel, Ishant Patel, Will Haynes, Nicholas Van Wagoner, Charles Khoury

21. **Emergency Medicine Program Leadership Preferences For In Person Versus Virtual Residency Interviews**
Erin Karl, Mary Ann Edens, Linda Katirji, Jeanette Kurbedin, Mark Olaf, Michael Pasirstein, Alexis Pelletier-Bui, Anneli von Reinhart

22. **Medical Student Perceptions of the Virtual Interview Process for Emergency Medicine Residency Application**
Damian Lai, Lauren McCafferty, Aizad Dasti, Amber Billet, Barbara Stahlman, Brent Becker

23. **Self-Assessment of Preparedness: Incoming Emergency Medicine Interns in the Era of COVID-19**
Lorie Piccoli, Kathleen Williams, Brent Becker, Amber Billet, Barbara Stahlman

24. **Student-Forum Heuristics for Emergency Medicine Residency Program Application-Preliminary Thematic Analysis**
Jacob Garcia, Molly Estes, Ronnie Ren, Xiao Chi Zhang

25. **The Off-Service Letter of Evaluation....the Over-Ranked Service Letter of Evaluation?**
Jordan Gowman, Bernadette Dazzo, Jace Coon, Tracy Koehler, Ryan Offman, Joseph Betcher

26. **Transitioning to Pass/Fail USMLE Step 1: Will Students from Less Prominent Schools be Adversely Impacted?**
Christopher Kiefer, Darcy Autry, Lauren McCafferty, Kimberly Quedado, Lesley Cottrell, Autumn Kiefer, Timothy Lefeber, Ethan Higginbotham, Scott Cottrell, Erica Shaver

27. **The Impact of Medical Education Fellowships on the Careers of Graduates**
Jaime Jordan, Jack Buchanavage, James Ahn, David Diller, Ryan Pedigo, Mike Gisondi, Jeff Riddell

28. **Comparing Attending and Patient Evaluation of Medical Student Communication Skills on an Emergency Medicine Clerkship**
Jason Lewis, Lakshman Balaji, Anne Grossestreuer, Nicole Dubosh

29. **CORD COVID-19 Task Force Report on the Pandemic Impact on Undergraduate Medical Education**
Melissa Platt, Shannon Moffett, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Bryan Kane, Eric Lee, Stephen Miller, Brian Milman, Lauren McCafferty, Lisa Stoneking, Taylor Surles, Amy Cutrigth, Isaac Shaw, Morgan Wilbanks

30. **Prez Drills: An Online Interactive Workshop to Develop Presentation Skills in Preclinical Medical Students**
Alexis del Vecchio, Anthony Seto, Paul Bryan, Logan Haynes, Nicole Ertl

31. **The Impact of COVID-19 on the Medical Student Emergency Department Clinical Experience**
Page Bridges, Samantha Shelhoss, Paige Neroda, Elena Roberts, Lindsay Grasso, Smith Heavner, Lauren McCafferty

32. **Identifying Gaps in Ultrasound Education and Potential for a Digital Curriculum**
Michael Muradian, Mayank Gupta, Steven Johnson, Amit Bahl

33. **Emergency Medicine Resident Use of a Differential Diagnosis Generator for Critical Patients in the Emergency Department**
Kate Romero, Lauren McCafferty, David Berger, Matthew Booher, Madhavi Purekar, Nai-Wei Chen, Brett Todd

34. **An Analysis of Resident Generated On-Shift Evidence Based Medicine Questions**
Estelle Cervantes, Phillip Sgobba, Shreyas Kudrimoti, Jacob Albers, Jeffrey Brown, Kashyap Kaul, William A. Spinosi, Ajay Varadhan, Joseph B. Zackary, Bryan Kane

35. **An Experiential Learning Curriculum to Enhance Emergency Medicine Residents' Situational Awareness of Patient Safety Hazards**
Nathan Olson, Casey Morrone, Morgan Battaglia, Kamna Balhara, Adriana Olson, Nicholas Hartman

36. **Assessment of Emergency Medicine Residents' Situational Awareness and Perception of Patient Safety Culture in the Emergency Department**
Nathan Olson, Morgan Battaglia, Casey Morrone, Nicholas Hartman, Kamna Balhara, Adriana Olson

37. **Virtual Simulation's Application to Assess Emergency Medicine Learners in the Post-COVID Setting: A Literature Review**
Patrick Zeniecki, Xiao Chi Zhang, Jared Kilpatrick

38. **Just In Time Learning: EM Resident Search Strategies in Preparation for Performing a Simulated Dental Block**
Yuliya Pecheny, Amy Skeel, Linda Spillane, Julie Kittel-Mosley, Ryan Bodkin, Courtney Marie Cora Jones

39. **Team and Leadership Performance: An Exploratory Mixed-Methods Analysis Using Interprofessional In Situ Simulation**
Ashley Rider, Sarah Williams, Vivien Jones, Daniel Rebagliati, Kimberly Schertzer, Mike Gisondi, Stefanie Sebok-Syer

40. **Emergency Medicine provider comfort with Physician Orders for Life Sustaining Treatment (POLST) Advanced Directive**
Kaitlin Sweeney, Katherine Briggie, Juan Pagan-Ferrer, Sangil Lee, Mark Graber, Daniel Miller, Hao Wang

41. **"Everybody in this room can understand": A Qualitative Exploration of Peer Support during Residency Training**
Aarti Jain, Ramin Tabatabai, Jacob Schreiber, Anne Vo, Jeff Riddell

42. **Do Residents Living Alone Have Higher Levels of Depression, Anxiety and Stress During the Pandemic?**
Brian Walsh, Frederick Fiesseler, Kristen Walsh, Veronica Mekaeil

43. **Impact of the COVID-19 Pandemic on US Emergency Medicine Education: A Needs Assessment for Academic Emergency Medicine Faculty**
Melissa Platt, Bryan Kane, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Eric Lee, Stephen Miller, Brian Milman, Shannon Moffett, Lisa Stoneking, Taylor Surles, Amy Cutright, Isaac Shaw

44. **Inter-physician conflict in the workplace: an under-explored contributor and manifestation of burnout**
Caitlin Schrepel, Maralyssa Bann, Bjorn Watsjold, Joshua Jauregui, Jonathan Ilgen, Stefanie Sebok-Syer

45. **Unmasking the Impostor Phenomenon in First-Year Residents**
Nicholas Jobeun, Nicole Battaglioli, Arlene Chung, Eric Lee, Annahieta Kalantari, Mark Stephens

Innovation Abstracts

1. **A Longitudinal Performance Portfolio Combining Real-Time Clinical Outcomes Data with Narrative Self-Reflection for Emergency Medicine Residents**
Michael Ehmann, Jeremiah Hinson, Cameron Morgan, Kathryn Clark, Scott Levin, Kamna Balhara

2. **Case-Based Curriculum for Assessing Decision Making Capacity in the ED**
Elmira Andreeva, Curtis Wittmann, Laura Welsh

3. **Learning Silos: Are we adequately preparing our residents for clinical practice?**
Jason Ritoli, Ryan Bodkin, Joseph Pereira, Julie Pasternack, Linda Spillane, Valerie Lou

4. **Preparing for Discharge: A Workshop on Communicating Diagnostic Uncertainty**
Maria Poluch, Jordan Feingold-Link, Nethra Ankam, Jared Kilpatrick, Danielle McCarty, Kristin Rising, Dimitrios Papanagnou

5. **Transitions to Life After Residency: A Curriculum for Senior Emergency Medicine Residents**
Byron Parker, Lauren Querin

6. **Development of an educational experience for medical students on coping with medical errors in residency and beyond**
Hai Le, Sharon Bord, Julianna Jung

7. **The House Cup Challenge: A Gamified Curriculum for Emergency Medicine Residents**
Marion-Vincent Mempin, Brian Smith, Suji Cha, Jessie Chen

8. **Battle of the Classes: Experiential Learning Through the Gamification of Conference**
William Chan, Kent Li, David Simon, Anika Nichlany, Richard Shin, Anita Lui, Kallie Combs, Akshay Elagandhala

9. **Gotta Escape EM all! Emergency Medicine Resident Education with Gamification**
Kevin Hon, Marion-Vincent Mempin

10. **Power Half Hour: A Short, Sweet, and Clinical Image-Based Peer-to-Peer Educational Curriculum**
Lauren McCafferty, Leah Carter, Andrew Schaub

11. **Start Spreading the News: Best Practices for Summarizing and Distributing Residency Didactics**
Joseph Pereira, Ryan Bodkin, Jason Rotoli, Valerie Lou, Julie Pasternack, Linda Spillane, Emily Fitzgerald

12. **A Deliberate Educational Initiative in Diversity, Inclusion and Racial Equity**
Vinodinee Dissanayake, Keya Patel, Sobia Ansari, Teresa Davis, Jerome Martin, Sara Hock, Braden Hexom

13. **Developing a Longitudinal Cultural Competency Curriculum**
Ridhima Ghei, Minh Evans, Arlene Chung, Annemarie Cardell

14. **Of the Women, for the Women and by the Women: A Resident-Led Curriculum**
Asma Hashim, Jennifer Lee, Tarlan Hedayati

15. **Prescribing Solutions: Development of a Community-Centered Approach to Teaching the Social Determinants of Health in the ED**
Emily Craft, Matthew Stull

16. **The Impact of an Experiential Social Medicine Curriculum in a County Emergency Medicine Residency Training Program**
Hurnan Vongsachang, Laura Sprunt, Gabriel Padilla, Todd Schneberk, Jeff Riddell

17. **The Incorporation of a Case-Based Health Equity Curriculum Into M&M Conference**
Jossie Carreras Tartak, Giovanni Rodriguez, Eric Goralnick, Wendy Macias Konstantopoulos, Daniel Egan

18. **A Comprehensive Approach to Increase Emergency Medicine Resident Involvement in Caring for Opioid Use Disorder**
Mohamad Ali Cheaito, Nicholas Gozza, Alexandra Lekson, Eric Medrano, Mohamad Moussa

19. **Beyond ACLS: Training your novice resuscitationist for cases when the patient does not follow the algorithm**
Alaa Aldalati, James Homme, Alexander Finch

20. **Impact of Implementation of Prehospital Run Reviews into Resident EMS Curriculum**
Sarayna McGuire, Aaron Klassen, Lisa Rentz, Aidan Mullan, Matthew Sztajnkrycer

21. **Innovative Teaching Format: Environmental Emergencies**
Alexander Tymkowicz, Yahuda Wenger, Erich Heine, Sara Baker

22. **Night School: A Pilot of Emergency Medicine Morning Report for the Night Shift**
Christopher Reisig, Justin Allen, Ramona Vanel, Marissa Cohen, Diksha Mishra

23. **The Research Escape-Hunt: An Escape Room for Resident Education on Research Design and Evidence-Based Medicine**
Timothy Fallon, Tania Strout, Robert Anderson, Carl German

24. **The unstandardized SDOT: PGY-year specific milestone based standardized direct observation tool**
Amber Billet

25. **A High-Fidelity, Cost Efficient Model for Simulated Resuscitative Hysterotomy**
Gurpreet Kaur, Megan Nowitzki, Michael Jax, Jonathan Bronner

26. **A Homemade, Cost-Effective, Realistic Pelvic Exam Model**
Jessie Godsey, Ilya Kott

27. **Developing Procedure Guides to Improve Procedural Competence and Confidence**
Aman Pandey, Samuel Parnell

28. **Low-Cost, Mid-Fidelity Fracture Simulation & C-Arm Education using Goat Legs**
Nick Levin, Wesley Williams, Megan Fix

29. **Work for Idle Hands: A Simulation Model for Nail Bed Injury and Avulsion Repair**
Rebecca Kreston

30. **A day in the life of an emergency department (ED) patient: In-situ ED patient experience simulation for emergency medicine interns**
Lynn McGowan, Amber Billet, Barbara Stahlman

31. **Airway Tape Review: Learning Through Retrospective Review of Video Laryngoscopy Cases**
Justin Chapman, Lucienne Lutfy-Clayton

32. **A Novel Curriculum for Reducing Distal Radius Fractures in an Emergency Medicine Residency Program**
Steven Morrin, James Willis, Kayla Basedow, Lauren McCafferty

33. **Medical Simulation Training on Trauma-Informed Care in the Emergency Department**
Caroline H. Lee, Carlos Dos Santos, Taylor Brown, Henry Ashworth, Jason Lewis

34. **Teaching and Assessing Bag Valve Mask Ventilation to 4th Year Medical Students via Checklist**
Aman Pandey, Mary McHugh, Meghan Michael

35. **A Novel Social Emergency Medicine Curriculum: An Alternative to Lecture-Based Didactics**
Ashley Vuong, Hannah Janeway, Amanda Amen, Lauren Fryling, Alexander Garrett, Jaime Jordan, Natasha Wheaton

36. **Implementation of Foundations of Emergency Medicine Cases Through High Fidelity Simulation for PGY-1 EM Residents**
Jessica L. Beadle, Kathleen A. Murphy, Leila Getto

37. **"Prez Drillz" for med students: An online workshop to practice oral case presentation skills through peer-feedback, repetition, and application**
Alexis del Vecchio, Anthony Seto, Paul Bryan, Logan Haynes, Nicole Ertl

38. **Buddy System: An Interventional Peer-Mentoring Program Between Fourth-Year Medical Students and Emergency Medicine Residents**
Yehuda Wenger, Ramin Tabatabai, Brad Stone, Linda Papa, Jesus Roa

39. **Can a Modified Medical History Performed (in a Virtual Setting) by Medical Students Provide a More Efficient and Accurate History?**
Simi Jandu, Kristen Cuadra, Steven Joseph, Brett Todd, Ronny Otero

40. **Development of a Longitudinal Elective Focused On Undergraduate Medical Education**
Bryanne Macdonald, Liza Smith

41. **Jazzing Up Virtual Interview Season With a Residency Program Information Portal for Interviewees**
Ashley Rider, Bianca Velasquez, Yvonne Lam, Leonardo Aliaga, Holly Caretta-Weyer, Jennifer Kanapicki Comer, Kelly Roszczynialski, Luz Silverio, Sara Krzyzaniak

42. **Choose Your Own Adventure (CYOA): A Medical Education Innovation for Virtual Interactive Teaching**
Francesca Nichols, Sarika Sheth, Kristy Schwartz

43. **Establishing Interest in the Development of a Novel Telehealth Curriculum for Emergency Medicine Resident Physicians**
Nico Kahl, Ryan Korn, Frannie Rudolf, Brian Kwan, Christian Dameff, James Killeen

44. **OMG it's an OMI: Utilizing Retrieval Practice to Teach Occlusive MI EKGs**
Ivan Zvonar, Allen Lockhart, Laura Welsh

45. **Online simulation effectively teaches introductory disaster triage skills to medical students**
Kiran Pandit, Ashley Kingon, Raleigh Todman, Melissa Wright, Marc Raymond, Christopher Tedeschi

46. **Use of Virtual Reality for Teaching Procedures**
Phillip McCoy, Stephen Miller

47. **Reducing Electronic Health Record (EHR) Click Fatigue: An Innovative Approach to Common Order Sets**
Eric Medrano, Mohamad Ali Cheaito, Mohamad Moussa

48. **Value Transformation through Process Mapping- An Idea Generator for Resident led QI Projects**
Joel Atwood, Amber Billet

49. **Implementation of a Dedicated Social Worker/ Coach for Emergency Medicine (EM) Residents**
Jennie Buchanan, Sarah Meadows, Jason Whitehead, Gannon Sungar, Todd Guth, Barbara Blok, Katie Bakes, Christy Angerhofer, Malorie Millner, Megan Stephens, LaVonne Salazar, Abraham Nussbaum, Bonnie Kaplan

50. **Improving Physician Well-Being and Reducing Burnout Using a Peer-to-Peer Recognition Program**
Jenny Chang, Alexis Cortijo-Brown, Vinay Saggar, Simiao Li-Sauerwine, Katie Rebillot, Michael Jones, Jill Corbo

51. **Resident-Led Wellness Program**
Sean Scott

52. **Virtual Peer Support Program: A Novel Community-Building Platform in an Emergency Medicine Residency Program**
Hurnan Vongsachang, Aarti Jain

53. **What Is a Wellness Chief?**
Larissa Unruh, Benjamin Fitzgerald, Loice Swisher

Best Of Best Research Abstracts

1 A National Survey of Emergency Medicine Medical Education Fellowship Directors: Roles, Responsibilities, and Priorities

Andrew Golden, David Diller, Jeff Ridell, Jaime Jordan, Mike Gisondi, James Ahn

Learning Objectives: The goal of this study is to characterize the roles, responsibilities, and support for MedEd fellowship directors.

Introduction: Despite Medical Education (MedEd) Fellowships increasing in number, the position of MedEd fellowship director remains poorly defined.

Methods: We developed and piloted an anonymous electronic survey, consisting of 32 Likert-type and free response items, that we distributed via the CORD MedEd Fellowship Community of Practice listserv. We used descriptive statistics to analyze data from items with discrete answer choices. Chi-squared testing was used to evaluate differences between programs. Using a constructivist paradigm, we performed a thematic analysis of free response data.

Results: Thirty-five of 44 MedEd fellowship directors (80%) completed the survey. Thirty-seven percent of respondents were female (13/35). Fifty-one percent earned Master's degrees in education and 37% completed a MedEd fellowship. Many respondents held other education leadership roles, including program director (PD) (26%), associate/assistant PD (26%), vice chair (23%), and clerkship director (9%). Sixty-three percent (22/35) receive support, including clinical buy-down (18/22, 82%), administrative (11/22, 50%), and salary (1/22, 5%). There was no difference ($X2$ (2, N=33) = 2.07, p = 0.36) between support and type of hospital (community, academic, or county). Responsibilities of MedEd fellowship directors include education (median 35% of time), administration (25%), research mentorship (20%), and recruitment (14%). Priorities of MedEd fellowship directors fall into three categories, including fellow, fellowship, and institution (Table 1). Factors promoting and inhibiting success of fellowship programs are presented in Table 2.

Conclusions: This study provides insight into the position of the MedEd fellowship director. We hope it will allow for role clarity as well as national and local advocacy as the demand for MedEd fellowship directors increases.

Table 1. Priorities of MedEd Fellowship Directors.

Fellow
- Promote development as educator
- Promote development as scholar
- Promote development as leader
- Advocate for fellow's salary, CME, wellness
- Facilitate job opportunities/success
- Individualized education based on fellow's interests
Fellowship
- Recruit high-quality fellows
- Ensure high-quality, innovative curriculum
- Obtain financial support
Institution
- Increase education scholarship within department
- Growth of department's education faculty

Table 2. Factors enabling and inhibiting success of MedEd Fellowship Directors.

Common Factors Enabling Success of MedEd Fellowship Directors
1. Invested departmental leadership, including Chair and Vice Chair
2. Motivated fellows
3. Support for the role, including shift buy-down
4. Support for the fellowship, through funding and faculty willing to mentor fellows
5. Perseverance
Common Barriers of MedEd Fellowship Directors
1. Limited or no support for the role, including shift buy-down and administrative support
2. Limited financial support for the fellowship and fellows
3. Time pressures of a one-year fellowship
4. Lack of experience/responsibility within the training continuum (i.e. UME, GME, CME)

2 Guided Imagery: An adjunct to teaching central venous access

Sydney Cryder, Stephen Jensen, Matthew Hysell, Joseph McCarthy, Kristen Whitworth

Learning Objectives: Introduce guided imagery as a novel approach to education and simulation in graduate medical education.

Background: Guided imagery is commonly used in sports psychology for post-injury rehabilitation, rep-max movements, and muscle activation as part of a multifaceted approach to learning. Utilization of guided imagery combined with traditional teaching may provide an innovative and comprehensive approach to graduate medical education.

Objectives: To show greater proficiency in medical students' ability to obtain central venous access in simulation trainers following exposure to guided imagery teaching methods in comparison to traditional methods.

Methods: Auditioning fourth year medical students were offered the opportunity to participate. They were randomly assigned to two groups, traditional teaching or guided imagery teaching. The traditional teaching group watched a video using traditional methods. The guided imagery group watched a video which also incorporated visualization components, and biofeedback. Proctors blinded to student group assignment then observed each student place an intrajugular triple lumen catheter on a simulation trainer and filled out a standardized rubric. Additionally, participants

filled out survey questions before and after the video and again after line placement.

Results: A total of 60 medical students participated; 2 were excluded for having performed 5 or more lines previously. There was no difference in the two groups in self perceived competence prior to watching the video or in the number of lines they had previously performed. The traditional group (n=33) averaged 2.2 errors/need for intervention whereas the guided imagery group (n=25) averaged 1.3 errors/need for intervention (p=.045, 95%CI 0.02 to 1.61). There was no statistical significance in total time or in students' self-rated confidence post this experience.

Conclusion: The use of guided imagery may be a promising adjunct to traditional teaching methods for procedures in graduate medical education.

3 Impact of Faculty Incentivization on Completed Resident Evaluations

Viral Patel, Alexandra Nordberg, Jennifer Carey, Richard Church

Learning Objectives: Understand alternative methods to increase faculty submission of resident end-of-shift evaluations by incorporating this metric into the faculty incentive compensation plan.

Background: In the Program Requirements for Graduate Medical Education (GME) in EM, the Accreditation Council for GME states "Feedback from faculty members in the context of routine clinical care should be frequent." It is a common challenge for program leadership to obtain adequate and effective summative evaluations. Previous attempts at our institution to increase feedback have had limited effect.

Objectives: Department leadership hypothesized that linking completed evaluations to the faculty incentive compensation plan would increase the quantity of evaluations.

Methods: This is a retrospective, case-crossover interventional study conducted at an academic tertiary level 1 trauma center and primary EM residency teaching site. At the start of the 2021 fiscal year (FY21), submission of resident evaluations was added as an incentive compensation metric. We examined fiscal year 2020 (FY20) and FY21 to compare the number of evaluations per shift per attending and total FY quantity of completed evaluations. We included faculty who were employed for the duration of FY20 and FY21. We excluded fellows, faculty who do not routinely work with residents, non-resident shifts, and incomplete evaluations.

Results: We identified an increase of 42% in total evaluations completed after implementation of the incentive metric with an increase from 1149 evaluations in FY20 to 1629 evaluations in FY21 (Figure 1). 32 of the 38 faculty members included had an increase in evaluations per shift from pre- to post-intervention (Figure 2).

Conclusions: Incentivizing faculty to submit resident evaluations through the use of bonus compensation increased the number of evaluations at our institution. This information may be used by others to support similar interventions to increase written feedback. This study is limited to a single academic site as well as limited to a finite period of time. Further research will need to be conducted to determine if this trend continues over time.

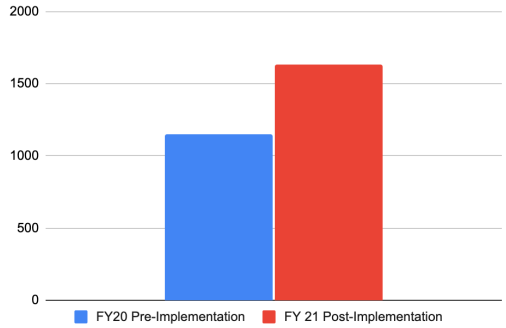


Figure 1. Total evaluations.

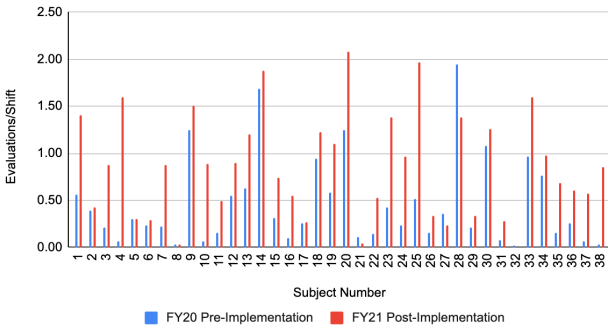


Figure 2. Evaluations per shift.

4 Perspectives in Post-Pandemic Employment for Emergency Medicine Trainees

Jennifer Kaminsky, Josh Greenstein, Aron Friedlander, Brian Summer, Waqar Khalid, Dimitri Livshits, Brenda Sokup, Benjamin Fombonne , Jeremy Hardin, Abbas Husain

Learning Objectives: To survey graduating EM residents on their perceptions of the EM job market and its effect on their desire to pursue fellowship training.

Background: The COVID-19 pandemic has resulted in changes to the emergency medicine (EM) workforce which pose challenges to residents graduating from EM training programs. New graduates face increasing uncertainty in the search for their first job. EM graduates in 2020 and 2021 saw a notable decrease in opportunities compared to years prior. ACEP's Workforce Study (April 2021) predicts a surplus of

emergency physicians by 2030.

Objectives: To survey graduating EM residents on their perceptions of the EM job market and its effect on their desire to pursue fellowship training. Methods: We surveyed senior residents (PGY2 and above) at three- and four-year EM residency programs in the greater NYC area. Paper surveys were mailed out to each of the programs with a return envelope; a virtual link to complete the survey was also made available. Surveys were distributed from August 2021 to November 2021 to 22 EM residency programs (695 residents). Participation was voluntary and anonymous. The only demographic information gathered was program name and PGY level.

Results: A total of 412 senior residents from the 22 EM residency programs completed the survey. Of the 412 seniors, 183 were PGY2s, 174 were PGY3s, and 55 were PGY4s and 5s (we included responses from residents in combined EM/IM programs). Survey questions and results are summarized in Table 1. Compared to colleagues in previous years, graduating EM residents anticipated broadening their job search. 58% of those considering fellowship after residency stated that their interest in fellowship has increased due to anticipated challenges in the job market (difficulty securing a full-time attending position).

Conclusions: The majority of senior residents expressed concern about the current and future EM job market. How and where EM graduates apply for jobs may be impacted as a result. These data may prove valuable to residency programs, institutions, physician groups, and EM-bound medical students.

Table 1. Post-pandemic employment survey responses.

Question	Response	
	Yes	No
Are you planning on starting to look for a job earlier than your colleagues have in previous years?	231(56%)	181(44%)
Do you anticipate having a more difficult time than your colleagues from previous years finding a job when you graduate?	325(79%)	87(21%)
Do you anticipate needing to apply for a job in a different region than you were interested in initially?	262(64%)	150(36%)
Do you anticipate needing to apply for a job at more institutions than your colleagues from previous years?	357(87%)	55(13%)
In your opinion, will the job openings for ED academic jobs be impacted?	365(89%)	47(11%)
In your opinion, will the job openings for ED non-academic/community jobs be impacted?	357(87%)	55(13%)
Do you anticipate making less money on your initial EM contract than what you perceived would have been your salary?	304(74%)	108(26%)
Are you considering a fellowship after residency?	245(59%)	167(41%)
If yes to above question, has your interest in a fellowship changed due to the anticipated post-graduation job market?	Increased: 141(58%)	Decreased: 6(2%) / No Impact: 98(40%)

Data are reported as number of responses (%).

5 Self-Compassion Predicts Intolerance of Uncertainty: A New Construct to Prepare Students for Clinical Uncertainty

Maria Poluch, Dimitrios Papanagnou, Jordan Feingold-Link, Jared Kilpatrick, Deborah Ziring, Nethra Ankam

Learning Objectives: Managing uncertainty represents a significant source of stress for clinicians and trainees. Self-compassion is a strategy to help individuals cope with stress. The objective of this study is to determine the relationship between intolerance of uncertainty and self-compassion in medical students.

Background: For clinicians, higher scores on the Intolerance of Uncertainty Scale (IUS) have been linked with failure to comply with evidence-based guidelines and higher likelihood of burnout. In contrast, higher self-compassion scores are correlated with decreased stress and burnout. A negative correlation between self-compassion and intolerance of uncertainty has been demonstrated in college students and general population. This relationship has not been examined in medical students and provides a possible curricular aim for addressing stress as they transition to clinical learning environments during clerkships.

Objectives: The goal of our study is to determine if there is a correlation between intolerance of uncertainty and self-compassion in medical students.

Methods: Third-year medical students (n=273) completed the IUS short version and the Self-Compassion Short Form (SCSF) through an online survey. Data was de-identified and a linear regression analysis was conducted to predict IUS based on SCSF. Pearson correlation was also calculated.

Results: Response rate was 95% (259/273). IUS and SCSF scores were treated as continuous variables and analyzed parametrically. Mean scores for IUS and SCSF in medical students did not differ from previously reported means ($p=0.14$ and $p=0.43$ respectively). A significant regression equation was found ($F(1,256) = 48.372$, $p<0.0001$) with an $R2$ of 0.159. Pearson correlation was calculated at $r = 0.399$ (moderate effect size).

Conclusion: A significant negative correlation was found between intolerance of uncertainty and self-compassion ($p<0.0001$). While findings suggest that self-compassion predicts intolerance of uncertainty, future studies should examine its implications on the role of curriculum in preparing learners for clinical uncertainty.

6 The Impact of On Shift Evidence Based Medicine Activity on Patient Care

Jeffrey Brown, Jacob Albers, Ajay Varadhan, Estelle Cervantes, Kashyap Kaul, Shreyas Kudrimoti, Philip Shobba, William A. Spinosi, Joseph B. Zackary, Bryan Kane

Learning Objectives: This project seeks to describe how on shift EBM activity by EM residents impacts clinical patient care.

Background: Evidence Based Medicine (EBM) skills allow EM providers to obtain and apply new information

while on shift in the ED. The impact of using EBM on shift to patient care has not previously been described.

Objective: This project seeks to describe how EBM activity by EM residents impacts clinical patient care.

Methods: This IRB approved study was conducted by a PGY 1-4 EM residency. Residents are required to complete logs of on-shift EBM activity in the program's procedure software system New InnovationsTM. The logs are a convenience sample, with an N of 3-5 per 28-day EM rotation. The logs include a patient description, clinical question, search strategy, information found, and subsequent application. Using qualitative methodology described by MacQueen (CAM 1998), a codebook was created to analyze resident free text to the prompt: "Based on your research, would you have done anything differently". The coding framework is shown in Table One. Results are analyzed descriptively.

Results: From June 2013 to May 2020, 11,145 discrete logs were identified. Of these, 571 were excluded (298 incomplete and 273 duplicate), leaving 10,574 logs for analysis. These logs were completed by 137 residents, of which 46 were female (34%). The 10 most utilized log codes (97.5%) are in Table One. The remaining 29 codes were 2.5% of the dataset. A total of 1977 (18.7%) logs affirmed that evidence researched will change their future practices. Of those, 392 (3.7%) explicitly stated their research influenced care while the patient was in the ED.

Conclusions: In this single site cohort, residents were able to successfully link EBM activity to individual patients using the program's procedure recording software. In almost one fifth of this convenience sample, residents described how the activity changed their individual clinical practice of EM, with one in 27 changing patient care in real time. Logging EBM activity appears to generate ACGME outcomes data.

Table 1. Qualitative analysis of resident reported application of EBM to individual patients while on shift.

Code	Meaning	Total (%)	PGY 1 (%)	PGY 2 (%)	PGY 3 (%)	PGY 4 (%)
231	The care of this patient was not influenced by what was looked up PLUS the care of future patients may be influenced by what was looked up PLUS the possible change in future care is based on evidence OR The care of this patient was not influenced by what was looked up but learned something based on evidence that may be applied in the future OR A clinical question was asked without reference to a patient and some useful information based on evidence was learned for possible future use	3343 (31.6)	880 (26.3)	877 (26.2)	679 (20.3)	907 (27.1)
331	The care of this patient may have been influenced by what was looked up PLUS the care of future patients may be influenced by what was looked up PLUS the possible change in present and future care is based on evidence OR Evidence was found, but there was no indication of whether what was looked up influenced the care of this patient or will influence the care of future patients	2263 (21.4)	450 (19.9)	522 (23.1)	512 (22.6)	779 (34.4)
221	The care of this patient was not influenced by what was looked up PLUS the care of future patients will not be influenced by what was looked up PLUS this decision to not change care was based on evidence OR What was looked up confirmed what was already being done PLUS the care of future patients will not be influenced by what was looked up PLUS this decision to not change is based on research	1319 (21.4)	278 (21.1)	311 (23.6)	298 (22.6)	432 (32.8)
211	The care of this patient was not influenced by what was looked up PLUS the care of future patients will be influenced by what was looked up PLUS this future change in care is based on evidence	1062 (10.0)	348 (32.8)	249 (23.4)	202 (19.0)	263 (24.8)
131	The care of this patient was influenced by what was looked up PLUS the care of future patients may be influenced by what was looked up PLUS this change in care is based on evidence	1047 (10.0)	246 (23.5)	221 (21.1)	230 (22.0)	350 (33.4)
311	The care of this patient may have been influenced by what was looked up PLUS the care of future patients will be influenced by what was looked up PLUS the change in future care is based on evidence	443 (4.2)	134 (30.2)	114 (25.7)	82 (18.5)	113 (25.5)
111	The care of this patient was influenced by what was looked up PLUS the care of future patients will be influenced by what was looked up PLUS this change in care is based on evidence	392 (3.7)	97 (24.7)	92 (23.5)	92 (23.5)	111 (28.3)
431	The care of the present patient was influenced by outside influences (e.g., an attending physician made the decision, treatment was deferred to a specialist, the most efficacious treatment method was not able to be provided) PLUS the care of future patients may be influenced by what was looked up PLUS the possible change in future care is based off of evidence	265 (2.5)	57 (21.5)	67 (25.3)	59 (22.3)	82 (30.9)
227	The care of this patient was not influenced by what was looked up PLUS the care of future patients will not be influenced by what was looked up PLUS found contradictory evidence OR The care of this patient was not influenced by what was looked up PLUS the care of future patients will not be influenced by what was looked up PLUS the evidence found was outdated OR The care of this patient was not influenced by what was looked up PLUS the care of future patients will not be influenced by what was looked up PLUS the evidence found was insufficient/low quality and was not strong enough to change the decision on how to treat the current or future patients	97 (0.9)	21 (21.6)	22 (22.7)	20 (20.6)	34 (35.1)
411	The care of the present patient was influenced by outside influences (e.g., an attending physician made the decision, treatment was deferred to a specialist, the most efficacious treatment method was not able to be provided) PLUS the care of future patients will be influenced by what was looked up PLUS the change in future care is based off of evidence	80 (0.8)	23 (28.8)	22 (27.5)	12 (15.0)	23 (28.8)
Other	The aspects of evidence acquisition and application included scenarios not articulated in the above categories.	263 (2.5)	53 (20.2)	68 (25.9)	61 (23.2)	81 (30.8)

Table 2. Resident reported application of EBM leading to a change in furture patient care.

Code	Count (% of total logs)	Examples	
211	1062 (10.0)	I'm going to stop prescribing cough medication with codeine since the evidence doesn't seem to support its use and we're in the midst of an opioid epidemic. It's over the counter cough medicine all the way. If we're going to use a placebo, that will be my placebo of choice.	In the future, I will give fentanyl if patient does not get relief with, or cannot have, nitroglycerin.
311	443 (4.2)	At the start of my Peds EM month, I was unsure of which to use for acute pain. APAP or ibuprofen. Parents would ask me, and I was unsure. Now I feel more confident in what I want to use for pain relief in the peds population. Ibuprofen is now my go-to for pain relief as long as there are no obvious contraindications. It was what I will tell parents to use at home. I am less inclined to give prescriptions for acetaminophen with codeine.	Based on criteria for severe CAP, I will now use steroids as part of my treatment plan or at least have a conversation with admitting team about adding on steroids. This Cochrane study showed great benefits of steroids with little side effects (hyperglycemia). Now the study only speaks about severe CAP. I would like to see study on non-severe CAP or hospital/vent associated pneumonia which we see commonly as well. I would assume it would help just as much for HCAP.
111	392 (3.7)	We were planning to treat the patient with a fluoroquinolone to cover enteric organisms, but after looking on PEPID we decided to add the recommended IM rocephin before he was discharged. in the future with this demographic of patient I would use the same regimen.	When I was literally pressed for time in order to help save a man's life, I relied on Lexicomp™ to give me reliable dosing for TPA for thrombolysis of a massive PE. I would not do anything different in the future - Lexicomp™ was quick and reliable.
411	80 (0.8)	It is unacceptable that neurologists in a certified stroke center are going based on outdated guidelines. In retrospect I should have challenged them further to push TPA. In the future I will review literature timelier to advocate the best options for patient.	No benefit of anti-virals. I brought up these articles but was unable to convince the attending. I would not use anti-virals in future cases.
1977 (18.7% of total) of EBM logs indicated evidence acquisition that will influence future patient care.			

7 The Leaky Pipeline in Emergency Medicine: Understanding Factors Pushing Women Away and Informing Interventions

Nicole Klekowski, Sarah Balgord, Rosemarie Diaz, Alex Farthing, Sylvia Escolero, Koryanne DeCloux, John Burkhardt, Mahshid Abir, Adrianne Haggins, Laura Hopson

Learning Objectives: Understand the environmental factors which influence selection of Emergency Medicine as a specialty by women medical students.

Background: Women represent 28.3% of EM physicians. There is now gender parity in US medical

schools, but women applicants to EM ranges 33-37%. Prior research does not explain these gender differences. There are known differences in resident experiences and assessments based on gender.

Objectives: We sought to explore how clinical experiences and perceptions of the specialty influence selection of EM by women.

Methods: Using purposive and convenience sampling to represent diverse learning environments, we conducted semi-structured interviews of men and women US senior medical students who considered EM as a specialty. Interviews were transcribed, de-identified, and coded using constant comparative analysis until saturation. We conducted thematic analysis using a constructivist approach and grounded theory. Reflexivity and credibility activities were performed.

Results: 25 students from 11 geographically diverse schools completed interviews. 68% (17/25) were women. The majority (21/25) expressed commitment to EM. Four main themes were identified: 1. EM culture was perceived as exclusionary; 2. Beliefs about attributes of EM physicians and the specialty were influenced by gender; 3. Distressing patient encounters and physician/staff behaviors negatively affected students; and 4. Access to mentors, representation and exposure to EM affected interest. Table 1.

Conclusions: The EM gender differential is affected by societal gender roles and an environment that rewards traditional masculine traits. Conflict with behavioral norms may hinder women forming their professional identity as an emergency physician. Potential interventions include recognizing the gendered perception of the field; establishing early, longitudinal mentoring and engagement with the specialty; and building a supportive culture to overcome mistreatment concerns. As for limitations, students hold multiple intersecting identities, and this study primarily focused on gender.

Table 1.

Themes	Illustrative Quotes
EM culture was perceived as exclusionary	
	"... men, and this could be like attendings and residents,... like the way that they refer to each other, ways that ...seem to have this, ... bro-y, ...collegiality, that's not always accessible to other people." (Female EM-bound student)
	"I was telling this one attending that I want to do emergency medicine, and he was like, "Oh, it'd be a great specialty for you as a woman because then when you have kids, it's easier to work part time." I'm like, "That's making a lot of assumptions about what I want to do and it's definitely not why I'm choosing emergency medicine so that I can work part-time." (Female EM-bound student)
Beliefs about attributes of EM physicians and the specialty were influenced by gender	
	"I think I probably benefited probably more so just,..., being a tall white male,..I think that,... people got along with me pretty easily." (Male EM-bound student)
	"...emergency docs...come in and save the day and they can do anything and they're resuscitating, and I...like those kind of traits, ..., being a team leader are more typically masculine traits as opposed to like the kind pediatrician and family doctor who are going to sit down and talk about your feelings." (Female EM-Bound student)
Distressing patient encounters and physician/staff behaviors negatively affected students	
	"And at one point one of the nurses was asking two male doctors on an overnight shift to assess her breast implants, not assess them in a medical sense like, do you think I have an infection? But assess like, do you think these make me look hot? And won't this look better if my boobs were two inches higher? And that was just very uncomfortable and bummed me out, because I was like, I don't want these to be my people." (Female EM-Bound student)
	"There were a lot of just inappropriate conversations between doctors and nurses joking about sending each other dick pics" (Female EM-Bound student)
	"And some of the nurses were criticizing [a 15 or 16 year old female patient who had a miscarried] and speaking about her at the nurses station about how she should be grateful that she's not pregnant anymore... I mean, I've never been pregnant so I can't imagine. And I was really upset that they were talking about her like that so I finally said something and they were pretty snappy back to me as well and kind of reiterated that she should be grateful." (Female EM-Bound student)
Access to mentors, representation and exposure to EM affected interest	
	"... I had,... the opportunity to see some really strong women in emergency medicine. And I think if I hadn't seen that and I just had,...the experience of my residents, for example who are mostly men, I don't know if I would have wanted to do it." (Female EM-Bound student)
	"So I struggled to even find an advisor or somebody who would talk with me or help me out until my M3 year when I finally got into contact with somebody at the main campus where there is an EM program..." (Female EM-Bound student)

8 Towards an Explanatory Framework of Informal and Incidental Learning in Medical Education: A Deductive Analysis of Critical Incidents from Frontline Physicians Working During the COVID-19 Pandemic

Dimitrios Papanagnou, Urvashi Vaid, Henriette Lundgren, Grace Alcid, Deborah Ziring, Karen Watkins, Victoria Marsick

Learning Objectives: Our study aims to describe how emergency medicine physicians engage in and rely on informal and incidental learning when working through the uncertainty of clinical practice.

Background: Informal learning is implicit, organic, and unstructured. Opportunities for informal learning arise in ill-structured, unstable environments where established processes may fail to provide a means of understanding situations or to develop strategies to problem-solve. We examined the Marsick and Watkins Model of Informal and Incidental Learning (IIL) as a framework to describe how physicians learn in the clinical environment, particularly when working through heightened uncertainty.

Objective: Our study aims to describe how emergency medicine physicians engage in and rely on informal and incidental learning when working through the uncertainty of clinical practice.

Methods: A qualitative deductive analysis of physicians' narratives using the critical incident technique was conducted to gain an understanding of the components of IIL. Six frontline emergency medicine and six critical care physicians who worked during the height of the pandemic (March-June 2020) were interviewed. Investigators shortened narratives from recorded, transcribed interviews into cohesive, chronological stories using participants' words. We applied codes from the IIL Model and engaged in constant comparative analysis to identify categories, patterns, and sequences of IIL.

Results: Data suggest that the IIL Model and its components serve as an explanatory framework to describe physicians' learning during uncertainty (Table 1). Consistent with previous research from the non-healthcare sector, the complexity of IIL is captured as cyclical, non-linear, non-sequential and highly intertwined with patient care.

Conclusions: Data from physicians' critical incidents clarifies understanding of IIL when working through clinical uncertainty. The Marsick and Watkins Model offers an explanatory framework for how IIL may guide educational programming that links to stages of IIL to prime students for the learning they will engage in when in clinical practice.

Table 1. Emergency themes of informal and incidental learning.

Informal and Incidental Learning [Marsick and Watkins Model]	Critical Incident Examples
Trigger: Experience Problem or Opportunity	Young COVID+ patient who appears healthy, but with unstable vital signs. Deferring intubation in a COVID+ patient who would otherwise have been intubated. Making patient decisions for patients on behalf of family members with minimal information.
Interpret Trigger in Situational Context	Managing hypoxic patients with low oxygen saturation who are comfortable. Not being sure how to intervene in the setting of COVID.
Examine Alternatives and Select Solutions	Examining options in how to intervene in a patient: intubation vs. chest tube placement vs. fluid resuscitation.
Acquire Required Knowledge and Skills	Revisiting basic lung physiology to consider new treatment modalities and supportive measures. Examining anecdotal information that was being shared on social medial in other cities and countries. Adapting to a workplace that was reconfigured and restructured for COVID+ patients.
Implement Solutions	Applying new protocols and procedures, without having previously performed them. Figuring-out how to don and doff personal protective equipment (PPE) with minimal support.
Assess Consequences (Intended and Unintended)	Consideration that previous, evidence-based interventions could impose new harms. Wishing that a specific intervention was not performed.
Extract Lessons Learned and Plan Next Steps	There is uncertainty in everything. How to communicate management plans to patients and family members when there was no clarity or data to support decisions.
Reframe Context	When encountering new unclear presentations, there is utility in re-evaluating previous treatment strategies. Typical supportive measures prolonged discomfort in patients with COVID.

9 White Coat Study: Gender Bias in Emergency Medicine

Stacey Frisch, Emily Cen, Catherine DeGuzman, Shivani Mody, Arlene Chung

Learning Objectives: Assess the prevalence of self-reported gender bias in EM physicians and strategies in personal care and appearance that are used to overcome them.

Background: Female and nonbinary (NB) emergency medicine (EM) physicians experience gender discrimination. We have limited data regarding how female and NB physicians overcome daily workplace barriers. Gender differences in attire and grooming may be part of a physician's efforts to be appropriately credited as a physician by their patients.

Objectives: Assess the prevalence of self-reported gender bias in EM physicians and strategies in personal care and appearance that are used to overcome them.

Methods: This is an ongoing cross-sectional survey study of EM physicians at a representative sample of eight emergency departments across the U.S. Sites have been selected to represent diverse practice environments. An anonymous survey was developed through expert consensus and distributed electronically via email. Survey participants were asked to rate the frequency over the past one month of which they experienced gender-biased behaviors or engaged in activities to mitigate gender bias. Descriptive statistics and Mann-Whitney U test was used to compare across genders.

Results: Preliminary analysis from a single urban academic center demonstrates an overall 37% response rate (59/159). 51.5% (31/59) of respondents identified as female or NB. 59% (35/59) of respondents were residents and 41% (24/59) attendings. See Table 1 for a detailed description of the frequency of which respondents encountered gender bias or engaged in activities to mitigate bias. Female and NB physicians reported experiencing sexist remarks and/or behavior by patients or their family members more often than male physicians. Additional results will be available at the time of the CORD AA to include data from other sites.

Conclusions: Early results demonstrate that female and NB physicians engage in more activities to reduce gender bias. These activities represent an additional mental burden and time commitment that may contribute to gender disparities in salaries, hiring practices, and retention.

Table 1.

In the past month, how often have you…	Gender		
	Female/NB	Male	p-value
Been referenced as something other than a physician (mid-level provider, technician, food services	3 (3 - 4)	2 (1 - 2)	<0.001
Felt the need to correct a patient or family member when referenced as something other than a physician (mid-level provider, technician, food services	4 (3 - 4)	2 (1 - 2)	<0.001
Addressed yourself as the doctor more than once throughout each encounter	4 (3 - 4)	2 (1 - 2)	<0.001
Felt the need to wear a white coat	1 (1 - 2)	1 (1 - 1)	0.149
Wore the white coat for reasons other than to be properly acknowledged as the physician	1 (1 - 1)	1 (1 - 1)	0.734
Felt the need to wear business casual (or professional) clothing	1 (1 - 2)	1 (1 - 1)	0.39
Felt the need to wear scrubs	4 (3 - 4)	4 (1 - 4)	0.146
Felt the need to wear at least one type of make-up (eye-liner, mascara, concealer, etc.)	3 (2 - 4)	1 (1 - 1)	<0.001
Felt the need to do something special with your hair (straighten, curl, pony tail, cut short, spike, gel to side, etc.)	2 (1 - 3)	1 (1 - 1)	0.002
Felt the need to have a manicure/unchipped nail polish	2 (1 - 3)	1 (1 - 1)	<0.001
Felt the need to shave/trim your facial hair	1 (0 - 1)	2 (1 - 3)	<0.001
Unwillingly called something other than your formal title of "doctor" (sweetheart/honey/dear/cutie)	3 (3 - 3)	2 (1 - 2)	<0.001
Felt frustrated or disappointed when unwillingly called something other than your formal title of "doctor" (sweetheart/honey/dear/cutie)	4 (3 - 4)	1 (1 - 2)	<0.001
Experienced sexist remarks and/or behavior by patients or their family members	3 (3 - 4)	1 (1 - 1)	<0.001
Been told during shift you should be home with your family (husband, wife, children, etc.) instead of working	1 (1 - 2)	1 (1 - 1)	0.019
Encountered your role being confused with that of an opposite gender colleague's (eg. Female resident confused for YOUR male attending position, male attending confused for YOUR female resident's position)	3 (2 - 4)	1 (1 - 2)	<0.001
Enlisted the help of an opposite gender colleague to discuss a topic of concern with a patient or their family member because you feel it will have more of an effect at relaying your message	2 (1 - 3)	1 (1 - 2)	0.041
Asked what medical school you attended	2 (1 - 2)	2 (1 - 3)	0.364
Key: Always = 4, Sometimes = 3, Occasionally = 2, Never = 1, N/A = 0			
All variables summarized with median and 25th-75th percentile, and compared across groups with the Mann-Whitney U test			

Table 2.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The distribution of Been referenced as something other than a physician (mid-level provider, technician, food services is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
2	The distribution of Felt the need to correct a patient or family member when referenced as something other than a physician (mid-level provider, technician, food services is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
3	The distribution of Addressed yourself as the doctor more than once throughout each encounter is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
4	The distribution of Felt the need to wear a white coat is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.149	Retain the null hypothesis.
5	The distribution of Wore the white coat for reasons other than to be properly acknowledged as the physician is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.734	Retain the null hypothesis.
6	The distribution of Felt the need to wear business casual (or professional) clothing is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.39	Retain the null hypothesis.
7	The distribution of Felt the need to wear scrubs is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.146	Retain the null hypothesis.
8	The distribution of Felt the need to wear at least one type of make-up (eye-liner, mascara, concealer, etc.) is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
9	The distribution of Felt the need to do something special with your hair (straighten, curl, pony tail, cut short, spike, gel to side, etc.) is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.002	Reject the null hypothesis.
10	The distribution of Felt the need to have a manicure/unchipped nail polish is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.

Best Of Best Innovation Abstracts

1 Amazing & Awesome: Incorporating Positive Case-Based Discussion in Emergency Medicine Residency Curriculum to Improve Learning and Team Morale

Jessica Smith, Al'ai Alvarez

Learning Objectives: 1. Discuss and analyze cases with exemplary team performance using root cause analysis and case reflection. 2. Demonstrate the importance of clinical learning opportunities from successful cases in medical education (Safety-II Thinking). 3. Value positive clinical cases to boost team morale

Introduction: While M&M has long been part of residency training, few programs dedicate time to highlight above-and-beyond patient care. With this learning gap identified, the Amazing and Awesome (A&A) didactic series was created and implemented. While Saves-of-the-Month awards recognize exemplary care, A&A provides a deeper inspection of the cases. Literature review of other programs with A&A focused on reframing the culture of medicine from Safety-I thinking (reacting to errors) to Safety-II thinking (learning from resilient systems and successful interventions). Currently, there is no data available to assess its perceived value by residents in their education or its impact on morale.

Objectives: as above

Curricular Design: At the Stanford EM residency program, we incorporated a monthly 30-minute session into our didactic curriculum. Two residents present the A&A case chosen as a "Save of the Month," focusing on the contributions of the entire healthcare team-physicians, nurses, techs, pharmacist, consultants, etc. Each resident describes the case, highlighting key concepts, critical actions by the care team, and other contributing systems processes that led to the "Save" or exemplary performance. The resident shares the framework as clinical pearls for colleagues to apply in similar challenging clinical scenarios. After 6 total sessions, a survey was administered to residents to evaluate their perceived value of the didactics in their education. Ultimately 26/60 residents completed the survey. Unanimously, 100% of respondents reported A&A was a valuable addition to their curriculum, and 96% of respondents voted to keep A&A in the curriculum. Many comments focused on A&A's positive impact on residency morale.

Impact/Effectiveness: Our resident response to the Amazing and Awesome didactics in GME helps identify a gap in potential learning opportunity and potential morale improvement, and this series could easily be implemented by other programs.

2 Development of a Rigorously Designed Procedural Checklist for Emergent Cricothyrotomy for Assessment of Emergency Medicine Resident Performance

Andrew Rogers, Dana Loke, Maren Leibowitz, Elizabeth Stulpin, Morgan McCarthy, David Salzman

Learning Objectives: The objective was to create an assessment tool for emergent cricothyrotomy using best practice checklist development and expert consensus.

Introduction/Background: Emergent cricothyrotomy is an infrequently performed, potentially life-saving procedural skill that is essential for emergency physicians to master during residency training. However, opportunities for real-life exposure to perform this procedure during residency is rare and ensuring emergency medicine graduates can perform this procedure correctly is essential. For rare, invasive procedures such as cricothyrotomy, checklist simulation assessments allowing for objective measures are best practice for competency based medical education. However, the literature for performing emergency cricothyrotomy is descriptive, not inclusive of evaluative checklists, and lacking a checklist that allows for multiple cricothyrotomy techniques.

Educational Objectives: The objective was to create an

assessment tool for emergent cricothyrotomy using best practice checklist development and expert consensus.

Curricular Design: After an initial checklist was created based on literature review, a modified Delphi approach was used to design a final checklist. A multidisciplinary panel of 13 experts, including emergency medicine physicians and trauma surgeons, reviewed the initial checklist. Feedback was reviewed and subsequent iterations of the checklist were reviewed by the same panel of experts until final consensus of a 27 item dichotomous checklist was achieved.

Impact/Effectiveness: After 3 rounds of revisions, a rigorously developed procedural checklist for emergent cricothyrotomy was created (Figure A). To reach consensus, the checklist included options for several acceptable techniques to correctly perform the procedure. This adds to previously published work by developing a rigorously designed, versatile dichotomous procedure checklist that accounts for various techniques. This checklist can serve as a foundation for the development of a curriculum to ensure graduating residents can correctly perform this critical task prior to graduation.

Figure A. Emergency cricothycotomy checklist.

Step	Task	Performed?	
"You receive a pre-arrival call that EMS is transporting a patient that has extensive facial fractures and is difficult to bag. You anticipate a difficult airway and plan to set up for a cricothyrotomy as back-up. Please indicate the supplies you need to perform an emergent cricothyrotomy." NO additional prompts other than the above statement may be given to learners with regards to gathering specific supplies (e.g. - do not state, "are there any other supplies you would like to get?").			
Part I – Preparation *(in order to be correct, items 1-5 must be performed before incision)*			
1	**Gathers sterile supplies:** ❑ **Betadine** ❑ **Sterile gloves** ❑ **Eyewear** ❑ **Mask** Must verbalize all materials listed above to be correct.	**Yes**	**No**
2	**Gathers primary cricothyrotomy procedure supplies:** ❑ **Scalpel** ❑ **6.0 ETT and/or trach** Must gather both scalpel and either ETT or trach. May ask for two scalpels.	**Yes**	**No**
3	**Gathers secondary/supplemental cricothyrotomy procedure supplies.** Correct if – asks for any of the following equipment (Trousseau dilator, tracheal hook, Bougie, hemostat) OR uses scalpel and tube only for procedure. Incorrect if asks for additional equipment at any point after incising the neck. *Prompt: If proceduralist asks for cric kit, ask them what should be included in the kit.*	**Yes**	**No**
4	**Gathers supplemental intubation supplies:** ❑ **Yankauer** ❑ **Suction tubing** ❑ **10 cc syringe** ❑ **BVM** ❑ **ETT/trach holder or tape or sutures** ❑ **Colorimetric or waveform capnography** Must verbalize all materials listed above to be correct.	**Yes**	**No**
5	**Washes hands.** Correct if: Uses soap/water or uses alcohol/sanitizer	**Yes**	**No**

3 Improving Student Documentation in the Emergency Department

Jonathan Brewer, Emily Gohde, Justin Doroshenko, Brooke Atkinson, Joshua Lindsley, Shannon Burke, Adaom Goodcoff, Deena Khamees, Matt Ledford, Christine Kulstad, Mary McHugh

Learning Objectives: Demonstrate a curriculum designed to teach medical students how to successfully write the medical decision making portion of the emergency medicine note.

Introduction: Documentation is an essential component of patient care in the emergency department (ED). Although students are taught the general rules of note-writing prior to clerkships, the emergency medicine (EM) note differs from most rotations. There is a need to teach the specifics of documentation of the EM note to medical students. The Emergency Medicine Residents' Association (EMRA) Education Committee created a curriculum to teach formal documentation to medical students.

Educational Objective: Create a curriculum designed to teach medical students how to successfully write the medical decision making (MDM) portion of the EM note.

Curricular Design: Our curriculum design assumes that all senior medical students were taught the basics of writing a history and physical. Therefore, we primarily focused on teaching the MDM portion of the EM note. Following IRB approval and consent from the 55 students in our study, each student filled out a survey about their previous experience with documentation in the ED (Image 1). Next, students watched a video of a complete simulated patient encounter in order to assess their baseline ability to document a formal MDM that included the ED course and disposition. These notes were then graded on a rubric (Image 2) by a resident physician at each site who was a member of the curriculum development team to ensure standardization. Students were then given access to the EMRA documentation template and video. After the educational intervention, students documented a new MDM based on a different video encounter and were graded again.

Impact/Effectiveness: We found that a documentation curriculum significantly improved students' MDM documentation. Repeated measures ANOVA revealed a strong effect on MDM Documentation scores [$F(1, 38) = 72.547$, $p < .001$, $\eta p2 = .656$], demonstrating that MDM documentation statistically improved after the training curriculum and that implementation improves student documentation in the ED.

All data will be kept completely confidential within a secure server and will not be shared with anyone other than internal EMRA Education Committee affairs

Age: _____

Year (Circle One): MS-II / MS-III / MS-IV

Degree Type (Circle One): MD / DO / IMG / Other

What number (first, second, third, etc) EM clerkship is this for you?: _____

Location of Clerkships Completed (including current): _____

Did you work as a scribe prior to medical school? Yes/No
If yes, did you work in the ED or another capacity? ED/other (with open explanation)

Previous EM Scribe/EMS/Nursing Experience: Yes/No
If so, how long? _____ months/years (Circle One)
In what capacity? _____ (i.e. RN/Paramedic/Scribe/other)

How many notes have you written so far during your current clerkship?
None / 1-2 / 3-4 / 5-6 / 7-8 / 9+ / N/A (We do not write notes on our clerkship)

Image 1. EMRA documentation sruvey.

Student Name: **Resident Grader:**

	1	2	3	4	5
MDM	May or may not include a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course May/may not justify the final disposition	Provides a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course May/may not justify the final disposition	Provides a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course Justifies the final disposition	Provides a brief summary Provides an adequate DDx including some reasoning for ruling in/out major life-threatening diagnoses Provides an ED course Justifies the final disposition	Provides a brief summary Provides a thorough DDx including strong reasoning for ruling in/out major life-threatening diagnoses Provides an ED Course Justifies the final disposition

Comments:

Image 2. EMRA emergency medicine clerkship note rubric.

4 Task Trainer Augmented Joint Reduction Training

Jeremy Riekena, Kent Li, Justin Wang, William Chan, Richard Shin, Victor Huang

Learning Objectives: To investigate whether augmenting joint reduction education with 3D printed task trainers will offer a learning benefit when paired with traditional teaching methods using lectures and videos. The application is focused on EM residents with potential expansion to surgical subspecialties.

Introduction: Prior studies and EM training programs have called for the need for innovation in the realm of orthopedic education. When compared to other core skills developed during EM residency, joint reductions are relatively infrequent. The development of 3D printing technology offers an opportunity for the development of task trainers to supplement resident experience. There are no current 3D printed task trainers available for joint reductions. We developed a series of 3D printed joint models with orthopedic curriculum to supplement exposure to dislocation reductions to improve emergency medicine residents' preparedness, confidence, and competency in joint dislocation reductions. Models were designed to create tension and tactile feedback upon reduction. The supplemental curriculum summarized patient evaluation, anatomy, and techniques.

Curricular Design: We utilized the trainers in simulation sessions with reductions taught using Peyton's 4 step approach, and competency assessed through Miller's pyramid educational theory. A likert type survey was administered to assess resident learning, preference in teaching style, and confidence in reduction techniques. Baseline experience data was collected to assess prior clinical experience. Learning retention will be assessed during the follow up skill session. Given the variety of joints designed, we divided sessions to include 1-2 joints at a time. This allowed for more focus on specific joints as well as space repetition across multiple sessions throughout the academic year.

Impact/Effectiveness: The current set of data strongly supports the utilization and integration of 3D models into the education of emergency medicine residents in joint dislocation reductions. The vast majority of resident learners found benefit in the inclusion of 3D printed joint models. Although most learners preferred the 3D printed models compared to traditional teaching methods, we advocate for an integrated teaching model rather than choosing only one teaching technique.

Image 1.

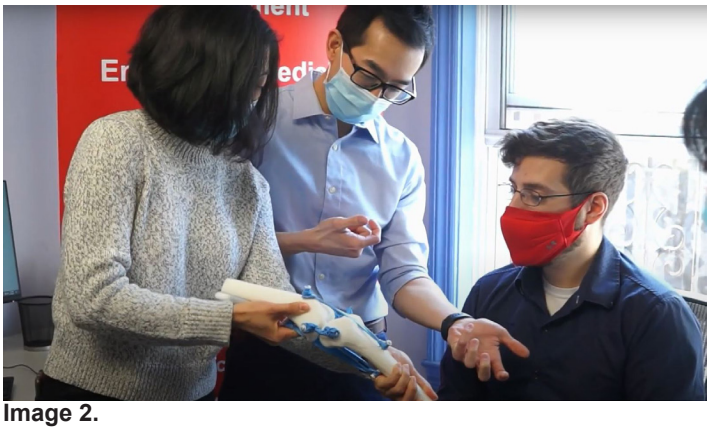


Image 2.

5 Teaching Palliative Care to Emergency Medicine Residents Using Deliberate Practice-Based Simulation Format: LIVE DIE REPEAT

Jessica Stanich, Alexander Ginsburd, Caitlin Loprinzi-Brauer, Cory Ingram, Fernanda Bellolio, Kharmene Sunga, Daniel Egan

Learning Objectives: 1. Recognize a new format to teach end-of-life care. 2. Review the perception of learners using a serious-game framework to learn rapid discussion about goals of care.

Introduction: Emergency departments (ED) care for many patients who are chronically ill and nearing end of life. Establishing goals of care and code status in the ED is an essential skill for Emergency Medicine (EM) residents but is challenging to teach.

Educational Objectives: To develop EM residents' ability to: 1) identify patients in need of a goals-of-care discussion; 2) interpret advance care planning documents; 3) efficiently conduct an informed code status discussion; and 4) manage the actively dying patient.

Curricular Design: High-fidelity simulation was utilized to replicate the experience of caring for a critically-ill patient in the high-stress ED environment. The scenario involved a live standardized patient with stage 4 pancreatic cancer presenting with sepsis due to pneumonia and who had the goal of comfort-focused care. The simulation utilized the Live-Die-Repeat format, which is a serious-game scheme in which learners are allowed infinite opportunities ("lives") to progress through a single patient scenario. If learners complete the predetermined critical actions, the game is paused and there is a debriefing to reinforce knowledge and skills before resident's progress to the next stage of the simulation. Conversely, if learners do not complete critical actions, the game is over and learners must undergo remedial debriefing before they repeat the scenario they previously failed.

Impact/Effectiveness: Eighty percent (16/20) of the residents completed a Simulation Effectiveness Tool-Modified survey and 100% strongly or somewhat agree the simulation improved their skills and confidence at the end of life including: better prepared to respond to changes in condition, more confident in assessment skills, teaching patients, reporting to the medical team, empowered to make clinical decisions, and ability to prioritize care and interventions (Figure). Comments emphasized the impact of simulation on their ability to have a goal of care discussion (Table).

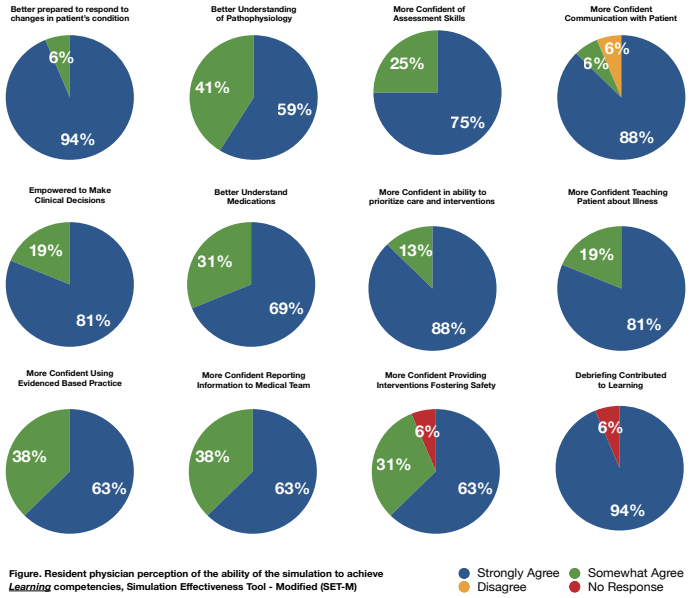


Figure.

Table. Resident physician participant comments.

Resident Physician	*Comments*
1	Excellent SIM, highly valuable and applicable to personal and professional life
2	This simulation was incredibly useful to help learn strategies to facilitate goals of care discussion and end of life care. It has significantly improved my confidence in addressing end of life discussions and helping patient and families through end of life discussion and care.
3	Absolutely fantastic session. So well organized, loved the live die repeat format, LOVED the special guests and their contributions, and the entire discussion was so thoughtful and supportive. Absolutely loved it.
4	The framework provided for addressing palliative care in the ED was helpful. Some of the phrasing like "best care possible" was also helpful.
5	This was an outstanding simulation of a vital and commonly encountered but uncommonly taught scenario. Palliative care skills are rarely tested on paper but are among the most valuable skills to improve for the benefit of our patients, our patients' families, the teams we lead, and ourselves.
6	It was such a unique opportunity to learn that we are so grateful to have had during residency. It is training that is crucial to our curriculum!
7	What an incredible experience overall. I never anticipated learning so much about palliative care in one day. You definitely sparked an interest in me in something that I previously hadn't thought much about. Thank you all for taking the time to put this together
8	Very effective to increase my skills to have meaningful goals of care discussion.
9	It was fantastic.
10	Thank you for focusing on this often-neglected part of patient care. Just the next shift after my SIM I had 2 opportunities to put what I learned into action, to the patient's benefit. It makes me think of how many opportunities I may have missed before the SIM gave me the confidence, tools, and scripting for these end of life decisions.
11	It was an excellent way to hone in on the difficulties of end of life care in the emergency department. Far better than any lecture could have ever been.

6 The Social Emergency Medicine Mini-Curriculum: A Novel, Multifaceted Immersive Approach to Resident Education in Social EM

Erin Shufflebarger, Melissa Willett, Sylvia Sontheimer, Sherell Hicks, Charles Khoury, Lauren Walter

Learning Objectives: 1) To design, implement and evaluate the feasibility of a replicable multifaceted Social EM curriculum for EM residents 2) To increase EM residents' level of awareness related to Social EM and increase their ability to identify/intervene on social determinants of health in clinical practice

Background: Emergency Medicine (EM) physicians are in a unique position to impact both individual and population health needs. Despite this, EM residency training lacks a formalized education on social determinants of health (SDoH) and social EM (SEM). The need for such a curriculum has been previously recognized, however there is a gap in the literature related to the feasibility of such a curriculum addition. This innovation seeks to address this need.

Curricular Design: A taskforce of EM clinician-educators with expertise in SEM developed a 4.5-hour educational curriculum for use during a single Emergency Medicine resident didactic block (1/2-day session). The curriculum (Table 1) included asynchronous learning via a podcast, four SEM subtopic lecture didactics, guest speakers from ED social work and a community outreach partner representative, and a poverty simulation with interdisciplinary debrief. The curriculum was delivered via videoconference due to COVID-19 restrictions. Pre- and post-curricular intervention participant surveys were obtained.

Impact: Post-survey results (Table 2) demonstrated improved awareness of SEM concepts and increased confidence in participant's knowledge of community resources and ability to connect patients to these resources following the curricular intervention. In addition, post-survey assessment demonstrated significantly heightened awareness and clinical consideration of SDoH among participants and increased comfort in identifying social risk in the ED. Overall, all components of the curriculum were evaluated as meaningful and specifically beneficial for EM training. The community partner presentation and subtopic lectures were ranked highest, followed closely by the poverty simulation, ED social services presentation, and asynchronous podcast component. This pilot curricular integration study demonstrates the feasibility and perceived participant value of incorporating a SEM curriculum into residency training.

Table 1. Social emergency medicine mini-curriculum.

Component	Description	Time allotted
1. Pre-didactic asynchronous learning	Announce Podcast "Episode 4 – Social Determinants of Health and Unmet Needs in the Emergency Department" https://www.socialempact.com/announce-podcast/sdoh	30 minutes
2. Sub-topic Lectures	PowerPoint slide presentations 1. Intro to SEM/Asynchronous Debrief 2. Incarceration 3. Firearm Violence 4. Homelessness	60 minutes (10-15 minutes each)
3. Guest speaker from community partner	The executive director of a local homeless shelter spoke about the many resources provided by this shelter as well as about the population that the shelter serves and the interaction between this population and the medical community.	30 minutes
4. ED care coordination presentation	Members from the ED Care Coordination and Social Services team spoke about available resources for ED patients and how providers can connect patients with these resources	30 minutes
5. Poverty simulation	Led by the UAB Office of Interprofessional Simulation, the Poverty Simulation introduces participants to the realities of poverty. While this simulation is typically an in-person event, given COVID restrictions, an online interactive simulation, SPENT, was used and the interprofessional debriefing took place by video conferencing. SPENT online poverty simulation: http://playspent.org	2 hours
6. Service Activity	Deferred due to COVID restrictions	-----

Table 2. Survey results, [n(%)].

Survey question	Pre-survey response (n=32)	Post-survey response (n=18)
The Emergency Department (ED) is an appropriate venue to connect patients with community resources. Strongly agree/Agree Strongly disagree/Disagree	 30 (93.75) 2 (6.25)	 17 (94.44) 1 (5.56)
I feel comfortable identifying social need (ex: homelessness, food insecurity) in the ED. Strongly agree/Agree Strongly disagree/Disagree	 28 (87.50) 4 (12.50)	 17 (94.45) 1 (5.56)
I feel comfortable identifying social risk (ex: risk of worse health outcome for certain race) in the ED.* Strongly agree/Agree Strongly disagree/Disagree	 24 (75.00) 8 (25.00)	 17 (94.45) 1 (5.56)
I have been trained to identify and intervene on social determinants of health (SDoH).* Strongly agree/Agree Strongly disagree/Disagree	 10 (31.25) 22 (68.75)	 14 (77.78) 4 (22.22)
I am aware of and familiar with local community resources to address social determinants of health.* Strongly agree/Agree Strongly disagree/Disagree	 18 (56.25) 14 (43.75)	 16 (88.89) 2 (11.11)
I feel confident in my knowledge about community resources and ability to connect patients to them.* Strongly agree/Agree Strongly disagree/Disagree	 8 (25.00) 24 (75.00)	 15 (83.33) 3 (16.67)
I frequently encounter patients in the ED with social need that impacts their health. Strongly agree/Agree Strongly disagree/Disagree	 31 (96.88) 1 (3.13)	 18 (100.00) 0 (0.00)
I frequently encounter patients in the ED with social risk that impacts their health. Strongly agree/Agree Strongly disagree/Disagree	 31 (96.88) 1 (3.13)	 18 (100.00) 0 (0.00)
I frequently consider SDoH when providing treatment for my patients in the ED.* Strongly agree/Agree Strongly disagree/Disagree	 21 (65.63) 11 (34.38)	 17 (94.45) 1 (5.56)

*$p<0.05$

7 Time to Dust Off Your Passport: A Roadmap to Enhance Your Path to the EM Workforce

Lauren McCafferty, Zeinab Shafie-Khorassani, Matthew Stull

Learning Objectives: The goal of this project was to promote early professional and clinical development of residents by creating a well-organized, visually-appealing roadmap of co-curricular requirements to augment resident training and provide a well-rounded residency experience.

Background: With the rapid growth of EM as a specialty and an increasing number of accredited residency programs, EM has become increasingly more competitive. EM physician workforce projections are daunting, particularly to current and future trainees. The prospect of securing a desirable and fulfilling job after residency is becoming exceedingly more uncertain, even with fellowship training. While there are evolving larger-scale initiatives to address this, an onus falls on individual trainees and their residency programs to improve resident skillset and marketability.

Curricular Design: Core faculty from various EM subspecialties proposed unique learning experiences within their respective areas of expertise to enhance resident training. Determined by educational benefit, feasibility, and potential impact, the co-curricular requirements were compiled into the Resident Citizenship Passport (Image 1), a visual roadmap organized by subspecialty and class year. This provides EM residents with opportunities to augment their skills as well-rounded EM physicians and educators. It includes elements of experiential learning through concrete learning experiences and encourages learners to reflect on their experiences to create new educational content. Social cognitive learning methods facilitate close interaction with faculty members and staff, leading to early mentorship and timely professional development. A slight modification of requirements was made for senior residents as this was implemented amidst their training. Progress is actively tracked through a google sheet, which residents can continually view.

Impact/Effectiveness: While still in a pilot phase, this innovation has been easily implemented and well-received by the residents, as it lays out the requirements in a centralized, organized, and visually-appealing graphic. This has also unexpectedly incentivized residents to fulfill requirements by inspiring an element of competition amongst one another.

Image 1.

8 Effectiveness of a collaborative, virtual outreach curriculum for 4th year EM-bound students at an HBCU

Nicholas Hartman, Richard Carter, Cortlyn Brown, Lynne Holden, Ava Pierce, Emily MacNeill, Marquita Norman

Learning Objectives: We sought to 1) teach the approach to core complaints in EM, 2) teach key skills in EM, 3) de-mystify the process of applying to an EM residency program, and 4) connect students with residents and faculty in the field of EM.

Introduction/Background: Despite having a diverse patient population, emergency medicine (EM) remains among the medical specialties with the lowest number of residents and attendings underrepresented in medicine (URiM). Increasing awareness of the field of EM in medical schools that are affiliated with Historically Black Colleges and Universities (HBCUs) is one way to increase the pipeline of URiM in EM. Currently,

however, there are zero HBCUs with academic emergency medicine departments. As representatives of four departments of EM, we partnered with one HBCU to attempt to fill this gap for EM-interested students on their 4th year EM home rotation.

Educational Objectives: We sought to 1) teach the approach to core complaints in EM, 2) teach key skills in EM, 3) demystify the process of applying to an EM residency program, and 4) connect students with residents and faculty in the field of EM.

Curricular Design: Educational objectives were developed in conjunction with the faculty advisor to the 4th year EM rotation. We created a 4-week didactic program, with content organized into weekly 4-hour blocks, each led by a different department of EM, on a virtual, interactive platform. Content was mapped and coordinated, pre-reading was assigned and each day included a mix of clinical topics and "advising" sessions.

Impact/Effectiveness: A post-curricular survey found universal agreement from students on whether the curriculum was effective in meeting the above goals. Narrative feedback from students highlighted the value of meeting with faculty and residents from different programs, and from going through cases in real time. Informal feedback from supervising faculty at the host-institution was also very positive, particularly in terms of readying students for away rotations. Although our program was targeted towards students at one HBCU, it could be expanded to any medical school without an academic emergency medicine department.

Table 1. Curriculum overview.

Date	July 27th 8a-noon EST	Aug 3rd 8a-noon EST	Aug 9th 9a-1p EST	Aug 18th 8a-noon
Lecture Topics	Personal Statement	Presentation skills (H&P, differentials, etc.)	How to choose the right program for you	Application and Interviewing Process
	Chest pain	Altered Mental Status	Tox Overview	Headache
	Shortness of breath	Abdominal Pain	Shock/ Sepsis	GU emergencies
	X-rays	EKG intro	Vaginal Bleeding	Endocrine/ Electrolytes/ Hyperglycemia
	Social EM (Substance abuse, Verbal de-escalation, etc.)	US Basics	ATLS	ACLS/ BLS

Table 2. Post-curricular survey results. N=3 responses (11 total students surveyed).

Question	*These sessions helped me learn the approach to core emergency medicine topics (abdominal pain, chest pain, headache, etc) moreso than I would have been able to do on my own.*	*These sessions helped me learn key skills for excelling in an emergency medicine rotation, including oral presentations, EKG interpretation, x-ray interpretation and ultrasound, moreso than I would have been able to do on my own.*	*These sessions helped me learn about the process of applying to and selecting an EM residency program.*	*These sessions allowed me to connect with faculty and resident mentors to learn more about the field of emergency medicine*
Options	Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree	Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree	Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree	Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree
Responses	100% "Strongly Agree"	100% "Strongly Agree"	66% "Strongly Agree," 33% "Agree"	100% "Strongly Agree"

Research Abstracts

1 Resident Clinical Exposure Variability at Graduation

Benjamin Schnapp, Lauren McCafferty, Corlin Jewell, Dann Hekman, Aaron Kraut

Learning Objectives: To quantify individual differences in resident clinical exposure during training at a 3-year academic emergency medicine residency.

Background: Experiential learning theory suggests that clinical exposures during residency are critical to developing expertise. Research in other specialties has shown significant individual differences in resident clinical exposures during training, but this has not been recently evaluated in emergency medicine (EM).

Objective: To quantify individual differences in resident clinical exposure during training at a 3-year academic emergency medicine residency.

Methods: We performed a retrospective review of electronic health records from 2013-2021 at our main clinical site (of four) to quantify the number and type of clinical encounters seen by each resident. Visits were attributed to the first assigned resident. We included data from residents who completed all three years of residency consecutively. We categorized primary patient chief complaints according to the 20 domains of the ABEM Model of Clinical Practice following a published consensus method with EM faculty. We calculated and reported descriptive statistics.

Results: We collected data from 70 residents. Means and ranges of exposures in the top 10 most commonly identified domains are displayed in Figure 1.

Conclusions: We found variability in resident clinical exposures at our primary training site. Residencies may benefit from examining resident clinical exposures to identify opportunities for individual resident improvements.

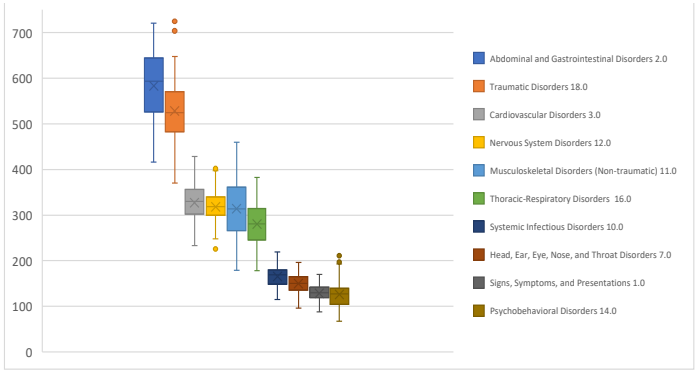


Figure 1. Top 10 most common clinical exposure domains seen by graduation, 2013-2021.

2 Don't Break Their Hearts - Discharging Patients with Moderate Risk HEART Scores from the Emergency Department

Nadia Lehtihet, Allison Becker, Jessica Waters, Rory Spiegel, Rahul Bhat

Learning Objectives: To undertake an ED focused quality improvement initiative to allow for resident education in the fundamentals of research inquiry and study design and to provide experience in drafting research proposals, IRB submissions, medical abstracts and final manuscripts.

Background: Identifying patients at low risk for clinically relevant adverse cardiac events (CRACE) has the potential to decrease unnecessary hospitalizations. Earlier studies have shown that patients discharged with non-ischemic ECG and modified HEART (History, ECG, Age, Risk Factors, Troponin) score ≤3 had no deaths, acute myocardial infarctions (MI), or coronary revascularization events at 30 days. New observational data suggest the rate of CRACE for patients classified as moderate-risk by HEART score of 4-6 may be similarly low.

Objective: To determine the incidence of CRACE in patients discharged with a moderate-risk HEART score.

Methods: We reviewed ED visits involving adults presenting to an urban teaching hospital in Washington, DC. A prior quality improvement project determined the low overall rate of CRACE in patients with 2 negative 4th generation troponins, allowing clinicians to discharge patients with a HEART score of 4-6. This study was an analysis of patients with inclusion criteria of: (1) primary diagnosis code of chest pain for either ED reason for visit or discharge, (2) HEART score of 4-6, and (3) discharge from December 1, 2019 to March 15th, 2020.

Outcomes: The primary outcome was the 30 day rate of CRACE, defined as all-cause mortality, STEMI, fatal arrhythmia, and cardiopulmonary arrest. Secondary outcome was the rate of NSTEMI within 30 days of ED visit.

Results: 298 patients with HEART score 4-6 were discharged. 296 of 298 patients were alive with no recorded events at 30 days. Two patients had no available follow up data. Overall, the CRACE rate was 0% and NSTEMI rate was 0.34% within 30 days of discharge. One discharged patient followed up with cardiology and prior to arranged stress testing, re-presented with worsening chest pain and was found to have NSTEMI.

Conclusion: CRACE and NSTEMI are exceedingly rare within 30 days of ED discharge for patients with a moderate risk HEART score.

Table 1. Class average RVUs/hour.

	Number of resident data points	Mean	SD
PGY1	10	1.97	0.26
PGY2	20	2.67	0.77
PGY3	30	3.35	0.36

Table 2. Longitudinal mean RVUs/hour per class.

	2020 – 2021	2021 – 2022 (YTD)
PGY 3 - will graduate 2022	1.85	2.28
PGY 2 - will graduate 2023	1.23	2.89

3 Emergency Medicine Resident RVU Trends at an Academic Medical Center

Meredith Von Dohlen, Lauren Evans, Meryll Bouldin, Amanda Young, Sarah Greenberger, Rachael Freeze-Ramsey, Travis Eastin, Carly Eastin

Learning Objectives: To determine average RVUs per hour for emergency medicine residents at a tertiary-care, university-based academic medical center and to characterize change in mean RVUs per hour as residents advance in training.

Background: Physician productivity is often reported in relative value units (RVU). However, RVUs are infrequently reported during residency. Studying RVUs in varied training settings may better define benchmarks for progression of resident productivity.

Methods: This was a retrospective, observational study of PGY 1-3 residents at an academic, tertiary-care center. PGY2s and PGY3s were considered equivalent in shift scheduling and responsibilities. From 07/2019 to 09/2021, RVUs were extracted from the electronic health record (Epic) using E&M billing codes (excluding procedures, which were not tied to specific residents). In the PGY1 year and continuing longitudinally, residents received individual productivity reports. Individual metrics were de-identified, coded, and analyzed.

Results: The primary outcome was the measure of mean RVUs/hr per resident overall and by class. Secondary outcomes were the change in RVUs/hr between classes at the end of each year, as well as the change in RVUs/hr for the same class year to year. Descriptive statistics were reported in mean with standard deviations. One-way ANOVA was used to determine if PGY-level had a significant effect on RVUs generated; the remainder of comparisons were made with student's t-test. 60 RVU data points were obtained, representing 40 residents. Two classes were followed longitudinally (Table 2). Overall mean RVU/hr per resident was 2.89 RVU/hr (SD 0.89). Mean RVU/hr per resident for PGY1s, PGY2s, and PGY3s were 1.97 RVU/hr (SD 0.26), 2.67 (SD 0.77), and 3.35 (SD 0.36) respectively. Class year was predictive of RVUs generated ($p<0.001$). There was no significant difference in RVUs within a single class from PGY2 to PGY3 ($p=0.528$), but there was a significant increase from PGY1 to PGY2 ($p<0.001$).

Conclusion: Resident RVUs in our academic ED were associated with training year, but longitudinally, the only statistically significant increase was from PGY1 to PGY2.

Limitations include ongoing effects of the COVID-19 pandemic on productivity.

4 Exposure of Emergency Medicine Clerkship Students to Psychiatric Emergencies

Connor Knowles

Learning Objectives: To determine if a dedicated didactic and clinical curriculum in psychiatric emergency care would improve medical student comfort and perceived ability to assess psychiatric emergencies. It is believed these parameters would increase with this intervention.

Background: Medical students rotating in the emergency department (ED) are often discouraged or otherwise limited from seeing patients with psychiatric emergencies. Little is known about students' perceived preparedness and comfort levels in the assessment of individuals with acute mental health related complaints.

Objectives: To determine if a dedicated didactic and clinical curriculum in psychiatric emergency care would improve medical student comfort and perceived ability to assess psychiatric emergencies. It is believed these parameters would increase with this intervention.

Methods: Over a 10-month study period, students rotating in an Emergency Medicine (EM) clerkship at a large community-based ED received 1-2 hours of EM attending-led psychiatric case-based discussions in addition to an 8-hour clinical experience with the ED behavioral health team, assessing a wide scope of behavioral health emergencies. An identical pre-and post-rotation 10 question survey (1-10 Likert scale) was given regarding their comfort level and perceived abilities to assess aspects of this patient population. Statistical assessment was performed utilizing the Wilcoxon signed rank test.

Results: Seventeen students completed this voluntary study to completion seeing a mean of 4.8 patients during their 8-hour clinical experience, about 60% presenting with acute suicidal ideation. A mean improvement in the Likert scale was noted in "comfort in evaluation and interviewing" [+1.82 ($p<0.01$)], "decision-making for appropriate disposition" [+2.41($p<0.01$), and "screening for acute suicidal risk" [+1.76 ($p<0.01$)]. Similar improvement patterns of these parameters were also shown for complaints of acute mania and acute psychosis.

Conclusion: Focused education and exposure to patients with psychiatric emergencies had a positive impact on medical students' perception of their ability to assess and manage this population. This may lead to greater preparedness among incoming EM residents.

5 High sensitivity troponin - 6 hours is the magic number

Omoyemen Blue, Michael Nguyen, Huyen-Trang Thai, Hayley Harvey, Maria Cacciapuoti, Rory Spiegel, Rahul Bhat

Learning Objectives: We wanted to assess whether emergency department (ED) patients presenting with chest pain with a high sensitivity troponin under the 99th percentile drawn at 6 hours or greater after symptom onset could safely be discharged from the ED.

Background: High sensitivity troponin (hsT) assays have become widespread for emergency department (ED) evaluation of acute chest pain. Several studies have demonstrated safety of a "rapid rule-out" strategy, evaluating initial hsT with repeat testing at 1-2 hours. A small number of patients can be discharged using this strategy while the most patients have a detectable hsT level and require a prolonged workup.

Objective: We assessed if a hsT under the 99th percentile drawn at 6 hours or greater from symptom onset could safely rule out patients.

Methods: We conducted a multicenter retrospective study examining ED patients with chest pain who did not meet rapid-rule out criteria and were admitted for further evaluation. Among these admitted patients, we assessed the rate of clinically relevant acute cardiac events (CRACE) and NSTEMI in patients with hsT less than 99th percentile (34 ng/mL in females, 53 ng/mL in males) obtained after at least 6 hours of chest pain. CRACE was defined as death, cardiac arrest, STEMI, or life-threatening arrhythmia. A manual chart review was conducted with 10% of randomly selected charts to estimate the number of patients admitted with nonischemic ECG and no other compelling reason for admission (unstable vitals or additional diagnoses).

Results: Out of 1189 patients admitted, we found 30 CRACE, all of which occurred in patients admitted for another compelling reason or ischemic ECG. 36 patients had an NSTEMI, of which 33 were identified with hsT above 99th percentile within 6 hours of chest pain onset. This left 0 CRACE and 3 NSTEMI among the 430 patients with a negative hsT at 6 hours and nonischemic ECG and no other compelling reason for admission.

Conclusion: Patients who have hsT values under the 99th percentile after 6 hours of chest pain have a low rate of CRACE and NSTEMI. Future prospective studies to evaluate the safety of outpatient management are warranted.

6 Temporizing Medications for Nonpregnant Patients Discharged from the Emergency Department with Abnormal Uterine Bleeding at a Single Urban Teaching Hospital

Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart

Learning Objectives: To determine if patients evaluated for nonpregnant, abnormal uterine bleeding (AUB) are discharged from the Emergency Department (ED) with medications to temporize or improve their acute bleeding episode.

Background: Abnormal uterine bleeding (AUB) is common and has a significant impact on a woman's quality of life. When bleeding is heavy it can be distressing and often prompts visits to an emergency department (ED). Temporizing treatments for AUB include hormonal therapies, such as combination oral contraceptive pills and progestin-only medications, and non-hormonal therapies such as nonsteroidal anti-inflammatory drugs (NSAIDS) and tranexamic acid. It is unclear what percent of these patients are discharged home with a temporizing treatment or if opportunities for improvement exist.

Objectives: To determine if patients evaluated for nonpregnant, AUB are discharged from the ED with medications to temporize or improve their acute bleeding episode.

Methods: A retrospective chart review of nonpregnant patients who were discharged after ED evaluation for AUB. Medical records were systematically reviewed with a focus on ED evaluation and discharge prescriptions.

Results: Of the 100 patients that met inclusion criteria, 94 were included in the final analysis. Of these 94 patients, a total of 24 patients (25.5%) were discharged with a prescription for a medication to treat AUB.

Conclusion: In this retrospective chart review of non-pregnant patients presenting to the ED with abnormal uterine bleeding, we analyzed how many received a prescription for a temporizing medication. After analyzing 94 visits for AUB to a major Washington D.C. emergency department, the results support our hypothesis that many of these patients would not receive a prescription at time of discharge. Of the patients who did receive a prescription, the majority were given over the counter NSAIDs with only a third of the patients evaluated being given an OCP or TXA.

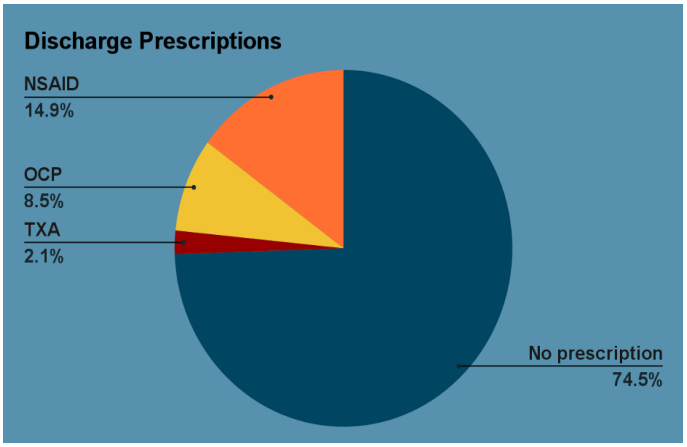


Figure.

7 Creating a New Social Emergency Medicine Curriculum: A Needs Assessment

Ashley Vuong-Goldshear, Lauren Fryling, Alexander Garrett, Amanda Amen, Hannah Janeway, Natasha Wheaton, Jaime Jordan

Learning Objectives: We sought to understand social EM curricular needs.

Background: Addressing social determinants of health is a crucial part of emergency medicine (EM). However, training in social EM is variable.

Objective: We sought to understand social EM curricular needs.

Methods: We performed a mixed methods needs assessment of residents and faculty at two academic training sites. Residents were emailed an online survey of multiple choice, rating scale, and free response items that was piloted prior to use. We conducted semi-structured interviews with faculty. We performed descriptive analysis on survey data. Two qualitative researchers independently analyzed interview data using a thematic approach. Discrepancies were resolved by in-depth discussion and negotiated consensus. Results: 43 out of 120 residents completed the online survey and 6 faculty were interviewed. 34 residents (79%) stated they were "Not knowledgeable" or "Somewhat knowledgeable" about the field of Social EM. 34 (79%) reported that education in Social EM is "Very" or "Extremely" important to them, and 37 (86%) responded that Social EM is "Very" or "Extremely" important to the field of EM. Faculty reported that Social EM is crucial given its importance to patient health. They felt this

education should be longitudinal and begin early in medical training. Faculty recommended core content, hands-on experiences, and partnering with local community resources. They also noted that leadership support and faculty buy-in was important to the success of Social EM education.

Conclusion: Residents and faculty believe Social EM is a cornerstone of emergency medicine. Important curricular areas and educational strategies were identified. These results can inform the development of formal Social EM curricula.

8 Female Mentorship in Academic Emergency Medicine

Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart

Learning Objectives: We sought to understand social EM curricular needs.

Background: Addressing social determinants of health is a crucial part of emergency medicine (EM). However, training in social EM is variable.

Objective: We sought to understand social EM curricular needs.

Methods: We performed a mixed methods needs assessment of residents and faculty at two academic training sites. Residents were emailed an online survey of multiple choice, rating scale, and free response items that was piloted prior to use. We conducted semi-structured interviews with faculty. We performed descriptive analysis on survey data. Two qualitative researchers independently analyzed interview data using a thematic approach. Discrepancies were resolved by in-depth discussion and negotiated consensus.

Results: 43 out of 120 residents completed the online survey and 6 faculty were interviewed. 34 residents (79%) stated they were "Not knowledgeable" or "Somewhat knowledgeable" about the field of Social EM. 34 (79%) reported that education in Social EM is "Very" or "Extremely" important to them, and 37 (86%) responded that Social EM is "Very" or "Extremely" important to the field of EM. Faculty reported that Social EM is crucial given its importance to patient health. They felt this education should be longitudinal and begin early in medical training. Faculty recommended core content, hands-on experiences, and partnering with local community resources. They also noted that leadership support and faculty buy-in was important to the success of Social EM education.

Conclusion: Residents and faculty believe Social EM is a cornerstone of emergency medicine. Important curricular areas and educational strategies were identified. These results can inform the development of formal Social EM curricula.

9 Improving Diversity Consciousness: Initiatives for Increasing Emergency Medicine Residency Diversity Recruitment

Adrienne Caiado, Dana Lev-Ran, Gifford Mezey, Joseph Pauly, Joelle Borhart, Kathryn Sulkowski

Learning Objectives: To increase diversity within the UNLV EM residency program, defined as increasing underrepresented in medicine (defined by the American Medical Association as Blacks, Mexican Americans, Native Americans, and mainland Puerto Ricans) interviewees.

Background: The percentage of emergency medicine (EM) physicians from underrepresented minority (URM) groups is small and has not significantly increased over the past 20 years despite much evidence describing the advantages of a diverse workforce.

Objectives: It was hypothesized that the percentage of URM interviewed wound increase after implementation of the rubric and diversity initiatives.

Methods: During the 2020-2021 academic year (July 2020-June 2021) a multitude of changes were implemented with the goal of increasing diversity within the UNLV EM residency program. Changes implemented included: the creation of a rubric utilized by faculty for the interview selection process, implementation of a longitudinal diversity and equity (DICE) curriculum, creation of a social EM elective for fourth year medical students and coordination of an URM second look day. The percentage of URM interviewees was calculated and compared for the 2019-2020 and 2020-2021 interview seasons.

Results: In 2019-2020, 119 total applicants were interviewed of which 16 identified as an ethnicity considered URM. In 2020-2021, 143 total applicants were interviewed, of which 17 identified as URM. The number of URM interviewees after 1 year of rubric implementation did not change in a statistically significant way (14% 2019-2020 vs 12% 2020-2021, p=0.568).

Conclusions: Diversity and equity within a residency program are multifactorial and changes need to be maintained and implemented longitudinally. Rubrics are a method to attain a "holistic review" of a residency applicant and can improve objectivity in residency applicant evaluation by decreasing implicit bias. Curriculum changes and implicit bias training create a lasting impact by gradually changing viewpoints, opening dialogue and increasing knowledge about topics traditionally not taught in medical education. This reinforces that change is slow and multifactorial with no one change making immediate progress.

Table 1. Sample rubric.

	5- Excellent	1- Poor
Clinical Performance (20%)	Top 10% on at least one SLOE Extremely positive reviews on all SLORs	Bottom 1/3 on all SLOEs
Academic Achievement (15%)	Passed Step/Level 1 AND class rank 90th percentile or above OR shelf score average 90th percentile or above OR 2 or more research projects/case reports/poster presentations	Passed Step/Level 1 AND class rank 11-25th percentile OR shelf score average 11-25th percentile OR 0 research projects/case reports/poster presentations
Leadership/ Community involvement (25%)	Leader of 2 or more extracurricular activities/board member of student organizations; >15 hours community service; describes multiple activities in depth; can lead peers and influence senior leaders, strong conflict resolution/mentoring/coaching skills, respected by peers/leaders	Demonstrates the willingness to involve themselves in group activities but does not lead, encourage others to get involved, or engage themselves within a group
Commitment to EM and Las Vegas (15%)	Long standing interest in EM; demonstrates strong interest in Las Vegas & patient population	LOR from reference known for bad judgment; LOR is family member or close friend
Character and Resilience (25%)	Demonstrates innovations in leadership/social contributions/commitment to underserved communities; responsible, adaptable to new circumstances, collaborative and can work across disciplines to achieve results; shows self-awareness	Egocentric, pushy, dominates conversation, limited contacts to only those in medicine; uncomfortable discussing diversity-related issues; demonstrates a maturity level that is below that of his/her peers

Left column – categories; second and third columns – criteria for different scores

Table 2. Applicant demographic information for those selected for an interview.

2019-2020			2020-2021		
Gender			**Gender**		
Male	77	64.2%	Male	85	59.4%
Female	43	35.8%	Female	58	40.6%
Self Identified Ethnicity			**Self Identified Ethnicity**		
White/Asian/Indian	103	86.6%	White/Asian/Indian	126	88.1%
Hispanic/Latino	12	10.1%	Hispanic/Latino	14	9.8%
African American	2	1.7%	African American	3	2.1%
American Indian	2	1.7%	American Indian	0	0.0%

10 Racial Bias in Medical Student Standardized Letters of Evaluation (SLOE)

Al'ai Alvarez, Alexander Mannix, Dayle Davenport, Katarzyne Gore, Sara Krzyzaniak, Melissa Parsons, Danielle Miller, Daniel Eraso, Sandra Monteiro, Teresa Chan, Michael Gottlieb

Learning Objectives: Weigh the value of Standardized Letters of Evaluation (SLOE) in emergency medicine residency selection given the bias that may negatively impact students who are underrepresented in medicine (URM).

Objective: Emergency Medicine (EM) residency leaders designed the Standardized Letter of Evaluation (SLOE) to minimize variations in letters of recommendation for EM-bound medical students. Despite standardization, evidence is lacking regarding the effectiveness of the SLOE to minimize bias, especially relevant to race and ethnicity. This study aims to determine the presence of implicit racial bias in SLOEs.

Methods: This was a cross-section study of EM-bound applicants across three geographically distinct US training programs during the 2019-2020 application cycle. Using descriptive and regression analyses, we evaluated whether one's underrepresented in medicine (URM) status impacted each of the 7 qualifications of EM physician (7QEM) questions, global assessment (GA) score, and projected rank list (RL) position.

Results: A total of 2,002 unique applications were included. Overall, we found that URM students had lower grades in each of the 7QEM questions, with male URM students more significantly impacted than female URM students. Similar trends were seen in GA scores and RL positions for URM students ($p < 0.001$). We also found that, compared to non-URM candidates, URM students were less likely to benefit from the following components: Work Ethic and ability to assume responsibility, Ability to work in a team, and Ability to communicate a caring nature.

Conclusions: This study suggests that bias exists in the SLOE which may negatively impact URM students. URM students are disproportionately evaluated on 3 of the 7QEM, suggesting opportunities for training for SLOE writers and further analysis of the contribution of the SLOE in systemic barriers the prevent diversity in medicine.

11 The Influence of Patient Recognition of Resident Name on Patient Perception of Resident Empathy and Satisfaction in an Emergent Care Setting

Hao Wang, Alexandra Bulga, Chad Holmes, Charles Huggins, Heidi Knowles

Learning Objectives: Resident education on advocating patient recognition of healthcare providers as part of patient-centered care might need to be emphasized.

Background: We recommend providers introducing their names when communicating with the patients but are uncertain whether patient recognition of provider name would affect patient perception of physician empathy and satisfaction. This is challenging when multiple providers (e.g., attending and residents) take care of the same patient.

Objectives: We aim to determine 1) the status of patient recognition of residents' names; and 2) whether such recognition would affect the patient perception of resident empathy and satisfaction.

Methods: This is a prospective single-center observational study. Patient perception of resident empathy was measured by the Jefferson Scale of Patient Perception of Physician Empathy (JSPPPE). Patient satisfaction was measured by a real-time satisfaction survey. Multivariate logistic regressions were performed to determine the association between patent recognition of residents' names, patient satisfaction, and JSPPPE after demographics and resident training years were adjusted.

Results: We enrolled 33 Emergency Medicine residents and 206 patients. Only 25% of patients recognized the residents' names. High JSPPE scores were given in 47% of patients who recognized residents' names in comparison to 27% of ones who did not remember residents' names (p=0.008). High patient satisfaction scores were recorded in 84% of patients recognized residents' names compared to 63% of ones who did not (p=0.007). The adjusted odds ratios of patient recognition of residents' names to high JSPPPE and high satisfaction scores were 2.40 (95% CI 1.22-4.73, p=0.012) and 3.10 (1.33-7.25, p=0.009) separately.

Conclusion: Patient recognition of residents' names is relatively low. However, patients' recognition of residents' names increased the odds of patient perception of residents' empathy and satisfaction. Therefore, future resident education on advocating patient recognition of healthcare providers as part of patient-centered care might need to be emphasized.

12 Female Mentorship in Academic Emergency Medicine

Paula Diaz, Barbara Debbage, Danielle Miano, Leila Getto

Learning Objectives: To determine if women in Emergency Medicine academic leadership roles received female mentorship during or after residency and whether this impacted their decision to pursue their current positions.

Background: A publication in 2006 by Cheng et al demonstrated there is an increased proportion of female faculty in academic Emergency Medicine (EM) when the chairperson is female. Current literature has not discussed whether female mentorship has any relationship to the prevalence of women in leadership roles in academic EM.

Objective: To determine if women in EM academic leadership roles received female mentorship during or after residency and whether this impacted their decision to pursue their current positions.

Methods: Public websites in combination with the CORD member directory were used to extract the gender and contact information of the program directors (PDs) and associate program directors (APDs) for all ACGME accredited categorical EM programs during the 2020-2021 academic year. A survey was emailed to female PDs and APDs using the Redcap program to collect the following data: if they had a female mentor during and/or after residency, the rank of their female mentor, and if their mentor influenced their decision to pursue an academic leadership position. Demographic information was also obtained. An optional comment section was included in the survey to provide for additional information regarding mentorship experience. Descriptive statistics included percentage response distributions.

Results: Of the 298 EM female academic leaders, 130 (43.6%) responded to the survey. Half of the female PDs and APDs surveyed had a female mentor during residency and/or post residency. Of these, about 63% stated that their female mentor post residency influenced their decision to pursue their current academic role.

Conclusion: Post residency female mentorship is a contributing factor in influencing female EM program leaders to pursue these roles. The main limitation was this was a survey study with a response rate of under 50%. Further studies will be needed to determine other factors that influence female academic leadership to pursue these positions.

13 Patient, Physician, or Observer: Qualitative Analysis of a Peer Role-play for Developing Communication Skills

Jordan Feingold-Link, Lauren McCafferty, Maria Poluch, Nethra Ankam, Shruti Chandra, Jared Kilpatrick, Danielle McCarthy, Kristin Rising, Deborah Ziring, Dimitrios Papanagnou

Learning Objectives: Identify and compare the lessons students learn from participating in peer role-play as either physician, patient, or observer.

Background: Communication Skills Training (CST) is an important part of undergraduate medical training, with instructional modalities including peer role-play (RP) and simulated patients (SP). Research comparing effectiveness of RP and SP is mixed, with some evidence suggesting RP may better develop empathy. Unlike with SP CST, students participating in RP CST spend time portraying patients. The impact of this patient role-play has not been explored.

Methods: We developed a virtual RP case in which a physician communicates diagnostic uncertainty to a patient being discharged from the emergency department. We scripted three roles: physician, patient, and observer. Third-year medical students complete the RP, then enter small-group break-out rooms (10 students) for facilitated debriefing, which we transcribe. Each session included only students from a single role. Qualitative analysis began with generation of inductive codes. Pairs of researchers developed preliminary codebooks for each role, testing codes against several transcriptions. We integrated these codebooks into a master codebook to be used on all transcriptions.

Results: 273 students participated, yielding 24 transcriptions with >85,000 words. Preliminary analysis revealed themes that differed between roles. Students playing the physician tend to emphasize useful lessons they gleaned, whereas those playing patients discussed empathy and the emotional impact of decisions by the physician role.

Conclusion: Initial results indicate that role-playing as patient may support learning in ways that playing as physician does not. Educators should utilize RP with an eye towards these benefits, emphasizing engagement when playing the role of the patient.

14 Residents' Perception of the Feedback They Receive

Brian Walsh, Frederick Fiesseler, Corrine Espinosa, Nicole Riley

Learning Objectives: Understand what residents perceive as obstacles to receiving feedback. Understand the areas in which residents want more feedback.

Objective: Feedback is perhaps the most important part of the educational process and how residents learn the art and the practice of medicine. Because of its importance, residency programs and all faculty members should constantly strive to improve the process. We sought to analyze the areas our residents believed they could use more feedback and what they perceived as obstacles to obtaining productive feedback.

Methods: Using an online, anonymous survey, all the residents in a 3-year emergency medicine residency program were asked about the feedback they receive. They were asked about the areas in which they receive the most feedback, the areas in which they would like more feedback, and what they perceive as the obstacles to getting good feedback.

Results: 94% of residents said they would like more feedback (44% said "much more," 50% said "a little more.") When asked about the areas in which they get the most feedback, 67% of respondents said they get the most feedback about charting/documentation and 20% said they get the most feedback about clinical care. When asked about the areas in which they wish they had more feedback, 94% would like more feedback on clinical care with critically-ill patients, 81% wanted more feedback on clinical care in non-critically-ill patients, and 44% wanted more feedback with procedures. 38% wanted more feedback about interactions with consultants, while only 31% wanted more feedback about interactions with patients. When asked about the obstacles to getting constructive feedback, 94% identified the patient volume / workload, while 63% identified the system being used (New Innovations.)

Conclusion: Despite the emphasis our program puts on feedback, residents still perceive that there is not enough, especially when it comes to clinical care. Surveys like this can be eye-opening and will hopefully lead to changes in faculty behavior to improve the teaching we provide.

15 The effects of Covid-19 pandemic on the post graduate plans of emergency medicine residents

Megan Marcom, Susan Miller, Linda Papa, Josef Thundiyil, Jay Ladde, Chrissy Van Dillen

Learning Objectives: Evaluate the economic impact of the COVID-19 pandemic on the post graduate plans of the 2020 and 2021 graduating emergency medicine residency classes to aid in the future career guidance by emergency medicine faculty.

Background: The strict lockdown measures in response to the COVID-19 pandemic had significant effects in all aspects of the economy and the healthcare industry, including a reduction in emergency department visits by 42%, according to the CDC. This decrease in volume continued throughout 2020 and 2021, causing many physician practice groups to re-evaluate their costs.

Objective: We hypothesize that the COVID-19 pandemic caused economic impacts on the class of 2020 and 2021 emergency medicine residents in a variety of ways both economically and with changes to post graduate plans to include fellowship.

Methods: We created a survey-based study of the graduating classes of emergency medicine residents of all 17 programs in Florida sent via email through the Florida CORD consortium. Inclusion criteria were that the survey respondent must be from the graduating class of 2020 or 2021. Data was collected through an anonymous online survey platform.

Results: We received a total of 33 responses, stratifying the data based on the graduating class year. In our small sample, 49% of responders indicated that COVID-19 did impact their post-graduate plans in some way. 50% of responders from the class of 2020 noted some level of reduction in their number of post-graduate shifts, with a total of 33% of responders from both classes. We found a statistically significant difference ($p=0.054$) in expenses reduction for the class of 2021 graduates (43% of responders) compared to the class of 2020 (8%), with a total of 33% of responders of all classes indicating a reduction. There was no significant difference regarding impact on fellowship plans.

Conclusions: There seemed to be some impact on employment opportunities and post-graduate career plans, though the degree of this impact is somewhat limited by small sample size. Similar studies need to be repeated to observe any potential generalizable trends to further aid residency program leadership in career guidance for residents.

Table.

	Graduate 2000 (n=12)	Graduate 2021 (n=21)	Total (n=33)	P-Value
Age Group				
25-30	5 (42%)	8 (38%)	13 (39%)	
31-35	5 (42%)	11 (52%)	16 (49%)	0.579
36-40	2 (17%)	1 (5%)	3 (9%)	
>40	0 (0)	1 (5%)	1 (3%)	
Gender				
Female	7 (64%)	10 (48%)	17 (53%)	0.472
Male	4 (36%)	11 (52%)	15 (47%)	
COVID-19 changed the career path	4 (33%)	12 (57%)	16 (49%)	0.282
Planning or considering a Fellowship prior to COVID-19	6 (60%)	7 (33%)	13 (42%)	0.247
COVID-19 changed Fellowship plans	5 (42%)	1 (5%)	6 (18%)	
No answer	0 (0)	1 (5%)	1 (3%)	
Decided against a fellowship	0 (0)	1 (5%)	1 (3%)	0.168
Decided in favor of a fellowship	1 (8%)	2 (10%)	3 (9%)	
Undecided	2 (17%)	4 (19%)	6 (18%)	
Still doing a fellowship	4 (33%)	12 (57%)	16 (49%)	
Never considered a fellowship				
COVID-19 changed the post-graduate attending schedule	6 (50%)	5 (24%)	11 (33%)	0.149
How much did COVID-19 change the post-graduate attending schedule?	6 (50%)	16 (76%)	22 (67%)	
None	2 (17%)	1 (5%)	3 (9%)	0.189
<25%	3 (25%)	1 (5%)	4 (12%)	
26-50%	1 (8%)	3 (14%)	4 (12%)	
>50%				
Moving expenses and sign-on bonuses were reduced due to COVID-19?	1 (8%)	9 (43%)	10 (30%)	0.054

16 Residency Case Mix Impact on In-Service Training Exam Scores

Michael Kern, Dann Hekman, Corlin Jewell, Benjamin Schnapp

Learning Objectives: To examine the effect of increasing clinical exposure to common EM complaints had on in-service training exam scores, and provide some insight into how to further strengthen the relationship between these two pillars of training.

Background: The in-service training exam (ITE) for Emergency Medicine (EM) residents has been shown to predict subsequent pass rate on the American Board of Emergency Medicine (ABEM) qualifying exam. Multimodal learning theory suggests that clinical exposures to common EM presentations would be beneficial for acquiring and retaining medical knowledge. It is unknown whether greater clinical exposure is associated with higher scores on the annual ITE.

Objective: To determine whether a higher number of clinical patient encounters in a given domain correlates with higher ITE score across the corresponding ABEM domain.

Methods: This is a retrospective review examining ITE scores and chief complaints seen by EM residents from 2013-2021 at our main clinical site. Visits were attributed to the first assigned resident. Patient encounters were categorized by chief complaint into one of 20 domains of the ABEM Model of Clinical Practice using a previously published consensus process. ITE scores during the third year of training were broken down into percentages by domain. Linear regressions were performed comparing clinical exposure within a domain to the ITE score.

Results: Data were available for 70 residents. Correlation coefficients ranged between 0.01 and 0.29, indicating weak or no correlation (Table 1). Only 3 domains had significant correlations identified: Head, Ear, Eye, Nose, and Throat (multiple $R=0.25$, $p<0.05$), Musculoskeletal Disorders (multiple $R=0.25$, $p<0.05$), and Psychobehavioral Disorders (multiple $R=0.29$, $p<0.05$). Twelve of the categories demonstrated a negative correlation.

Conclusion: We found mostly weak, nonsignificant correlation between clinical exposure and ITE score within core EM domains. This may inform programmatic decisions for EM training, and further investigation is necessary to adequately describe the relationship between clinical training and exam performance.

Table 1. ABEM domain clinical exposures and correlations with ITE scores. *Bolded are significant.

Topic	Correlation Coefficient	P value
Abdominal and Gastrointestinal Disorders	0.14	0.021
Cardiovascular Disorders	0.03	0.84
Cutaneous Disorders	0.05	0.7
Endocrine, Metabolic, and Nutritional Disorders	0.06	0.64
Environmental Disorders	0.05	0.7
Head, Ear, Eye, Nose, and Throat Disorders	**0.25**	**0.03**
Hematologic Disorders	0.04	0.75
Immune System Disorders	0.01	0.93
Musculoskeletal Disorders (Non-traumatic)	**0.25**	**0.04**
Nervous System Disorders	0.07	0.56
Obstetrics and Gynecology	0.04	0.77
Other Components	0.03	0.81
Procedures and Skills	0.2	0.1
Psychobehavioral Disorders	**0.29**	**0.02**
Renal and Urogenital Disroders	0.04	0.74
Signs, Symptoms, and Presentations	0.03	0.82
Systemic Infectious Disorders	0.17	0.16
Thoracic-Respiratory Disorders	0.1	0.39
Toxicologic Disorders	0.04	0.72
Traumatic Disorders	0.12	0.31

17 CORD COVID-19 Task Force Report on the Pandemic Impact on Undergraduate Medical Education

Melissa Platt, Shannon Moffett, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Bryan Kane, Eric Lee, Stephen Miller, Brian Milman, Lauren McCafferty, Lisa Stoneking, Taylor Surles, Amy Cutright, Isaac Shaw

Learning Objectives: We sought to describe the effects of COVID-19 on UME within EM.

Background: The COVID-19 pandemic has affected multiple aspects of Undergraduate Medical Education (UME) beyond infection and illness. Many universities, medical schools, and hospitals instituted policy changes around educational gatherings and clinical participation. State-issued travel restrictions impacted both rotations and altered the Match process.

Objectives: We sought to describe the effects of COVID-19 on UME within EM.

Methods: CORD chartered a COVID-19 Task Force comprised of 18 selected educators to explore the pandemic's impact on EM. A Modified Delphi process was used to develop multiple survey instruments. This process included a literature search for validated questions and internal piloting with iterative changes. After IRB approval, the UME survey was distributed to members of CORD during the 2021 Academic Assembly. Using SPSS v26, a descriptive analysis was performed.

Results: Sixty-three individuals responded to the UME survey, with 27 (42.9%) program directors (PDs), 19 (30.2%) assistant/associate PDs, 5 (7.9%) core faculty, 5 (7.9%) clerkship directors, 4 (6.3%) residents/fellows and 3 others (vice chair of education, educational researcher, unknown). Most respondents were white (84.1%) and approximately half identified as women (50.8%). Table 1 provides means and standard deviations for statements displayed from most to least important.

Conclusions: The positive financial impact on medical students was described as the greatest benefit of the pandemic. Virtual technology was varied in its impact: positive for conferences and interviewing but negative as a surrogate for clinical rotations or the ability for students to evaluate residency program culture. The top challenge facing UME was the removal of students from clinical rotations. This may impact residency programs, requiring them to remediate those skills. A limitation of this geographically broad cohort was the number of respondents.

Table 1. Undergraduate medical education benefits and challenges.

Item	Mean	SD
UME Benefits – Rank 1 to 6 with 1 being most important.		
Decreased financial burden of away rotations/interviews	2.53	1.76
Increased utilization of asynchronous learning	3.08	1.49
Use of videoconferencing programs (Zoom, etc.)	3.29	1.61
Re-evaluation of current education modalities for students	3.63	1.68
Ability to attend virtual education sessions from a variety of departments/programs	3.69	1.58
Time for students to participate in scholarly activity	4.77	1.29
UME Challenges – Rank 1 to 7 with 1 being most important.		
Students pulled from clinical rotations	1.40	0.88
How students get the "fit" of the program over the virtual platform	3.32	1.61
Use of virtual rotations while students were pulled from clinical experiences	4.18	1.47
Restrictions on simulation activities	4.45	1.73
Inability to host in-person lecture	4.58	1.65
Virtual interviews	4.70	2.00
Students having to remediate required clinical rotations prior to 4th year electives	5.30	1.77

SD = Standard Deviation
UME = Undergraduate Medical Education

18 FOAM authorship: Who's teaching the learners?

Andrew Grock, Tiffany Fan, Max Berger, Jeff Riddell

Learning Objectives: Of all posts from the top 25 blogs in 2020, more than half came from six sites, most contained clinical content, and authors were largely North American male academics with MD degrees. Learners, content-creators, and educators must recognize these limitations in utilizing online educational content.

Background: While use of Free Open Access Medical Education (FOAM) content has grown over the last decade, concerns about quality assessment remain. Given the disconnect between the high utilization of these resources by learners and the low barriers and oversight to publishing, the authors of FOAM resources require further scrutiny.

Objectives: We sought to describe the production and authorship characteristics of the most impactful FOAM blogs.

Methods: Based on previous studies, a classification system for post content was developed by to two authors with content expertise in online educational resources. We included 12 months (August, 2019 - May, 2021) of blog posts from each of the top 25 sites in the 2020 social media index (SMI). We recorded the following: number of posts per site and per author, types of post; and author related details such as gender, title, affiliation, degree, location of practice and type of practice (academic, community, or hybrid). Gender was determined based on an online identification tool (genderchecker.com).

Results: We identified 2,141 posts by 1,001 authors, with more than half produced by six websites: EM Docs (266), Life in the Fast Lane (232), EMCrit (188), ALiEM (185),

Don't Forget the Bubbles (181), and Rebel EM (174). Most content (1680 posts, 78.5%), lacked a conflicts of interest (COI) statement. Posts averaged 5.9 + 11.1 references and 2.32 + 7.8 comments. Authors were mostly academic (89%), mostly held MD degrees (67.4%), and skewed male (59.7%). Geographically, most FOAM authors reside in the USA (59.5%), Canada (22.42%), or the UK (9.4%).

Conclusions: Of all the posts in the top 25 blogs in 2020, more than half came from six sites, most contained clinical content, and authors were largely North American male academics with MD degrees. Learners, content-creators, and educators should consider the ways in which a more diverse authorship pool might bring value to the FOAM educational experience.

Table 1.

		Solo Vs Co-Authored		References		Comments		Conflicts of Interest Statement		
FOAM Site	**Total Post**	**Total Authors**	**Solo**	**Co-Authored**	**Mean**	**Median**	**Mean**	**Median**	**Yes Conflict State**	**No Conflict Stat**	**Not Present**
LITFL	232	56	209	23	5.69	0	0.34	10.35	1	0	231
EMCrit	188	35	173	15	5.55	2	10.35	4.5	1	177	10
ALiEM	185	224	65	120	3.45	2	na	na	2	0	183
Rebel EM	174	38	158	16	3.97	3	2.62	1	0	1	173
EM Docs	266	195	176	90	12	8	0.17	0	0	4	262
Emergency Medicine Cases	61	62	27	34	9.55	7	1.68	0	1	32	28
First 10 EM	71	7	70	1	9.38	5	3.3	2	0	67	4
CanadiEM	159	136	53	106	4.81	2	0.32	0	0	0	159
Dr Smiths ECG Blog	137	16	46	91	1.55	1	6.07	6	0	0	137
EMS 12 lead	1	1	1	0	0	0	0	0	0	0	1
The Skeptics guide to EM	159	2	159	0	2.63	1	2.25	0	124	0	35
FemInEM	26	28	22	4	0.69	0	0.19	0	0	0	28
St Emlyns Blog	82	17	82	0	6	5	0.65	0	3	2	79
Emergency Ultrasound Pod	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dont Forget the Bubbles	181	105	159	22	7.98	4	0.48	0	1	0	180
Flight Bridge ED	47	4	47	0	1.34	0	NA	NA	0	0	47
Intensive Care Network	8	8	8	0	0	0	0	0	0	0	8
Emergency Medicine updat	8	7	6	2	1.75	0	0	0	0	0	7
Core Ultrasound (Ultrasounc	15	9	13	2	4.07	4	0.53	0	0	0	15
FOAMCast	37	2	37	0	2.92	2	0.27	0	37	0	0
EM Lit of note	11	1	11	0	3.36	2	n/a	n/a	0	11	0
EM Basic	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Resus ME	1	1	1	0	2	2	0	0	0	0	1
Taming the SRU	92	47	88	4	7.89	2	n/a	n/a	0	0	92
TotalEM	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Totals (per site)	2141	1001	1611	530	5.9 + 11.1	2.36	2.32 + 7.8	1.33	170	294	1680

Table 2.

			Gender			Academic Vs Non-Academic			Degree															
	Total Authors	**Average Number of Posts per Author**	**M**	**F**	**Unknown**	**Academic**	**Non-Academic**	**Not listed**	**MD**	**DO**	**MBBS+ MD**	**MBBS/MB ChB**	**MD+PhD**	**MBChB/MBBS + PhD**	**APRN/ PhD/NP**	**PhD**	**Student**	**PharmD**	**EMT**	**PA**	**MSc/BSc**	**Other/Unknown**	**total**
LITFL	56	4.1	33	22	1	39	8	9	15	0	0	20	1	1	2	3	2	0	0	0	0	11	55
EMCrit	35	5.4	27	8	0	31	4	0	31	0	0	0	1	0	0	1	0	1	0	0	0	1	35
ALiEM	224	0.8	134	90	0	209	15	0	172	27	2	2	0	0	4	1	5	4	0	0	0	0	217
Rebel EM	38	4.6	25	13	0	30	8	0	26	8	0	2	0	0	0	0	1	0	0	1	0	0	38
EM Docs	195	1.4	140	55	0	183	12	0	154	24	0	3	1	0	0	6	6	0	0	0	0	0	194
Emergency I	62	1.0	45	17	0	56	6	0	60	0	0	0	1	0	0	1	0	0	0	0	0	0	62
First 10 EM	7	10.1	4	3	0	7	7	0	4	0	0	0	0	0	0	0	2	0	0	1	0	0	7
CanadiEM	136	1.2	78	58	0	131	5	0	85	1	0	0	1	0	1	12	39	0	0	0	6	1	146
Dr Smiths EC	16	8.6	10	6	0	13	3	0	13	3	0	0	0	0	0	0	0	0	0	0	0	0	16
EMS 12 lead	1	1.0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
The Skeptics	2	79.5	1	1	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
FemInEM	28	0.9	0	28	0	25	3	0	24	2	0	0	0	0	0	0	0	0	0	0	0	1	27
St Emlyns Bl	17	4.8	12	5	0	17	17	0	1	0	0	12	0	1	0	0	0	0	0	0	0	1	15
Emergency I	n/a	n/a																					
Dont Forget	103	1.7	40	63	0	78	10	17	6	0	0	21	2	1	8	0	3	0	4	0	0	36	81
Flight Bridge	4	11.8	4	0	0		4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Intensive Ca	8	1.0	5	3	0	6	2	0	2	0	0	4	0	0	0	1	0	0	0	0	0	1	8
Emergency I	7	1.1	4	3	0	6	1	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7
Core Ultrasc	9	1.7	8	1	0	9	0	0	8	0	0	0	0	0	0	0	1	0	0	0	0	0	9
FOAMCast	2	18.5	1	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
EM Lit of not	1	11.0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EM Basic	n/a	n/a																					0
Resus ME	1	1.0	1	0	0		1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Taming the S	47	2.0	22	25	0	47	0		46	0	0	0	1	0	0	0	0	0	0	0	0	0	47
TotalEM	n/a	n/a																					
Totals (#)	999	2.1	596	402	1	891	108	26	657	66	2	66	8	3	15	25	59	5	9	2	6	52	975
Totals (%)			59.70%	40.20%	0.1%	86.9	10.5	2.5	67.4	6.8	0.2	6.8	0.8	0.3	1.5	2.6	6.1	0.5	0.9	0.2	0.6	5.3	100.0

19 A Computerized Google Sheets Tracking System for ACGME Procedures Increases Reporting Numbers

Brian Walsh, Frederick Fiesseler, Renee Riggs, Shannon O'Toole

Learning Objectives: Understand how residency programs track procedures. Understand how real-time procedure tracking can improve documentation. Understand how real-time procedure tracking can make SIM labs more efficient.

Objective: Tracking of residency procedures is vital to the continued accreditation of Emergency Medicine (EM) residency programs. We sought to determine if a Procedural Achievement Count Evaluation (PACE) score utilization increases ACGME procedural reporting.

Methods: A spreadsheet was created on Google Sheets, which contains the names of all the residents and the ACGME required procedures. The minimum procedural threshold is divided by the total months of residency (36) and then multiplied by each resident's month in training. We termed the minimal monthly requirement the PACE score. Each resident's tallied procedures are compared to the PACE value. Residents had open access to the Google Sheets PACE score, attendings were educated monthly, and residents additionally were educated at their semi-annual exams regarding their comparative score. Documented procedures were subdivided into "live" or "SIM". The number of procedures reported by the third year classes one year before and one year after implementation were tallied. The number of procedures compared to the minimum ACGME requirement were calculated. A two-tailed Wilcoxon Signed-Rank test was utilized, with a p-value of less than 0.05 for statistically significant.

Results: Of the fifteen core procedures reported to the ACGME, 87% (N=13) had increased totals following implementation (P=0.004). The only two procedures without increases were pericardiocentesis and central lines. The average percent increase of all procedures when compared to the minimum requirement was 37% (95% CI, 23,46). The number of live procedures increased in 60% (N=9) of procedures (p=0.06). Additionally, SIM procedures increased in 86% of those procedures that utilized SIM. (N=6 procedures, p=NS). The average percentage increase of SIM procedures was 24% (95% CI, 18,36).

Conclusion: Utilization of a PACE score significantly improved ACGME procedural reporting numbers overall and specifically increased SIM utilization.

20 Emergency Medicine Program Director Perceptions of the Resident Selection Process Following the Transition to a Pass/Fail USMLE Step 1

Kevin Bray, Kaitlin Burge, Om Patel, Ishant Patel, Will Haynes, Nicholas Van Wagoner, Charles Khoury

Learning Objectives: To assess Emergency Medicine residency program directors' perceptions of the impact of Step 1 P/F reporting on other selection criteria.

Background: Beginning in 2022, the NBME will transition score reporting of USMLE Step 1 from a 3-digit score to Pass/Fail (P/F). Historically, Step 1 has been weighed heavily by program directors (PDs) as an important metric in assessing competitiveness for residency. Our study examined whether EM program directors would place increasing value on Step 2 CK scores following the transition to a P/F Step 1.

Objective: To assess PD perceptions of the impact of Step 1 P/F reporting on other selection criteria.

Methods: A survey consisting of ranking questions was sent to PDs of all 282 EM programs in the US. These questions focused on assessing current resident selection practices in comparison to expected selection criteria changes following transition to P/F Step 1. Sixteen attributes were ranked by importance by PDs based on their own applicant selection process. PDs were also asked a series of questions to determine their confidence in Step 1 and Step 2 CK scores in predicting an applicant's clinical skills and ability to succeed.

Results: The survey was completed by 43 (15.24%) PDs. 52.6% reported that both Step 1 and Step 2 CK adequately predicted a resident's ability to pass EM board examinations (52.6% and 73.7% respectively). When asked if Step 1 and Step 2 CK are accurate predictors of a resident's ability to perform well clinically, only 10.5% of program directors answered yes to Step 1, compared to 31.6% for Step 2 CK. PDs ranked 14 of the 16 attributes higher following the transition to P/F Step 1 ($p<0.001$ per attribute). Step 2 CK score importance was ranked lower following transition to P/F Step 1. The first quartile of attributes pre- and post-transition did not change and are as follows: letters of recommendation [1st], away rotation [2nd], clerkship grades [3rd] and Step 2 CK score [4th].

Conclusion: Despite no longer having a 3-digit Step 1 score, PDs may not necessarily place greater emphasis on Step 2 CK scores following the transition.

21 Emergency Medicine Program Leadership Preferences For In Person Versus Virtual Residency Interviews

Erin Karl, Mary Ann Edens, Linda Katirji, Jeanette Kurbedin, Mark Olaf, Michael Pasirstein, Alexis Pelletier-Bui, Anneli von Reinhart

Learning Objectives: Assess EM residency program leadership preferences/concerns for the 2021-22 residency interview cycle.

Background: The Coalition for Physician Accountability recommended 2021-2022 residency interviews be held virtually. Studies assessing EM program leadership preferences for virtual versus in person interviews have been limited.

Objective: Assess EM residency program leadership preferences/concerns for the 2021-2022 residency interview cycle.

Methods: Via CORD's Program Director and Faculty Community, EM program leadership were asked to complete a 10 question survey, which included likert, multiple choice, and open response questions. There were 73 responses (86.3% PDs, 12.3% APDs, 2.7% CDs, Vice Chair of Education 1.4%). Descriptive and summary statistics were used.

Results: When asked comfort level with formats for 2021-2022, respondents felt most comfortable (agree or strongly agree) with virtual interviews only (64.4%), followed by virtual interviews with all applicants with optional in person second looks (57.5%), in person interviews only (50.7%), and offering both in person and virtual formats with applicants choosing the format they prefer (29.1%). When asked which one format they prefer, 37% preferred virtual interviews with all applicants with optional in person second looks, followed by 26% virtual interviews only, 20.5% offering both in person and virtual formats with applicants choosing which format they prefer, and 16.4% preferred in person interviews only (Figure 1). There was concern for bias if students are given a choice between in person and virtual interviews (Figure 2). In the open response, a novel idea suggested second looks for students after programs have submitted their rank list, yet before students submit their lists.

Conclusions: A majority of EM program leaders feel comfortable with virtual interviews only for the 2021-2022 cycle. The largest percentage prefer virtual interviews with all applicants, with optional in person second looks. As a follow up, we plan to survey current interns who interviewed in 2020-2021.

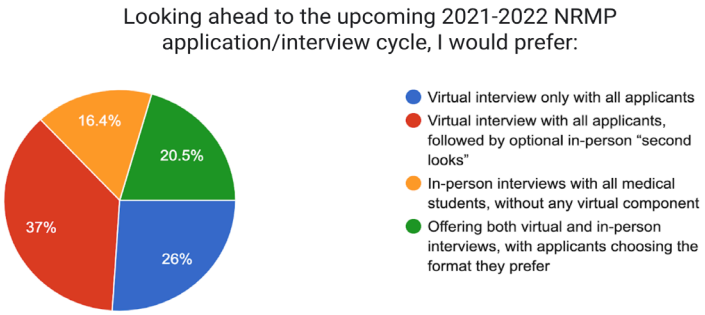


Figure 1. Program leadership top preference for the 2021-2022 application/interview cycle.

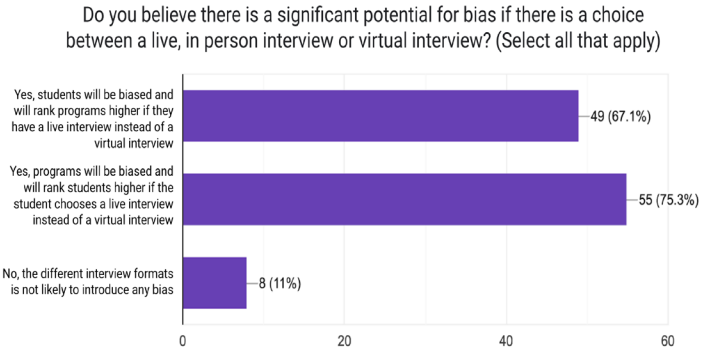


Figure 2. Progam leadership concer for bias with choice of in-person and virtual interviews.

22 Medical Student Perceptions of the Virtual Interview Process for Emergency Medicine Residency Application

Damian Lai, Lauren McCafferty, Aizad Dasti, Amber Billet, Barbara Stahlman, Brent Becker

Learning Objectives: Investigate medical student perceptions of the virtual interview process.

Background: In the setting of the Covid-19 pandemic, emergency medicine (EM) residency programs engaged an unprecedented transition to virtual interviews. The use of virtual interviews and their impact on medical students had not been previously studied in the published literature.

Objectives: We aimed to investigate medical student perceptions of the virtual interview process.

Methods: We conducted a cross-sectional survey-based study of EM applicants who interviewed at our community teaching hospital during the 2020-21 season. The survey was sent electronically to all interviewees following Match Day, excluding applicants who had completed a clinical rotation

in our department. The survey consisted of 8 Likert scale questions assessing specific components of the interview and overall impressions of the virtual interview format.

Results: A total of 113 surveys were distributed with 34 (30%) interviewees completing the survey. Overall, respondents were 32.4% Female and the mean number of virtual interviews attended was 15.3 (SD = 4.8). Responses to questions regarding overall impression and specific components of the virtual interview are reported in Table 1. Regarding how the nationwide transition to a virtual interview process affected their match, 32% responded negatively, 41% responded neutral, 26% responded positively. Most interviewees (71.9%) agreed that virtual interviews should be offered as part of the traditional residency interview cycle.

Conclusion: Medical students felt that our virtual interview process benefited their experience overall. While the nationwide transition is not thought to have benefitted their match, students feel that virtual interviews should be offered as an option moving forwards. The study was limited by small sample size and single-center setting.

Table 1. Responses to survey questions regarding the virtual interview process.

Survey Questions	Likert Scale (%)					Mean Score (SD)
	1. Strongly Disagree	2. Somewhat Disagree	3. Neutral	4. Somewhat Agree	5. Strongly Agree	
Pre-interview Resident Meet & Greet: Provided a good "feel" for the program culture	0 (0.0)	3 (10.0)	2 (6.7)	17 (56.7)	8 (26.7)	4.00 (0.87)
Virtual Department Tour: Provides a visual representation of the ED	1 (3.2)	1 (3.2)	2 (6.5)	10 (32.3)	17 (54.8)	4.32 (0.98)
Program Brochure: Provided adequate information	0 (0.0)	0 (0.0)	2 (6.3)	14 (43.8)	16 (50.0)	4.44 (0.62)
Interview Day Format: Allowed me to get to know the program and present myself	0 (0.0)	1 (3.1)	4 (12.5)	9 (28.1)	18 (56.3)	4.38 (0.83)
Social Media: Helped familiarize with residency culture	0 (0.0)	2 (9.5)	5 (23.8	8 (38.1)	6 (28.6)	3.86 (0.96)
Overall Impression: Provided opportunity to familiarize myself with program and present myself as candidate	0 (0.0)	1 (3.1)	2 (6.3)	13 (40.6)	16 (50.0)	4.38 (0.75)

23 Self-Assessment of Preparedness: Incoming Emergency Medicine Interns in the Era of COVID-19

Lorie Piccoli, Kathleen Williams, Brent Becker, Amber Billet, Barbara Stahlman

Learning Objectives: The purpose of this study was to assess the preparedness of the incoming emergency medicine intern (EM-1) resident class in light of changes to clinical rotations incurred by COVID-19. This feedback was given to programs to alter orientation programs and address knowledge gaps.

Background: The COVID-19 pandemic resulted in modification, limitation or cancellation of rotations that affected the clinical experience of graduating fourth-year medical students (MS4).

Objective: The purpose of this study was to assess the preparedness of the incoming emergency medicine intern (EM-1) resident class in light of changes to clinical rotations incurred by COVID-19.

Methods: We conducted a prospective, survey-based assessment of MS4 matriculating into 7 geographically distinct US EM residency programs in July 2021. The anonymous survey collected data on respondent demographics, rotations, procedures performed, and subjective comfort level with clinical scenarios. Each respondent was assigned a procedural index score (PS) and a clinical comfort index score (CCS), defined as the total sums of reported procedure counts and the quantitative Likert values for each clinical scenario, respectively. Spearman's rank order coefficient was used to assess correlation between the index scores (PS, CCS) and educational variables.

Results: A total of 63 respondents returned completed surveys. The median numbers of EM rotations, virtual rotations and ED encounters were 2 (IQR 2-2), 3 (IQR 1-4,) and 100 (IQR 55-100), respectively. MS4 rotations were "somewhat" or "moderately" limited due to COVID-19 for 82.5% of respondents and "somewhat" or "moderately" suspended in 73.0%. Calculation of index scores yielded a median PS=35 (IQR 30-39) and CCS=30 (IQR 27-32). PS was significantly positively correlated with the number of EM rotations (r=0.395) p=0.001), and ED patient encounters (r=0.369, p=0.006).

Conclusion: Based on self-reported data, changes to MS4 rotations did not significantly impact the procedural exposure or clinical comfort level of incoming EM-1 residents. Procedural experience, but not overall clinical comfort level, was positively correlated with the number of EM rotations and patient encounters completed.

Table 1. Reported number of procedures performed.

Procedure/Skill	Number of Procedure Performed (%)				
	0	1-2	3-5	6-10	>10
Abscess incision/drainage	6 (9.5)	29 (46.0)	18 (28.6)	6 (9.5)	4 (6.3)
Cardioversion	26 (0.0)	25 (39.7)	6 (9.5)	2 (3.2)	4 (6.3)
Central venous catheter	35 (55.6)	13 (20.6)	11 (17.5)	4 (6.3)	0 (0.0)
Chest x-ray intepretation	0 (0.0)	1 (1.6)	3 (4.8)	19 (30.2)	40 (63.5)
EKG interpretation	0 (0.0)	3 (4.8)	5 (7.9)	13 (20.6)	42 (66.7)
Endotracheal intubation	16 (25.4)	14 (22.2)	9 (14.3)	12 (19.0)	12 (19.0)
Laceration repair	1 (1.6)	7 (11.1)	16 (25.4)	16 (25.4)	23 (36.5)
Lumbar puncture	28 (44.4)	28 (44.4)	5 (7.9)	2 (3.2)	0 (0.0)
Pediatric evaluations	1 (1.6)	3 (4.8)	9 (14.3)	9 (14.3)	41 (65.1)
Pelvic examination	0 (0.0)	8 (12.7)	29 (46.0)	15 (23.8)	11 (17.5)
Peripheral IV	18 (28.6)	20 (31.7)	8 (12.7)	10 (15.9)	7 (11.1)
Psychiatric evaluations	2 (3.2)	3 (4.8)	13 (20.6)	11 (17.5)	34 (54.0)
Simulation (EM)	4 (6.3)	12 (19.0)	17 (27.0)	16 (25.4)	14 (22.2)
Slit lamp examination	31 (49.2)	19 (30.2)	6 (9.5)	3 (4.8)	4 (6.3)
Splint placement	18 (28.6)	21 (33.3)	15 (23.8)	5 (7.9)	4 (6.3)
Ultrasound (point of care)	3 (4.8)	4 (6.3)	14 (22.2)	11 (17.5)	31 (49.2)

Table 2. Reported comfort level with clinical scenarios.

Scenario	Comfort Level (%): 1= "less comfortable", 4="more comfortable"			
	1	2	3	4
Abdominal pain	0 (0.0)	9 (14.3)	43 (68.3)	11 (17.5)
Cardiac arrest	17 (27.0)	23 (36.5)	20 (31.7)	3 (4.8)
Chest pain	1 (1.6)	8 (12.7)	41 (65.1)	13 (20.6)
Dysrhythmias	9 (14.3)	28 (44.4)	21 (33.3)	5 (7.9)
Neurologic complaints/Stroke	3 (4.8)	36 (57.1)	22 (34.9)	2 (3.2)
Orthopedic complaints	14 (22.2)	28 (44.4)	12 (19.0)	9 (14.3)
Pediatric fever	13 (20.6)	36 (57.1)	12 (19.0)	2 (3.2)
Pregnancy-related complaints	21 (33.3)	30 (47.6)	11 (17.5)	1 (1.6)
Presentation: Consultant	7 (11.1)	20 (31.7)	27 (42.9)	9 (14.3)
Presentation: H&P	1 (1.6)	3 (4.8)	33 (52.4)	26 (41.3)
Sepsis	7 (11.1)	29 (46.0)	25 (39.7)	2 (3.2)
Shortness of breath/Respiratory distress	4 (6.3)	20 (31.7)	35 (55.6)	4 (6.3)

24 Student-Forum Heuristics for Emergency Medicine Residency Program Application-Preliminary Thematic Analysis

Jacob Garcia, Molly Estes, Ronnie Ren, Xiao Chi Zhang

Learning Objectives: To perform a qualitative analysis of students' EM program experiences through a publicly available AOC.

Background: Academic Emergency Medicine (EM) communities have viewed anonymous online communities (AOCs) such as Reddit or specialty-specific "applicant spreadsheets" as poor advising sources. Despite this, robust EM AOCs exist, with large user bases and heavy readership. Insights about applicants' authentic experiences can be critical for applicants and program leadership decision-making. To date, there are no EM studies to qualitatively assess EM AOC narratives during the application cycle.

Objectives: To perform a qualitative analysis of students' EM program experiences through a publicly available AOC.

Methods: This is a qualitative, single-blinded, retrospective review of a publicly-available, time-stamped, user-locked AOC dataset: "EM Applicant Spreadsheet, 2020-21." All data were extracted from the Excel sub-sheets entitled 'Virtual Interview Impressions' and 'Rotation Impressions' and then de-identified. Four investigators independently analyzed the data using an inductive approach and findings were combined to generate common themes discussed by students.

Results: Preliminary thematic analysis was conducted on a random 20% sample (N=37) of 183 independent narratives. Major themes were: Living- and Working-Conditions, Interpersonal Relationships, Learning Experiences, Post Graduate Readiness, and Online/Virtual Supplements (Table 1). Sub-themes included: patient population (13%), resident personality (7%), program leadership personality (7%), relationship with faculty/leadership (6%), geography (4%), practice setting (4%), program reputation (4%), and PGY-3 experiences (4%).

Conclusions: This study could help set a precedent for future program assessments by applicants. It elucidates important themes in their interactions or learning experiences with programs and creates opportunities for learner-centric program improvement.

Table.

Living Conditions	Total (N=179)
Geography	8
Cost of living	4
Amenities	3
Subtotal:	15
Working Conditions	
Patient population (underserved, volume, trauma, pathology, etc)	23
Practice setting (comm, acad, county, Lvl 1, HCA, etc.)	8
Program reputation/prestige/age	8
Perks (funding for travel/activities, food, lounge, parking, etc)	7
Work hours	6
DEI (includes LGBTQ)	5
Relationship with other specialties	5
Salary	4
Wellness	3
EMR	2
Moonlighting	2
Ancillary healthcare staff: (APPs / nurses / technicians)	2
Metrics	1
Scutwork	1
Subtotal:	77
Interpersonal Relationships	
Residents	13
PD personality	12
Other leadership/faculty personality	11
Opportunity for upward feedback	3
Responsiveness to upward feedback	3
Generic	0
Objective experience	0
Subtotal:	42
Learning experience	
On-shift teaching	6
POCUS	5
Procedures	5
Didactics/conference:	3
Pediatric training:	2
EMS/pre-hospital training:	2
Personal patient load	1
Autonomy	1
Subtotal:	25
Post-graduate readiness	
PGY-3 experience	9
Fellowships	5
Jobs	2
PGY-4 experience	2
Subtotal:	18
Online/Virtual Supplement	
Virtual tour	1
Website	1
Subtotal:	2

25 The Off-Service Letter of Evaluation....the Over-Ranked Service Letter of Evaluation?

Jordan Gowman, Bernadette Dazzo, Jace Coon, Tracy Koehler, Ryan Offman, Joseph Betcher

Learning Objectives: To review the results of the Off-Service Letter of Evaluations (OSLOEs) in the 2020-21 academic year and analyze their utility and value in the emergency medicine residency application process.

Background: Standardized Letters of Evaluation (SLOE) s are designed to objectively compare medical students to their peers for completed emergency medicine (EM) rotations. Coronavirus disease of 2019 (COVID-19) mitigation efforts decreased medical students' ability to obtain multiple SLOEs for their application to the EM match. To compensate, the Council of Residency Directors in Emergency Medicine (CORD) implemented "off-service" SLOEs (OSLOEs). The purpose of our study is to summarize the OSLOEs submitted during the 2020-21 academic year and assess for grade inflation and overall utility of the letters for applicant selection.

Methods: A retrospective review of OSLOEs submitted during the 2020-21 academic year to a single EM residency program was performed. Summary statistics for global rank (top 10%, top ⅓, middle ⅓, and lower ⅓), grade (honors, high pass, pass, low pass, fail) and specific category (knowledge, work ethic, communication, teachability, respectfulness, admits mistakes, accountable, and reliability) ranks were calculated.

Results: A total of 270 OSLOEs were reviewed and summarized. Global assessments revealed 61.9% were ranked at the top 10% of their class, with 95% being ranked in the top 10% and top ⅓. No student was ranked in the bottom ⅓ of their class. Over 90% of students were graded as honors or high pass; no students received low pass or failing grades. Over 75% of students were ranked in the top ⅓ for each specific OSLOE category.

Conclusion: In an attempt to adapt quickly to the lack of availability of in-person EM rotations due to COVID-19, the OSLOE was a logical alternative. However, our findings reveal signs of grade inflation providing evidence that the ranking distribution of the OSLOE may have little value in the evaluation of student performance. Given our findings, the OSLOE may not carry the same weight as a SLOE when objectively evaluating prospective students for a match into EM.

26 Transitioning to Pass/Fail USMLE Step 1: Will Students from Less Prominent Schools be Adversely Impacted?

Christopher Kiefer, Darcy Autry, Lauren McCafferty, Kimberly Quedado, Lesley Cottrell, Autumn Kiefer, Timothy Lefeber, Ethan Higginbotham, Scott Cottrell, Erica Shaver

Background: In January 2022, USMLE Step 1 scoring will be pass/fail (P/F). Although this change aims to decrease applicant stress, it will impact the way EM program directors (PDs) review applications. Little research exists on how the transition will impact applicants.

Objectives: The purpose of this study was to determine if a change in Step 1 scoring will affect the likelihood to interview (LTI) an applicant. We hypothesized that transitioning to P/F scoring may negatively impact the LTI for students from less prominent schools.

Methods: A survey of mock residency applications from strong, fair, and poor applicants was distributed to EM PDs via the CORD list serve. Respondents rated the LTI of applicants on a 5-point Likert scale. Applications from allopathic (MD), osteopathic (DO), and international medical graduates (IMG) were included. School prominence was determined by the 2020 US News & World Report rankings. Survey respondents were randomized to review applications with either numeric or P/F scores. Independent sample t-tests were calculated in SPSS 23.0 to compare mean ratings for applications based on scored or P/F scenarios for MD, DO, and IMG groups separately. This study was approved by the institutional review board at the study site.

Results: Of 149 responses, poor performing MD students from highly prominent schools had a higher LTI with P/F scoring than poor performing students from less prominent schools (2.03 vs. 1.55, $p < .01$). For strong and fair performing MD students, no significant difference in LTI existed amongst high and less prominent schools with P/F scoring (Table 1). Strong DO ($p<.01$) and IMG ($p<.001$) applicants had higher LTI with P/F, while fair DO ($p<.01$) and IMG ($p<.001$) applicants had higher LTI with a numeric score (Table 2).

Conclusions: When only P/F scoring is reported, poor performing students from low prominence schools have a significantly lower LTI than poor performing peers from high prominence schools.

Table 1.

Prominence of School	Strength of Candidate					
	Strong		Fair		Poor	
	P/F	Score	P/F	Score	P/F	Score
High	4.34	4.38	3.93	3.96	2.03	1.82
Low	4.49	4.59	3.98	3.84	1.55	1.38
p-value	0.92	0.86	0.96	0.91	*<0.01	*<.01

Strong, fair, and poor-performing applicants were similar except for the prominence of the school attended. The strong applicants had USMLE scores greater than 255, an exemplary Medical Student Performance Evaluation (MSPE), members of AOA, and top 1/3 Standardized Letters of Evaluation (SLOEs) with glowing commentary. Fair performing students had USMLE scores in the average range, were middle quartile in their MSPE's, and had middle 1/3 SLOEs, with solid commentary. Poor performing students were had at least one failed attempt on USMLE Step 1, were fourth quartile on their MSPE, with lower 1/3 SLOEs describing significant struggles during their EM rotation.

Prominence of medical schools were determined by referencing the US News and World Report Medical School Rankings, with institutions characterized as "high" prominence being in the top 10 of the report, while "low" prominence schools fell outside the top 10 rankings but were geographically similar public institutions.

P-values listed above for all strengths of applicants, from both high and low prominent schools, with P/F and scores reported. There was a significant difference between the LTI for poor performing applicants from high prominent schools when compared with their similarly performing, lower prominence peers.

Table.2

Candidate Type	Strength of Candidate					
	Strong		p-value	Fair		p-value
	P/F	Score		P/F	Score	
DO	3.87	3.10	*<0.01	2.85	4.11	*<0.01
IMG	4.38	2.78	*<0.001	3.69	4.15	*<0.001

Per Table 1, quality of candidate definitions remains the same. We did not delineate DO and IMG schools by prominence, given the lack of publicly reported ranking systems for these institutions. Of note, the osteopathic institutions are included with the allopathic institutions in the referenced 2020 US News and World Report Top 10 Rankings, however, the highest ranked osteopathic institution for the most recent year was 93rd, making them all "low prominence" by our previously described definition. The presence of USMLE Step 1 scores seems to be somewhat protective for fair DO and IMG candidates, which by our definition, are from lesser prominent schools, as outlined above. Interestingly, for strong DO/IMG students, the P/F score portends a higher LTI. Poor DO and IMG candidates were not presented to respondents due to concern for survey fatigue.

27 The Impact of Medical Education Fellowships on the Careers of Graduates

Jaime Jordan, Jack Buchanavage, James Ahn, David Diller, Ryan Pedigo, Mike Gisondi, Jeff Riddell

Learning Objective: Our objective was to explore the impact of medical education fellowship training on the careers of graduates.

Background: Medical education fellowships in emergency medicine provide training in teaching, assessment, educational program administration, and scholarship. The longitudinal impact of this training is unknown.

Objective: To explore the impact of medical education fellowships on the careers of graduates.

Methods: We performed a qualitative study with a constructivist-interpretivist paradigm using semi-structured interviews. We used a purposeful randomized stratified sampling strategy of graduates to ensure diversity of representation (gender, region, fellowship duration, and career stage). Subjects were invited by email to participate in semi-structured video interviews. Interviews were recorded and transcribed. Two researchers independently analyzed the data using a modified grounded theory approach and resolved discrepancies through in-depth discussion. Inter-rater agreement was 93.7%.

Results: The characteristics of the 10 participants are displayed in Table 1. Participants sought fellowship training because of their passion for education, for career preparation, and at the advice of mentors. Participants felt that fellowships provided formal training and important relationships in a supportive learning environment. Fellowship training gave fellows a community, helped them develop expertise, influenced their mindset and impacted careers in both the short and long term. Participants noted that fellowship enhanced their self-efficacy, broadened their educational world view, shaped their professional identity, validated their skill set, and prepared them for job tasks. Participants felt that fellowship increased their competitiveness in the job market, focused the direction of their career, helped develop their niche, and positively affected their career trajectory (Table 2).

Conclusion: Fellowship training in medical education broadly influenced the short and long-term mindset and careers of graduates.

Table 1. Characteristics of participants.

	N (%) Total N = 10
Gender Male	5 (50)
Region of fellowship	
West	3(30)
Midwest	2(20)
Northeast	3(30)
South	2(20)
Mean number of years since fellowship graduation ± standard deviation	4.7 ± 2.6
Current academic rank:	
Instructor	2(20)
Assistant Professor	5(50)
Associate Professor	2(20)
Professor	0(0)
None	1(10)
Current position*	
Residency Program Director	4(40)
Assistant/Associate Residency Program Director	2(20)
Medical Education Fellowship Director	2(20)
Clerkship Director	1(10)
Simulation Director	1(10)
Research Director	1(10)
Other	5(50)
Mean number of peer reviewed research manuscripts ± standard deviation	14.2 ± 10.9
Received grant funding for research	7(70)
Duration of fellowship 2 years	5(50)
Completed advanced degree as part of fellowship	5(50)

*Participants may hold more than one position

Table 2. Result qualitative analysis.

Domain	Theme	Subtheme	Number of interviews demonstrating theme (n= 10)	Exemplar Quotes
Motivation to pursue fellowship				
	Career preparation		10	"I've always just been in love with the idea of academia and part of that is research, and you know wanting to be in an academic place, and you know, wanting to be able to go up for academic promotion and all those things to me. Research should be a part of that… So, I wanted to make sure that I at least had some experience and some understanding to be able to do quality work and to be able to interpret quality work in the right way." (Participant 9)
	Passion for education		5	"…There's this other side of me, that is kind of oh, you know, I don't know if I would use the word creative, but likes to write, that likes to think about things…But I was the one that was buying textbooks all the time, and you know just kind of had a little bit more of that nerdy side, I guess, and so that I think just, you know, as I thought about like what my career would be like and what I wanted my life to be like I knew that I wanted more than just working shifts. And I couldn't have

28 Comparing Attending and Patient Evaluation of Medical Student Communication Skills on an Emergency Medicine Clerkship

Jason Lewis, Lakshman Balaji, Anne Grossestreuer, Nicole Dubosh

Learning Objective: To determine how attending and patient assessment of medical student communication skills correlate.

Background: Accurately assessing medical student (MS) patient communication skills is an essential component of undergraduate medical education. There are different methods used to evaluate MSs, including supervising attending physician ratings as well as patient assessment. However, it is unclear how these distinct types of evaluators compare with each other.

Objectives: To determine how attending and patient assessment of MS communication skills correlate. We hypothesized the two would closely correlate.

Methods: This was a retrospective study of rotating fourth-year MSs on an elective EM clerkship. From 7/16–10/17, ED attending physicians and patients assessed MS communication skills during the students' ED shifts. Attendings rated MS communication skills with patients using a 1-5 Likert scale. Patients evaluated MSs using the modified Communication Assessment Tool (CAT), a 14-item questionnaire based on a 1-5 Likert scale. Mean attending ratings and patient CAT scores were calculated for each MS. Due to nonparametric distribution, means were divided into tertiles and scores weighted to assign adjacent tertiles partial agreement. Agreement between attending and CAT scores was measured using a Cohen's kappa.

Results: 25 MSs were included. A total of 217 supervising attending evaluations with a median of 9 evaluations per MS (interquartile range (IQR) 8-10, min 6) and 102 CAT questionnaires with a median of 4 evaluations per MS (IQR 3-5, min 3) were completed. Attending and CAT scores showed slight agreement (k 0.196).

Conclusions: Attending and patient ratings of MS communication skills show only slight agreement. It is possible that utilizing only one type of evaluator during a clerkship may miss important communication issues that could be addressed with the MS. Utilizing a multimodal approach that includes both attending and patient evaluations may be beneficial in fully assessing and subsequently educating MSs on their patient communication skills.

29 CORD COVID-19 Task Force Report on the Pandemic Impact on Undergraduate Medical Education

Melissa Platt, Shannon Moffett, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Bryan Kane, Eric Lee, Stephen Miller, Brian Milman, Lauren McCafferty, Lisa Stoneking, Taylor Surles, Amy Cutright, Isaac Shaw, Morgan Wilbanks

Learning Objective: We sought to describe the effects of COVID-19 on UME within EM.

Background: The COVID-19 pandemic has affected multiple aspects of Undergraduate Medical Education (UME) beyond infection and illness. Many universities, medical schools, and hospitals instituted policy changes around educational gatherings and clinical participation. State-issued travel restrictions impacted both rotations and altered the Match process.

Objectives: We sought to describe the effects of COVID-19 on UME within EM.

Methods: CORD chartered a COVID-19 Task Force comprised of 18 selected educators to explore the pandemic's impact on EM. A Modified Delphi process was used to develop multiple survey instruments. This process included a literature search for validated questions and internal piloting

with iterative changes. After IRB approval, the UME survey was distributed to members of CORD during the 2021 Academic Assembly. Using SPSS v26, a descriptive analysis was performed.

Results: Sixty-three individuals responded to the UME survey, with 27 (42.9%) program directors (PDs), 19 (30.2%) assistant/associate PDs, 5 (7.9%) core faculty, 5 (7.9%) clerkship directors, 4 (6.3%) residents/fellows and 3 others (vice chair of education, educational researcher, unknown). Most respondents were white (84.1%) and approximately half identified as women (50.8%). Table 1 provides means and standard deviations for statements displayed from most to least important.

Conclusions: The positive financial impact on medical students was described as the greatest benefit of the pandemic. Virtual technology was varied in its impact: positive for conferences and interviewing but negative as a surrogate for clinical rotations or the ability for students to evaluate residency program culture. The top challenge facing UME was the removal of students from clinical rotations. This may impact residency programs, requiring them to remediate those skills. A limitation of this geographically broad cohort was the number of respondents.

Table 1. Undergraduate medical education benefits and challenges.

Item	Mean	SD
UME Benefits – Rank 1 to 6 with 1 being most important.		
Decreased financial burden of away rotations/interviews	2.53	1.76
Increased utilization of asynchronous learning	3.08	1.49
Use of videoconferencing programs (Zoom, etc.)	3.29	1.61
Re-evaluation of current education modalities for students	3.63	1.68
Ability to attend virtual education sessions from a variety of departments/programs	3.69	1.58
Time for students to participate in scholarly activity	4.77	1.29
UME Challenges – Rank 1 to 7 with 1 being most important.		
Students pulled from clinical rotations	1.40	0.88
How students get the "fit" of the program over the virtual platform	3.32	1.61
Use of virtual rotations while students were pulled from clinical experiences	4.18	1.47
Restrictions on simulation activities	4.45	1.73
Inability to host in-person lecture	4.58	1.65
Virtual interviews	4.70	2.00
Students having to remediate required clinical rotations prior to 4th year electives	5.30	1.77

SD = Standard Deviation
UME = Undergraduate Medical Education

30 Prez Drills: An Online Interactive Workshop to Develop Presentation Skills in Preclinical Medical Students

Alexis del Vecchio, Anthony Seto, Paul Bryan, Logan Haynes, Nicole Ertl

Learning Objective: Students at our university identified low confidence in presenting oral cases and a desire for more practice. We created a workshop, "Prez Drillz", to address this. We will cover our initiative, results to date, and ways that this can be implemented at other medical institutions.

Background: Presenting clinical cases orally is a core skill for medical students, a task some find intimidating. Oral case presentations may influence preceptors' impression of students, as it highlights learners' cognitive and non-cognitive attributes.

Objectives: Students at our university identified low confidence in presenting oral cases and a desire for more practice. We created a workshop, "Prez Drillz", to address this.

Methods: Before the workshop, students viewed a podcast on oral case presentation structure. 154 second-year students participated in the 2.5-hour workshop, hosted via Zoom videoconferencing, with 1 physician preceptor for 4-5 medical students. During the workshop, students first listened to a 5-minute case audio, outlining patient history and examination findings. Students delivered an oral case presentation, based on information extracted. Self-reflection and feedback from peers and preceptor followed. Students then practiced delivering a second oral case presentation by implementing the feedback received.

Results: Students completed a retrospective survey on their agreement (1=strongly disagree; 5=strongly agree) with self-efficacy statements regarding presentation skills pre- vs post-workshop (effective frame/context, clear history/physical exam, convincing top differential diagnoses, comprehensive management plan, appropriate confidence, clear/effective communication, organized/structured approach). All ratings of self-efficacy (N=23) increased with statistical significance ($p<0.001$) and large effect size; the average self-efficacy rating was 2.50/5 pre-workshop versus 4.32/5 post-workshop. Average workshop rating (N=55) was 4.73/5.

Conclusions: This workshop improved students' self-efficacy in oral case presentation skills. Peer-teaching, repetition, and feedback opportunity aided their success. Medical educators can adapt this model to help learners improve and elevate their oral case presentations.

31 The Impact of COVID-19 on the Medical Student Emergency Department Clinical Experience

Page Bridges, Samantha Shelhoss, Paige Neroda, Elena Roberts, Lindsay Grasso, Smith Heavner, Lauren McCafferty

Learning Objective: Describe the impact of COVID-19 related restrictions in the clinical learning environment on the patients and chief complaints evaluated by students.

Background: In March 2020, medical students across the nation were removed from the clinical learning environment in response to novel coronavirus. Upon returning, students found new precautions and restrictions around patient care to avoid exposure and curb PPE shortages. These restrictions often impacted which patients students could see, potentially changing their experience in comparison to students in typical years.

Objectives: With the restrictions placed on medical students on their return to the clinical learning environment, we anticipate that their experience would differ from students in the prior year. Specifically, we hypothesize that students would see fewer patients with respiratory or infectious symptoms as their presenting complaint.

Methods: Through a query of the electronic medical record, we obtained de-identified information for all patients seen in the Emergency Department at our large academic medical center for June 1 – October 31 in 2019 and 2020, including age, chief complaint, and if the patient was seen by a medical student. Investigators categorized chief complaints into one of twelve categories and calculated the total number of student shifts during the study time period using the published student schedule. We calculated the average number of patients seen by students in each category per shift for 2019 and 2020.

Results: In 2020, students saw on average fewer patients with respiratory, constitutional, and cardiac presenting complaints per shift. Students saw slightly fewer patients per shift overall in 2020 in comparison to 2019.

Conclusions: Restrictions placed on medical students in the Emergency Department during the COVID-19 pandemic have had a significant impact the student clinical experience during their clerkships. Although the intent of these restrictions was to protect learners from the risks posed by caring for COVID patients, these restrictions had unintended consequences on which patients students evaluated.

Table 1.

Chief Complaint Category	2019 Patients per student shift	2020 Patients per student shift
Cardiovascular	0.51	0.40
Constitutional	0.57	0.35
Endocrine	0.05	0.05
Gastrointestinal	0.78	0.76
Genitourinary	0.17	0.18
Integumentary	0.18	0.18
Musculoskeletal	0.56	0.56
Neurologic	0.38	0.34
Psychiatric	0.13	0.14
Other	0.43	0.41
Respiratory	0.45	0.17
Trauma	0.66	0.67
Total	4.85	4.2

32 Identifying Gaps in Ultrasound Education and Potential for a Digital Curriculum

Michael Muradian, Mayank Gupta, Steven Johnson, Amit Bahl

Learning Objective: Attendees will learn about how development of a digital ultrasound curriculum can be used to address knowledge gaps in resident education and is associated with improved confidence with performing and interpreting ultrasound exams.

Background: Ultrasound is a key competency for EM residents and has numerous applications. It is not clear if residents gain sufficient experience with less frequently used ultrasound exam types through traditional teaching methods. A digital curriculum may provide additional learning opportunities and help to address these knowledge gaps.

Objectives: The primary goal was to identify current gaps in resident ultrasound education by assessing confidence in performing and interpreting various U/S studies. A secondary goal was to determine if a digital ultrasound curriculum was feasible.

Methods: This prospective observational study was performed at a 3-year EM residency program located at a level 1 trauma center in a large metropolitan area. A pre-implementation survey evaluated resident utilization and confidence with various U/S exams using multiple choice and Likert scale questions. After implementation of a digital ultrasound curriculum, which included monthly cases and self-paced modules, a post-implementation survey was conducted.

Results: There were 12 and 18 respondents in the pre and post implementation surveys respectively. In both surveys, FAST and cardiac exams had the highest confidence and utilization scores. Ocular, pelvic, DVT, and renal U/S had low pre-implementation confidence and utilization scores that increased significantly on post implementation surveys (Figures 1 and 2). Initially, PGY3's used U/S most frequently but post-implementation PGY2's had the highest overall usage. Overall, the digital curriculum post-implementation survey showed an 88% increase in interpretation confidence score and a 28% increase in utilization.

Conclusions: Confidence with performing and interpreting various ultrasound exams was low for infrequently used exam types and increased significantly following the implementation of a digital curriculum. These are feasible interventions and could improve knowledge of less commonly used exams.

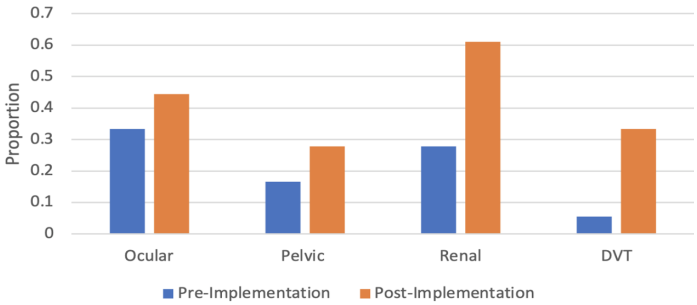


Figure 1. The proportion of residents reporting confidence with performing the least commonly used U/S exam types.

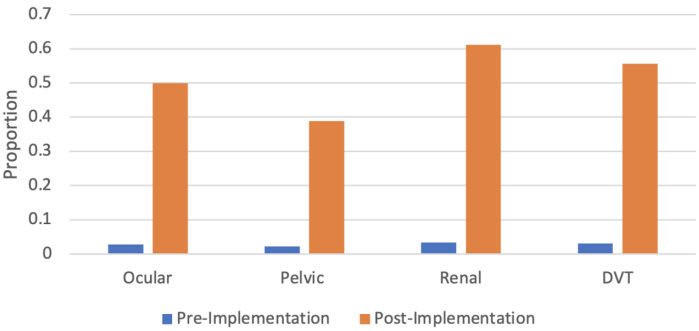


Figure 2. The proportion of residents reporting confidence with interpreting the least commonly used types.

33 Emergency Medicine Resident Use of a Differential Diagnosis Generator for Critical Patients in the Emergency Department

Kate Romero, Lauren McCafferty, David Berger, Matthew Booher, Madhavi Purekar, Nai-Wei Chen, Brett Todd

Learning Objective: We aimed to evaluate the use of a differential diagnosis tool by emergency medicine residents in the critical care area of an emergency department to determine patient presentations where the tool would be most valuable and widely used.

Background: Generating a differential diagnosis (DDx) is a vital skill for emergency medicine (EM) residents to develop in their care of critically ill patients. Electronic DDx tools allow a physician DDx to be cross-checked with artificial intelligence to broaden the DDx in complex cases, and may assist in resident DDx generation. Currently, DDx tools have not been well studied in EM high-acuity scenarios. It is unclear which patient presentations challenge EM residents most in their DDx generation.

Objective: We aimed to evaluate the use of a DDx tool by EM residents in the critical care area of an emergency department (ED) to determine patient presentations where the tool would be most valuable.

Methods: We performed a prospective observational study of usage of a DDx tool in an academic ED. The tool was evaluated in the high-acuity area of the ED in patients requiring immediate evaluation. A resuscitation resident rotates each month in the area and evaluates each patient. The resident queried the DDx tool on the patient's symptoms and completed a data collection tool. Data was summarized by frequencies for use in DDx creation with attention to body system categories. Chi-squared or Fisher's exact tests were employed on comparison.

Results: The DDx tool was used for 98 patients, of whom 60.2% were female and 7% were pediatric. The tool was not used for 87 patients seen by the resident. Compared with non-DDx tool use, the DDx tool was used significantly for more patients with gastroenterology (GI), infectious disease (ID), metabolic/renal, and neuropsych complaints, and significantly less for trauma patients (Table 1).

Conclusions: A DDx tool has potential to enhance DDx generation in the resuscitation setting for EM residents, particularly for assessing patients with chief complaints consisting of GI, ID, metabolic/renal, and neuropsych involvement. It has less utility for trauma diagnosis, likely because trauma protocols follow strict, stepwise management.

Table 1. Chief complaints and DDx tool use.

Chief Complaint	Number of cases with each symptom complex	DDx tool used (n=98)	DDx tool not used (n=87)	p value
Gastroenterology	15	12	3	0.03
Hematology/Oncology	5	3	2	1.00
Infectious Disease/Immunologic	10	9	1	0.02
Toxicology	4	1	3	0.34
Allergic Reactions	5	1	4	0.19
Cardiology	49	25	24	0.87
Dermatology	1	0	1	0.47
Metabolic/Renal	17	14	3	0.01
Musculoskeletal	2	2	0	0.50
Neuropsychiatric	41	29	12	0.01
Reproductive	7	5	2	0.45
Respiratory	27	19	8	0.05
Surgical	1	0	1	0.47
Trauma	36	7	29	<0.001

34 An Analysis of Resident Generated On-Shift Evidence Based Medicine Questions

Estelle Cervantes, Philip Shobba, Shreyas Kudrimoti, Jacob Albers, Jeffrey Brown, Kashyap Kaul, William A. Spinosi, Ajay Varadhan, Joseph B. Zackary, Bryan Kane

Learning Objective: Using previously validated methodology, to analyze the EBM content of clinical questions generated by EM residents while on shift.

Background: Evidence Based Medicine (EBM) skills allow EM physicians to obtain new information while on shift. There is little documentation EM resident clinical questioning skills.

Objective: Using previously validated methodology, to analyze the EBM content of clinical questions generated by EM residents while on shift.

Methods: With IRB approval, residents (PGY 1-4) were required to submit logs of on-shift EBM activity in the program's procedure software system New InnovationsTM. The logs are a convenience sample, with an N of 3-5 per 28-day EM rotation. The logs include a patient description, clinical question, search strategy, information found, and subsequent application. The questions were analyzed through the lens of Patient-Intervention-Comparison-Outcome (PICO) using a rubric previously described by Ramos et al, BMJ, 2003. Anchor words/phrases were established for each of the PICO elements, with exemplars in Table 1. Data was analyzed descriptively.

Results: From 6/2013 until 5/2020, 10,450 discrete completed logs were identified for inclusion. A total of 49 were excluded (45 logs because they were intentionally left blank or only contained a punctuation mark and 4 were exact copies of the previous log) leaving 10,401 for analysis. These were submitted by 143 residents, of which 51 were female (35.7%). Table 2 demonstrates analysis of the questions via the PICO framework using the Fresno rubric. The average score each of the 4 PICO categories for all logs was 1.20. When excluding zero scores the average was 2.33.

Conclusions: In this single site cohort, resident description of P was most detailed, followed by I. C was the most excluded clinical question element. Having more patient oriented O would strengthen that category. When residents include a PICO category in clinical questions, their ability to do so appears strong, so educational interventions to encourage the use of all 4 PICO elements may yield the most improvement.

Table 1. Sample standardized phrases used to score resident on-shift clinical questions as adapted from Ramos et al. (BMJ 2003)

Score	Population	Intervention/Comparison	Outcome
0	No mention	No mention	No mention
1	"Patient" "Population"	"Imaging" "Management" "Tool" or "System" Treatment Exam "Control" of (symptom)	Outcome Effective, Benefit, Utility "Improved" Safety Prognosis "Disposition"
2	Low-risk patient Mention of a disease (i.e. PE)	Specific type of imaging (i.e. CT) Follow-up Medication class (i.e. antibiotics) Type of symptom control	Treatment of (disease) Improvement of (symptom) Control of (entity) Specific disposition (i.e. admit) Side effect/adverse effect Patient satisfaction
3	Disease with a modifier (i.e. acute asthma, COPD exacerbation)	Specific imaging of specific anatomy (i.e. CT head) POCUS, bedside ultrasound Specific test (i.e. EKG, echo, CBC) Specific intervention (i.e. proning, nerve block, suturing)	Morbidity, mortality or another patient-oriented outcome Change in specific disposition Specific effect/adverse effect

Table 2. PICO analysis of EM resident clinical questions using the Fresno Rubric demonstrating average score and score distribution.

	Population (Max 3)	Intervention (Max 3)	Comparison (Max 3)	Outcome (Max 3)	Total Score (Max 12)
Overall	**2.077**	**1.708**	**0.267**	**0.733**	
(10,401 = 100% total)	0 = 2114 1 = 238 2 = 2782 3 = 5267	0 = 2350 1 = 1966 2 = 2452 3 = 3633	0 = 9282 1 = 88 2 = 404 3 = 627	0 = 6512 1 = 1031 2 = 1981 3 = 877	**4.785**
PGY 1	**2.156**	**1.670**	**0.291**	**0.733**	
(2554, 24.6% of total)	0 = 454 1 = 72 2 = 649 3 = 1379	0 = 574 1 = 530 2 = 616 3 = 834	0 = 2250 1 = 25 2 = 118 3 = 161	0 = 1611 1 = 229 2 = 498 3 = 216	**4.850**
PGY 2	**2.085**	**1.707**	**0.275**	**0.735**	
(2552, 24.5% of total)	0 = 495 1 = 58 2 = 733 3 = 1266	0 = 582 1 = 487 2 = 580 3 = 903	0 = 2274 1 = 16 2 = 99 3 = 163	0 = 1569 1 = 298 2 = 478 3 = 207	**4.802**
PGY 3	**2.101**	**1.726**	**0.245**	**0.709**	
(2210, 21.2% of total)	0 = 437 1 = 45 2 = 585 3 = 1143	0 = 500 1 = 394 2 = 528 3 = 788	0 = 1984 1 = 24 2 = 89 3 = 113	0 = 1412 1 = 203 2 = 421 3 = 174	**4.781**
PGY 4	**1.987**	**1.729**	**0.256**	**0.748**	
(3085, 29.7% of total)	0 = 728 1 = 63 2 = 815 3 = 1479	0 = 694 1 = 555 2 = 728 3 = 1108	0 = 2274 1 = 23 2 = 98 3 = 190	0 = 1920 1 = 301 2 = 584 3 = 280	**4.720**
Male	**2.053**	**1.708**	**0.262**	**0.742**	
(6833, 65.7% of total)	0 = 1428 1 = 170 2 = 1844 3 = 3391	0 = 1550 1 = 1287 2 = 1602 3 = 2394	0 = 6117 1 = 50 2 = 258 3 = 408	0 = 4262 1 = 671 2 = 1298 3 = 602	**4.766**
Female	**2.122**	**1.709**	**0.277**	**0.715**	
(3568, 34.3% of total)	0 = 686 1 = 68 2 = 938 3 = 1876	0 = 800 1 = 679 2 = 850 3 = 1239	0 = 3165 1 = 38 2 = 146 3 = 219	0 = 2250 1 = 360 2 = 683 3 = 275	**4.823**

35 An Experiential Learning Curriculum to Enhance Emergency Medicine Residents' Situational Awareness of Patient Safety Hazards

Nathan Olson, Casey Morrone, Morgan Battaglia, Kamna Balhara, Adriana Olson, Nicholas Hartman

Learning Objective: 1. Assess EM residents satisfaction with a patient safety simulation and debriefing 2. Assess EM residents ability to identify hazards and solutions in a simulated patient safety room.

Background: Situational awareness (SA) is essential to patient safety in emergency medicine (EM). SA has 3 ascending levels and is impacted by environment and workload.(Fig.1) Little is known about how EM residents' SA evolves during training, limiting development of curricula, though simulation may be a promising approach.

Objectives: Our objective was to evaluate EM residents' SA of hazards in a simulation and assess satisfaction with the exercise and debriefing. We hypothesized senior residents would identify more hazards.

Methods: A cross-sectional observational study was conducted over 3 months with a convenience sample of residents at 2 university-affiliated 3-year EM programs. A simulation scenario was designed, incorporating common safety hazards.(Fig. 2) After reviewing a mock handoff and chart, participants spent 10 minutes in a simulated room documenting hazards and solutions. An interruption and new task were introduced midway to replicate the ED environment and workload. Hazards, solutions, and core SA concepts were discussed during the debriefing. Descriptive statistics were used for hazards and survey responses. A Spearman-Rho coefficient was calculated to assess the correlation between PGY and hazards identified.

Results: 46/91 residents participated in the simulation. Mean hazards identified were 6.12/13(47.1%): Level 1:3.8/6(63.3%), Level 2:1.84/4(46.0%), Level 3:1.13/3(37.7%). There was no correlation between PGY and hazards identified (all hazards: r=0.136,p=0.3655; Level 3: r=-.039,p=0.796). 97.8% and 96.7% reported satisfaction with the exercise and debriefing, respectively. 100% agreed the exercise improved knowledge of ED safety hazards.

Conclusions: Residents identified <50% of hazards; higher level hazards were less frequently identified for all PGYs. This suggests a need for longitudinal SA and patient safety education. Educators should consider incorporating elements of workplace complexity for patient safety education.

Figure 1. Endsley's levels of SA.

Level 1 SA: Perception of elements in environment
Perceiving status, attributes, and dynamics of relevant elements in the environment

Level 2 SA: Comprehension of current situation
Synthesizing disjointed level 1 elements from multiple sources to understand the significance of those elements in light of pertinent operator goals, to form patterns that contribute to a holistic picture of the environment

Level 3 SA: Projection of future status
Projecting future action of environmental elements through knowledge of the status and dynamics of the elements and comprehension of the situation (i.e. Level 1 and 2 SA)

Endsley MR. Toward a theory of situation awareness in dynamic systems. Human Factors. 1995 Mar;37(1):32-64.

Figure 2. List of hazards and potential solutions.

Hazard	Level of SA
Lowered bed rail	1
Patient not wearing non-skid/non-slip hospital-issue socks	1
Foley catheter not placed to gravity	1
Exposed sharps in room	1
Patient lacking identification band	1
Unlabeled medication infusion via IV line	1
Discrepancy between patient's allergy band and recorded allergies (allergy band in place despite none listed in chart)	2
Cannula is in the nose but not connected to anything (on home oxygen)	2
Patient is a fall risk and not wearing fall bracelet	2
Patient is on contact isolation for suspected C. difficile but no PPE present (also no PPE present for providers)	2
No bag valve mask in patient room (patient at risk for respiratory compromise)	3
Handoff states "labs normal" but abnormal lab in the chart	3
Food in room (patient is npo pending a CT a/p)	3

36 Assessment of Emergency Medicine Residents' Situational Awareness and Perception of Patient Safety Culture in the Emergency Department

Nathan Olson, Morgan Battaglia, Casey Morrone, Nicholas Hartman, Kamna Balhara, Adriana Olson

Learning Objective: 1. Assess the baseline comfort for EM residents identifying and rectifying patient safety hazards 2. Assess the EM residents baseline ED safety climate.

Background: Situational awareness (SA) is crucial in emergency medicine (EM) and to patient safety. SA refers to perceptions and understanding of the environment. Little is known about EM trainees' SA and perception of Emergency Department (ED) safety climate.

Objectives: Our objective was to evaluate EM residents' perception of ED safety climate and their self-reported SA; we hypothesized that both would be low.

Methods: A cross-sectional observational study was conducted over 3 months at 2 university-affiliated 3-year EM

programs. A convenience sample of residents completed the validated self-reported Situational Awareness Rating Technique (SART) measure after the resuscitation of an ED or simulated patient. The safety climate portion of the Safety Attitudes Questionnaire and a survey assessing comfort with identifying and rectifying hazards in the ED were completed Descriptive statistics were used for SART, safety climate, and comfort. A Spearman-Rho correlation coefficient was calculated to assess the correlation between PGY and SA, PGY and comfort, and the correlation between comfort and SA.

Results: 51/91 residents completed a SART for a total of 62 SARTs; 10 residents completed more than one SART. The mean SART score was 13.4 (max 21). 64/91 residents completed the safety climate scale; 57.8% of participants identified a positive safety climate. 46.0% and 41.3% reported being somewhat or very comfortable identifying and rectifying hazards, respectively. There was no correlation between PGY and SA (r=0.163,p=0.25). There was a correlation between PGY and comfort with identifying (r=0.252,p=0.046) and rectifying hazards (r=0.252,p=0.046).

Conclusions: Less than 50% of residents reported comfort with identifying and rectifying hazards and only a slight majority reported a positive ED safety climate. Comfort modestly improved throughout residency, while SA did not. This data suggests a need for longitudinal patient safety curriculum.

Figure 1.

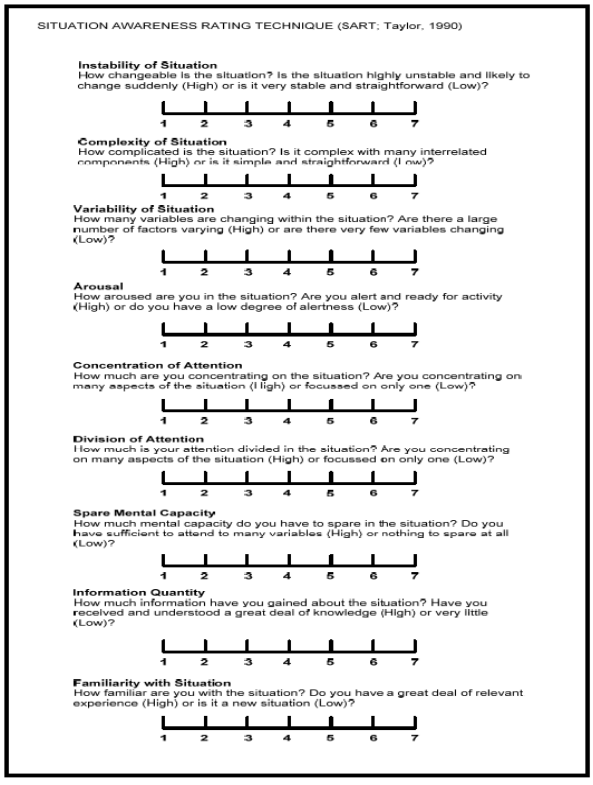


Figure 2.

Safety Culture Subscale of Safety Attitudes Questionnaire (SAQ)
Positive Climate: Score of 75% or higher

1. I would feel safe being treated in the ED as a patient.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
2. Medical errors are handled appropriately in the ED.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
3. I know the proper channels to direct questions regarding patient safety in the ED.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
4. I receive appropriate feedback about my performance.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
5. In the ED, it is difficult to discuss errors.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
6. I am encouraged by my colleagues to report any patient safety concerns I may have.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
7. The culture in the ED makes it easy to learn from the errors of others.					
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable

37 Virtual Simulation's Application to Assess Emergency Medicine Learners in the Post-COVID Setting: A Literature Review

Patrick Zeniecki, Xiao Chi Zhang, Jared Kilpatrick

Learning Objective: This review aims to provide a brief history of virtual simulation and how it is currently being applied as a clinical assessment tool in emergency medicine (EM) training.

Background: Simulation has played a vital role in training generations of medical professionals. In response to the COVID pandemic, virtual simulation (VS) has provided educational advantages to traditional in-person simulation. However, there is no current literature review on VS's medical education application in the post-COVID pandemic setting.

Objective: This review aims to provide a brief history of VS and how it is currently being applied as a clinical assessment tool in emergency medicine (EM) training.

Method: We conducted an electronic database search of SCOPUS in November 2021 using the following terms: "virtual simulation," "simulation history," "virtual reality," "online simulation," "augmented reality," "serious game," "computer-based simulation," "simulation," "health care," "emergency medicine," "education," and "assessment." Returned articles were filtered based on the following: English language, their relevance/inclusion of a VS method, and EM learners as the population under investigation.

Results: 1,104 articles were identified, of which 19 addressed VS's use in assessing EM education (1 article in

the post-COVID setting). Historically, VS was used to assess emergency responders' preparedness to major casualty events due to its ability to generate fictitious environments. In 2021, VS was deemed a feasible assessment tool of healthcare students' clinical competency. More specifically, VS has been shown to be a feasible alternative to traditional oral examination for assessing both EM residents and pediatric EM resuscitation respectively.

Conclusion: VS has been shown to be as effective as traditional simulation methods in assessing EM learners. As the COVID pandemic continues, VS has and will continue to serve as an educational substitute to in-person simulation. We believe the use of VS will continue to grow as viable, standardized, and cost-effective means of assessing EM students' knowledge and clinical competency.

38 Just In Time Learning: EM Resident Search Strategies in Preparation for Performing a Simulated Dental Block

Yuliya Pecheny, Amy Skeel, Linda Spillane, Julie Kittel-Mosley, Ryan Bodkin, Courtney Marie Cora Jones

Learning Objective: To describe on-line resources and strategy used by EM residents prior to performing a simulated dental nerve block including search terms, sources, and time.

Background: EM physicians are called to perform infrequently done procedures, often using on-line resources to prepare.

Objectives: To describe on-line resources used by EM residents prior to performing a simulated nerve block.

Methods: Prospective, observational study of EM residents during a simulation workshop. Subjects were provided a visual prompt of an abscess and given 15 minutes to use on-line resources, then demonstrated the dental nerve block on a skull model. Video screen shots were recorded and data collected including search time, strategy, type and number of resources used. Subjects were observed performing the block and given credit if performed correctly. Residents answered a survey about previous experience, preferred resources and confidence in performing the procedure.

Results: 26 residents participated. The median search time was 4 minutes, 5 seconds. 57.7 % of subjects used a general search term as opposed to a specific procedure. Sites included You-Tube 69%, Google Images 53.8%, WikiEM 42%, EMRA 15%, and UpToDate 11.5%. 61.5% used 2 links. 50% used a combination of written and video material whereas 23% used video material alone. 81.8% performed the block correctly. Survey results: 42% of residents reported having done a dental block on a patient with 3.8% reporting previous training. 50% reviewed both written and video sources with 76% of respondents finding video sources more helpful. 96.2% residents felt they had adequate time to review the procedure. Confidence in ability to perform the procedure after review varied: 3.8% very confident; 46% confident; 23% neutral and 27% somewhat confident.

Conclusions: YouTube was the most frequently used resource in researching how to perform a dental nerve block. The majority of residents applied previous experience and just in time learning to correctly identify injection landmarks on a simulated model. Having a centralized video bank may decrease prep time for infrequently performed procedure.

39 Team and Leadership Performance: An Exploratory Mixed-Methods Analysis Using Interprofessional In Situ Simulation

Ashley Rider, Sarah Williams, Vivien Jones, Daniel Rebagliati, Kimberly Schertzer, Mike Gisondi, Stefanie Sebok-Syer

Learning Objective: To assess leader and team performance during interprofessional in situ simulation and identify characteristics of effective teams.

Background: Patient care in the emergency department (ED) is dependent on highly effective interprofessional teams.

Objectives: To assess leader and team performance during interprofessional in situ simulation and identify characteristics of effective teams.

Methods: This mixed-methods study employed case study methodology. Eligible nurses, technicians, pharmacists, and PGY 2-4 emergency medicine residents at a tertiary academic ED participated in a 10-minute in situ simulation of a critically ill patient. Participants self-rated team performance using the Team Performance Observation Tool (TPOT) 2.0. Two raters independently reviewed simulation videos and rated performance using the TPOT 2.0, Team Emergency Assessment Measure (TEAM), and Ottawa Crisis Resource Management Global Rating Scale (Ottawa GRS). Following the simulations we conducted semi-structured interviews. Transcripts were coded by two coders and underwent thematic analysis.

Results: 23 simulations took place between January-April 2021. Two raters' scores were on the high end of the scales for the TPOT 2.0 (R1 4.90,SD=0.17;R2 4.53,SD=0.27), TEAM (R1 3.89,SD=0.19;R2 3.58,SD=0.39), and Ottawa GRS (R1 6.6,SD=.56;R2 6.2,SD=.54). Team leader attributes including year in residency, age, and gender did not correlate with performance scores. We identified 6 themes: leadership tone, interdependent energy, strategic staffing, optimal communication, simulation empowering team performance, and team entrustment. Participants acknowledged the effectiveness of in situ simulation in promoting entrustment in the clinical setting.

Conclusions: The TPOT and TEAM were not

discriminatory for high-performing ED teams. Our qualitative analysis revealed features such as entrustability, energy, and team size are important for effective team dynamics but are not completely captured on current tools. ED-specific assessments of interprofessional entrustment may be useful in optimizing readiness for the clinical setting.

Table 1. Mean score per subcategory of each performance tool.

	N	Minimum	Maximum	Mean	Std. Deviation
R1_TPOT_overall_meanscore	18	4.30	5.00	4.9028	.16669
R2_TPOT_overall_meanscore	18	4.10	5.00	4.5392	.26823
R1_OTTAWA_meanscore	18	4.83	7.00	6.6387	.56077
R2_OTTAWA_meanscore	18	5.00	7.00	6.1389	.54608
R1_TEAM_overall_meanscore	18	3.36	4.00	3.8939	.19285
R2_TEAM_overall_meanscore	18	2.82	4.00	3.5808	.39088

Table 2. Correlations across overall scores by rater for the *TPOT 2.0, TEAM,* and *Ottowa GRS.*

	R1_TPOT	R2_TPOT	R1_OTTAWA	R2_OTTAWA	R1_TEAM	R2_TEAM
R1_TPOT_overall_meanscore	1.00					
R2_TPOT_overall_meanscore	0.465	1.00				
R1_OTTAWA_meanscore	0.892	0.35	1.00			
R2_OTTAWA_meanscore	0.437	0.519	0.680	1.00		
R1_TEAM_overall_meanscore	0.717	0.297	0.919	0.698	1.00	
R2_TEAM_overall_meanscore	0.446	0.543	0.659	0.936	0.730	1.00

40 Emergency Medicine provider comfort with Physician Orders for Life Sustaining Treatment (POLST) Advanced Directive

Kaitlin Sweeney, Katherine Briggie, Juan Pagan-Ferrer, Sangil Lee, Mark Graber, Daniel Miller, Hao Wang

Learning Objective: Our study aimed to determine the level of awareness and understanding of the POLST form amongst Emergency Department (ED) providers in the US and find the specific knowledge gaps so that we can create an educational intervention tailored to those deficiencies and increase use of the form in the ED.

Background: EDs across the US see many patients with advanced disease and in the end of life. The POLST form is becoming a widely used Advanced Directive as it provides detailed instructions regarding end-of-life interventions compared to the vague "Do Not Resuscitate". Our study aimed to determine the level of awareness and understanding of the POLST form among ED providers and find specific knowledge gaps in order to create an educational intervention tailored to those deficiencies and increase use of the form, thus patient care in the ED.

Methods: Our observational cross-sectional study consisted of sending an anonymous 17-question poll to all residents, attendings, and Advanced Practice Providers (APPs) at two ACGME accredited Emergency Medicine residency programs, The University of Iowa and John Peter Smith Hospital. Four questions were to obtain demographic data and the rest to gauge comfort levels and test the responder's knowledge of the POLST and related regulations. The poll was created and sent using the online software, Qualtrics, with Likert scale style questions in November 2021 to nearly 150 providers. We are still undergoing further analysis of the data using Statistical Analysis Software (SAS).

Results: Of the 58 respondents, 45% were attendings, 47% residents, and the rest APPs. 53% practiced in Texas, the rest in Iowa. 19% of respondents believe that they have not received any palliative care training to date. 78% were not confident applying the POLST and 72% of respondents did not know where to look in their workplace for it. 91% were not confident applying the form without the family present. 37% of respondents agreed that the POLST supersedes a durable power of attorney.

Conclusion: Our data shows us that there are many ED providers that are unaware of the POLST and do not know how to find, interpret, and apply the form correctly. Next steps are to create an effective educational intervention and resurvey participants to determine our success.

41 "Everybody in this room can understand": A Qualitative Exploration of Peer Support during Residency Training

Aarti Jain, Ramin Tabatabai, Jacob Schreiber, Anne Vo, Jeff Riddell

Learning Objective: To better understand the nature of support offered through residency peer support programs and to explore trainee perceptions of the benefits, potential harms, and optimal characteristics of peer support.

Background: Though peer support groups are often

utilized during residency training, the dynamics, content, and impact of social support offered through peer support are poorly understood.

Objective: To explore trainee perceptions of the benefits, drawbacks, and optimal membership and facilitation of peer support groups.

Methods: After engaging in a peer support program at an emergency medicine residency program, fifteen residents and four group facilitators participated in four focus groups in 2018. Interview questions explored the dynamics of group interactions, types of support offered, and psychological impacts of participation. The authors conducted a reflexive thematic analysis of data, performing iterative coding and organization of interview transcripts.

Results: Discussions with experienced senior residents and alumni normalized residents' workplace struggles and provided them with insights into the trajectory of their residency experiences. Vulnerable group dialogue was enhanced by the use of "insider" participants, however participants acknowledged the potential contributions of mental health professionals. Though groups occasionally utilized maladaptive coping strategies and lacked actual solutions, they also enhanced residents' sense of belonging, willingness to share personal struggles, and ability to "reset" in the clinical environment. Results of our reflexive thematic analysis are described with representative quotes in Table 1.

Table 1.

Theme	Description	Exemplary Quotation
Theme #1: A More Experienced Other	Discussion of the group dynamic created by the presence of senior residents and alumni facilitators	
Subtheme: Expected trajectory	Alumni facilitators clarified the expected trajectory of the residency training years and characterized life post-residency.	"[The alumnus] gave a lot of insight into what life is like once you finish this, and how things can be, and what she had to do after residency to decompress after 4 years of such high stress.
Subtheme: Encourages vulnerability	Seeing senior individuals demonstrate their own vulnerability encouraged junior residents to share their experiences	"When a senior person starts by opening up and sharing what they've been through...it gives you more confidence- 'alright it's okay to admit that I had this weakness.'" [FG3]
Subtheme: Normalizing struggles	Finding comfort in knowing that senior residents encountered similar struggles during their training years.	Just crucial to know that you're not alone, whether you messed up a procedure and your senior says 'Here is how I messed up this procedure or you're experiencing depression or burnout and when your senior says, 'This is when I felt really low'…" [FG3]
Subtheme: Outing yourself	Fearing that admitting vulnerability in front of senior residents might be mistaken for clinical weakness or ineptitude.	"She's not strong enough to be in this program or she's not bada** enough."
Subtheme: Fosters anxiety	Concern that the pessimistic nature of anticipatory guidance from senior group members might provoke anxiety in junior residents.	"The [PGY] 4's would start talking about how terrible third year was and... the 3's and the 4's were like, 'Oh God I'm so glad second year's over.' And the 1's-I don't think that's helpful for them. I think that just fosters some anxiety that they already have." [FG4]

Conclusions: Participants offered insights into the benefits and drawbacks of peer support as well as optimal peer group composition and facilitation. Support groups may be more effective if they engage a complementary model of alumni and psychologist facilitators, avoid fatalism, and aim to foster intimate connections among residents. These findings can inform the development of future initiatives aiming to create a safe space for trainees to discuss workplace stressors.

42 Do Residents Living Alone Have Higher Levels of Depression, Anxiety and Stress During the Pandemic?

Brian Walsh, Frederick Fiesseler, Kristen Walsh, Veronica Mekaeil

Learning Objective: Understand how residents' living situations and support structure might affect their wellness.

Background: EM residents are known to be high-risk for depression; in all likelihood the Covid-19 pandemic added to this risk. In addition to the understandable work stressors, social isolation caused by the lockdowns likely has affected their support structure.

Objectives: Using validated psychometric testing, we sought to determine the levels of depression, anxiety, and stress in EM residents in a region severely impacted by the pandemic. We hypothesized that residents living alone would have more depression, anxiety and stress than those living with family or other roommates.

Methods: Setting: An EM residency program in the state greatly affected by Covid-19. All EM residents were surveyed a year into the pandemic using the Depression, Anxiety, Stress Scales (DASS). This scale has been validated in the psychology literature across multiple settings. Surveys were anonymous to promote honesty. Residents were also surveyed about their living situations and then separated into two groups based on whether they lived alone or with other people. Levels of depression, anxiety, and stress were determined for each group and compared. Differences between the groups and 95% confidence intervals (CI) were calculated.

Results: 26 of 27 residents (96%) completed the survey. 12 residents lived by themselves and 16 residents lived with others. In terms of depression, the incidence was 58% for those living alone vs. 23% for those living with others (Difference -29%, CI: -69,11). In terms of anxiety, the incidence was 33% for those living alone vs 29% for those living with others (Difference -4%, CI: -43,35). In terms of stress, the incidence was 50% vs. 43% for those living with others (Difference -7%, CI:-49,35).

Conclusion: During the pandemic, the rates of depression, anxiety and stress in emergency residents as measured by the DASS are high overall, but with the small sample size no differences between those who live alone and those that live with others was shown.

43 Impact of the COVID-19 Pandemic on US Emergency Medicine Education: A Needs Assessment for Academic Emergency Medicine Faculty

Melissa Platt, Bryan Kane, Rebecca Bavolek, Leah Bradlow, Melanie Camejo, Sarah Dunn, Tabitha Ford, Kristi Grall, David Jones, Eric Lee, Stephen Miller, Brian Milman, Shannon Moffett, Lisa Stoneking, Taylor Surles, Amy Cutright, Isaac Shaw

Learning Objective: To characterize the challenges and benefits that the COVID-19 pandemic has provided to academic EM faculty.

Background: The COVID-19 pandemic has presented unpredicted challenges to EM education. The speed of the pandemic and extraordinary clinical burden prevented a coordinated educational response at all levels, including that of faculty development. While COVID-19 research is prolific and ongoing, EM faculty educational impact is yet to be fully explored.

Objectives: To characterize the challenges and benefits that the COVID-19 pandemic has provided to academic EM faculty.

Methods: CORD chartered a COVID-19 Task Force of 18 selected educators to explore the pandemic's impact on EM. A Modified Delphi process was used to develop multiple survey instruments. This process included a literature search for validated questions and internal piloting with iterative changes. After IRB approval, the faculty survey was distributed to members of CORD during the 2021 Academic Assembly. Using SPSS v26, a descriptive analysis was performed.

Results: Forty-one individuals responded to the survey concerning faculty. Eighteen (43.9%) respondents were program directors, 14 (34.1%) were assistant/associate program directors, four (9.8%) were core faculty, four (9.8%) were clerkship directors, and one individual (2.4%) was involved with faculty development and research. Most respondents were white (87.8%) and women (61%). Table 1 demonstrates the faculty responses for the benefits and challenges of COVID-19 to education. Table 2 notes the impact on the faculty themselves.

Conclusions: While the educational response to the pandemic was felt by faculty to be positive in the utilization of virtual platforms, faculty felt less engaged and less connected. Personally, faculty reported benefitting from numerous sources of human support, including familial, professional, and public. Despite this support, faculty reported the pandemic left them stressed, distressed, and burned out. A limitation of this geographically broad cohort was the number of respondents.

Table 1. Faculty educational benefits and challenges.

Item	Mean	SD
Faculty Educational Benefits – Rank 1 to 8 with 1 being most important.		
Faculty engagement in residency conference	2.24	1.48
Virtual video conference platform	2.68	1.65
Educational innovation	3.97	2.38
Faculty involvement in committees	4.27	1.77
Committee meeting attendance	4.43	2.13
Decreased financial burden on departments for faculty development programs/speakers	5.65	2.47
Recorded lectures given by faculty	6.00	1.43
Recorded faculty development sessions	6.11	1.32
Faculty Educational Challenges – Rank 1 to 6 with 1 being most important.		
Forming bonds with peers/residents	1.56	0.88
Faculty engagement in resident conference	3.62	1.70
Virtual mentorship	3.66	1.77
Repurposing faculty into virtual roles	3.87	1.73
Faculty engagement in departmental meetings/committees	3.89	1.03
Virtual video conference platform	4.35	1.48

SD = Standard Deviation

Table 1 provides means and standard deviations of items with statements displayed from most to least important.

Table 2. Faculty personal benefits and challenges.

Item	Mean	SD
Faculty Personal Benefits – Rank 1 to 8 with 1 being most important.		
Support of family/friends	2.29	1.41
Self-reflection or realization	2.61	1.59
Departmental support	3.63	2.22
Focus on physical and mental health	3.94	1.69
Support from the public -- e.g., acts recognition for frontline workers	4.89	1.75
Food donations to the department for frontline workers.	5.85	1.94
Departmental programming on stress management	6.18	1.42
Decreased financial burden from financial forgiveness programs	6.18	2.21
Faculty Personal Challenges – Rank 1 to 9 with 1 being most important.		
Stress and wellness management	3.60	2.03
Psychological distress	3.75	2.50
Burnout	4.17	2.36
Forming bonds with peers	4.30	2.65
Loss of non-clinical support systems (friends/family) due to distancing	4.58	2.68
Feelings of isolation	4.63	2.59
Physical activity changes	6.08	2.28
Forming bonds with patients	6.34	2.29
Diet changes	6.54	1.90

SD = Standard Deviation

44 Inter-physician conflict in the workplace: an under-explored contributor and manifestation of burnout

Caitlin Schrepel, Maralyssa Bann, Bjorn Watsjold, Joshua Jauregui, Jonathan Ilgen, Stefanie Sebok-Syer

Learning Objective: The goal of this study was to gain a deeper understanding of the personal and professional impact inter-physician conflict has on physicians' well-being.

Background: Despite the recognized importance of collaboration and communication, interpersonal conflict amongst healthcare providers in different specialties remains a pervasive issue. Recent work elucidated some of the social conditions and processes that contribute to conflict between EM and IM physicians at the time of admission. However, little is known about the consequences that inter-physician

conflict has on providers' well-being.

Objective: The goal of this study was to gain a deeper understanding of the personal and professional impact inter-physician conflict has on physicians' well-being.

Methods: In this study, the authors used constructivist grounded theory to explore themes related to the impact of conflict on individual providers. A purposive sampling approach was used to recruit participants (n=18), which included EM residents and attending physicians as well as IM attending physicians. Two authors conducted hour-long, semi-structured interviews and then coded the transcripts following Charmaz's three stages of coding. The authors used constant comparative analysis until thematic sufficiency was reached.

Results: Participants described personal impacts of inter-physician conflict including emotional and moral distress which occurs in the context of feeling demoralized by colleagues. Conflict further impacted participants professionally by promoting cynicism, job dissatisfaction, and a negative view of their professional identity and professional accomplishments. Finally, participants described the 'emotional residue' that remained after conflict, which tended to perpetuate future conflict.

Conclusions: Physicians attributed emotional exhaustion, cynicism, and reduced sense of personal accomplishment to conflicts arising during conversations around admission. In this way, inter-physician conflict is an under-recognized contributor to physician burnout that should be explored to support the well-being of trainees and attending physicians.

45 Unmasking the Impostor Phenomenon in First-Year Residents

Nicholas Jobeun, Nicole Battaglioli, Arlene Chung, Eric Lee, Annahieta Kalantari, Mark Stephens

Learning Objective: To determine the prevalence of IP and related attitudes in first-year residents.

Background: Impostor phenomenon (IP) is an experience in which individuals attribute their success to external factors and maintain a fear of exposure as a fraud. Times of transition are particularly high-risk for IP. Encouraging reflection and conversation about professional identity and self-doubt may decrease IP in first-year residents.

Objectives: To determine the prevalence of IP and related attitudes in first-year residents.

Methods: This was a prospective mixed-methods study conducted in July 2021. 63 first-year residents (47 EM, 16 FM) from 3 institutions participated in a session on IP during orientation: a formal lecture and reflective activity in which learners painted masks representing their internal and external selves and shared reflections with peers. Prior to the session, learners completed the Clance Impostor Phenomenon Scale (CIPS) and free-text questions related to IP. Learners were invited to repeat the survey 2 weeks later. Descriptive statistics and inductive qualitative methods were used to analyze the results.

Results: 53 learners (84%) completed the survey prior to the IP session. Mean CIPS score of learners was 66.5, range 42 - 100 (>61 indicates high impostorism). Mean combined female and non-binary learner scores vs male learner scores were 69.9 vs 65.5, respectively. Major qualitative themes included: IP in medical school, cyclic feelings, and self-doubt. 2 weeks after the session, 18 learners reported a mean CIPS score of 65.5. Themes included describing the IP session as therapeutic and the value of shared experience.

Conclusions: High IP was prevalent among first-year residents. Preliminary results suggest that a session on IP including a hands-on activity such as mask-making may help to mitigate feelings of impostorism and allow learners to reflect and create a therapeutic and bonding experience early in training. We plan to assess all participants at 6 months to determine recall, IP, and related attitudes at that time.

Innovation Abstracts

1 A Longitudinal Performance Portfolio Combining Real-Time Clinical Outcomes Data with Narrative Self-Reflection for Emergency Medicine Residents

Michael Ehmann, Jeremiah Hinson, Cameron Morgan, Kathryn Clark, Scott Levin, Kamna Balhara

Learning Objectives: To describe a unique data-informed structured portfolio which encourages EM residents to intentionally self-evaluate, develop goals tailored to educational priorities, reflect on clinical rotations, and plot longitudinal progress to gain competency in practice-based learning and improvement.

Introduction: Self-evaluation is a key component of emergency medicine residents' growth and an important element of the ACGME practice-based learning and improvement (PBLI) sub-competencies, but is infrequently structured and rarely incorporates objective data on clinical outcomes.

Educational Objectives: To facilitate proficiency in PBLI, we aim to provide residents with a data-informed structured portfolio to encourage intentional self-evaluation, develop goals tailored to educational priorities, provide a space to reflect on clinical rotations and plot longitudinal progress.

Curricular Design: We developed Growth Charts for residents to reflect on patient outcomes drawn from a novel feedback platform: Linking Outcomes Of Patients (LOOP). LOOP uses EHR data to generate unbiased daily reports of individual clinicians' patient outcomes including 72-hour return ED visits, 48-hour inpatient level-of-care escalations

and in-hospital deaths. Growth Charts encourage narrative reflection after each rotation with open-ended prompts targeting strengths, areas for improvement, clinical self-perception, goals for subsequent rotations, and strategies for achieving goals. Additional prompts querying unexpected patterns in patient outcomes, potential contributing factors and intended future practice modifications promote the incorporation of LOOP data into narrative reflections.

Impact/Effectiveness: A pilot cohort of ten PGY1-4 residents volunteered in AY2020-21. To date, participants have reflected on 67% of potential rotations (range 0-100%; median 88%), analyzing unexpected outcomes, practicing goal setting and developing strategies to achieve goals. Pilot participation was associated with a nearly 4-fold increase in LOOP engagement compared to non-participants (RR 3.68; 95%CI 1.75-7.73). A hybrid structured narrative reflection combined with objective outcomes data demonstrates promise in furthering EM residents' PBLI competency.

2 Case-Based Curriculum for Assessing Decision Making Capacity in the ED

Elmira Andreeva, Curtis Wittmann, Laura Welsh

Learning Objectives: The goal of this curriculum is to provide emergency medicine residents a framework for assessing decision making capacity in the ED and apply these skills to several case scenarios to practice making nuanced capacity decisions.

Introduction: In the ED, physicians often meet patients for the first time during critical, time-sensitive situations. The ability to quickly and effectively assess decision making capacity is a crucial skill. We are unaware of any formal curricula about assessing decision-making capacity tailored to the challenges faced in the ED. Thus, we designed a curriculum to provide EM residents a framework to evaluate decision-making capacity.

Educational Objectives: By the end of this workshop, EM residents should be able to: -List the four elements of a capacity assessment -Apply these four elements to specific cases to assess a patient's capacity -Differentiate between functional status, capacity and competency.

Curricular Design: This was a two hour in person workshop for PGY-2 EM residents. It consisted of a 30 minute didactic session followed by small group case discussions of three clinical scenarios commonly encountered in the ED. Each case aimed to highlight different challenges in assessing capacity and allow learners to apply content from the lecture. An attending physician led each small group and was equipped with a facilitator guide to direct the discussion. The content of the lecture and case discussions were informed by a comprehensive literature review and designed by two EM physicians, as well as an emergency psychiatrist. A curriculum evaluation was distributed to all participants.

Impact Effectiveness: This is the first curriculum that addresses evaluating decision making capacity in the ED. Given the comprehensive facilitator guide, it can be easily reproduced at other institutions. It was extremely effective as evidenced by 100% (11/11) of the participants being able to identify the components of the capacity assessment and 90% (10/11) feeling more confident in determining decision-making capacity in high stress situations. Going forward, we plan to alter some of the case details based on feedback from residents.

3 Learning Silos: Are we adequately preparing our residents for clinical practice?

Jason Ritoli, Ryan Bodkin, Joseph Pereira, Julie Pasternack, Linda Spillane, Valerie Lou

Learning Objectives: Audience members will learn how to implement experiential teaching strategies/modalities that diminish learning silos and allow for integrated learning to meet the educational objectives of varying residency requirements (EM milestones, EM boards, and clinical practice).

Introduction: Traditional conference format provides instruction on core EM content to help residents meet EM milestones. Independent board review questions allow residents to practice EM board questions. Clinical practice allows for the application of some EM knowledge to actual patients. However, these learning silos may prevent higher level cognitive integration of EM knowledge to adequately prepare our residents to care for patients in the real world while simultaneously achieving their career milestones.

Curricular Design: Our leadership team developed theme-based experiential conference with an integrated and innovative system for active learning to remove segregated teaching of EM milestones, board knowledge and clinical practice. For each theme (eg. renal disease), we used a semi-competitive game style online learning platform for oral board review to provide high yield facts which were then reinforced by case-based small group oral board style education. Building on the former two educational activities, the residents learned nuances of clinical practice taught through asynchronous independent interactive learning modules (eg. CT or not in renal colic). All teaching modalities took place within a 4 week block and this concept was repeated with different themes throughout the academic year. With this teaching strategy, integration of all acquired knowledge occurred before reaching the clinical environment and was intended to augment clinical practice.

Impact: Implementation of this innovation has improved resident engagement with nearly 100% active participation (of those in attendance) in didactics. Residents have also provided positive feedback during weekly conference evaluation regarding the integration, active learning, and asynchronous activities. Future implementation may include senior residents as small group facilitators and more focused quantitative evaluation.

4 Preparing for Discharge: A Workshop on Communicating Diagnostic Uncertainty

Maria Poluch, Jordan Feingold-Link, Nethra Ankam, Jared Kilpatrick, Danielle McCarthy, Kristin Rising, Dimitrios Papanagnou

Learning Objectives: Demonstrate a workshop designed to teach third year medical students how to communicate diagnostic uncertainty.

Background: Diagnostic uncertainty abounds in medicine. Effectively communicating that uncertainty is critical to high-quality patient care. There is a gap in training preparing medical students for communicating diagnostic uncertainty. The Uncertainty Communication Checklist (UCC) is a framework to effectively communicate diagnostic uncertainty to emergency department patients at discharge.

Educational Objectives: We developed a workshop to address a curricular gap in preparing medical students to communicate diagnostic uncertainty to patients. Its objectives were to introduce learners to diagnostic uncertainty, discuss the importance of effective communication during times of diagnostic uncertainty, describe key steps for effectively communicating uncertainty, and practice communication through peer role-play.

Curricular Design: We designed a workshop leveraging the UCC and role-play scenarios for third-year medical students. The virtual workshop was conducted at the conclusion of their core clerkships. Prework included reflection prompts and an interactive online module. The workshop began with a didactic lecture to reinforce these materials. Students completed a peer role-play in which a provider must discharge a patient from the Emergency Department with an uncertain diagnosis. The session concluded with small group faculty facilitated debrief sessions.

Impact: Anonymous post-session survey data (76% response rate; 202/265) indicated that most (82%; 152/185) students felt more comfortable with communicating diagnostic uncertainty after the workshop. A majority (83%; 166/201) indicated it was useful, and most (81%; 149/184) felt it should be included in the curriculum in the future. Further studies are needed to identify students' comprehension and application of uncertainty communication training.

5 Transitions to Life After Residency: A Curriculum for Senior Emergency Medicine Residents

Byron Parker, Lauren Querin

Learning Objectives: To understand the value of a senior EM resident curriculum that introduces knowledge and skills for successful navigation through the life and career transitions that occur during the final year of training.

Introduction: The final year of residency is filled with refining clinical skill and knowledge, but also with anticipation of professional and personal changes as residents prepare for the transition to life as an attending. There is existing literature to demonstrate a lack of resident familiarity in several personal and professional skills necessary to navigate life after residency, but there is sparse literature on curricula dedicated to guiding trainees in making a successful transition.

Educational Objectives: To deliver an aptly timed curriculum to senior EM residents with the goal of introducing desired knowledge and skills for successful navigation through the life and career transitions that occur during the final year of training.

Curricular Design: The design followed Kern's steps of curriculum development. A targeted needs assessment was administered to recent alumni and identified 8 key topics: contract negotiation, supervising midlevel providers, debt repayment, personal finance, critical care billing, documentation, insurance, home buying. An abbreviated pilot was delivered in May 2021, which promoted modifications in timing of content delivery. The curriculum is now delivered longitudinally with sessions timed in conjunction with when residents will be able to apply the content. Sessions include brief interactive lectures followed by group discussions. They are given by faculty/alumni with interest/expertise in the content area.

Impact/Effectiveness: Preliminary data from the pilot was collected via pre/post curricular surveys and demonstrated a post-curricular improvement in >72% of perceived proficiency measures. Success in life as an attending is not solely built on medical knowledge and clinical ability, but also on practical life skills that are often overlooked during residency. We encourage residency program educators to incorporate dedicated time towards teaching these skills as a part of training residents for independent practice.

6 Development of an educational experience for medical students on coping with medical errors in residency and beyond

Hai Le, Sharon Bord, Julianna Jung

Learning Objectives: To design an educational experience for senior medical students that addresses coping with medical errors.

Introduction: Navigating and coping with medical errors, which are inevitable realities of clinical practice, is an important physician competency. While medical students and residents recognize the importance of this topic, medical training programs vary substantially in their approach to teaching about medical error, and many offer no formal instruction in this topic.

Educational Objective: To design an educational experience for senior medical students that addresses coping with medical errors.

Curricular Design: We designed and implemented an educational experience within the established fourth-year capstone course at our institution, which is a required 2-week curriculum that prepares 4th year students for the transition to internship. After a brief lecture on medical errors, students participated in a standardized patient encounter in which they were required to disclose a medical error to the spouse of a critically ill patient. The error in the scenario was administration of an incorrect antibiotic leading to anaphylaxis requiring intubation. The standardized patients were instructed to portray strong emotions appropriate to the situation, including anger, shock, and grief, requiring students to navigate the error disclosure process in a realistic way. Afterwards, students participated in group debriefing focused on the challenges of disclosing medical errors and the impact of error on professional identity. Student feedback on the curriculum was obtained using a post-course survey.

Impact: This novel experience addresses an under-recognized but important topic in medical education. Among participating students, 94% agreed that medical error is an important topic, and 92% felt more comfortable discussing medical errors. Formal instruction in coping with medical errors may help mitigate the adverse psychological impact of making medical errors in clinical practice, and better prepare students for the transition to residency and beyond.

7 The House Cup Challenge: A Gamified Curriculum for Emergency Medicine Residents

Marion-Vincent Mempin, Brian Smith, Suji Cha, Jessie Chen

Learning Objectives: Our goal was to create a bespoke annual competition that incentivizes residents' participation both during conference and outside scholarly activities as well as foster camaraderie between residents and boost morale of the residency program.

Introduction: Current emergency medicine (EM) residents have different learning styles and benefit from a more immersive educational strategy over classic, lecture-based curricula.1,2,3,4 Integrating gamification into a didactic curriculum has been shown to boost learners' participation.2 An annual competition that incentivises residents' participation in conference and scholarly activities can motivate educators to create more interactive learning tools and encourage resident participation.

Objectives: Our goal was to create an annual competition in which residents earn points based on various competitions and completion of scholarly activities. We hypothesize that our novel competition will motivate residents to participate in conference activities and scholarly activities, as well as foster camaraderie between residents and improve overall morale.

Curricular Design: Residents were randomly sorted into four groups at the beginning of the academic year with an equal distribution of PGY levels. Residents had opportunities to earn points for their teams through a variety of predetermined activities including individual and team-based competitions during conferences and completion of scholarly activities. Points could also be deducted for missed deadlines. The challenge spanned the academic year and the group with the highest points was awarded prizes.

Impact/Effectiveness: Our House Cup Challenge has stimulated resident participation, fostered camaraderie, and improved residency morale. Residents completed an anonymous Likert scale survey to assess the impact of the competition. 73% report that the challenge boosted overall morale and 70% report that it helped foster camaraderie with co-residents. In terms of education, 62% of the residency were incentivized to participate in activities in which they otherwise would not have participated and 66% would want to participate again next year. This competition can be easily integrated into any EM residency curriculum.

8 Battle of the Classes: Experiential Learning Through the Gamification of Conference

William Chan, Kent Li, David Simon, Anika Nichlany, Richard Shin, Anita Lui, Kallie Combs, Akshay Elagandhala

Learning Objectives: 1) Improve active engagement of learners through gamification. 2) Prepare learners to appropriately respond to mass casualty incidents. 3) Understand the management of multiple disease processes secondary to trauma and environmental factors.

Background: With traditional models of teaching falling out of favor, there is increased evidence supporting hands-on and experiential learning models. Gamification is a dynamic avenue that stimulates learner engagement by incorporating elements of game design to non-game contexts. However, its utility as a learning tool has not been formally examined as part of a residency curriculum. We aim to augment existing learning models by implementing gamification in a SimWars-based conference curriculum.

Educational Objectives: 1) Improve active engagement of learners through gamification. 2) Prepare learners to appropriately respond to mass casualty incidents. 3) Understand the management of multiple disease processes secondary to trauma and environmental factors.

Curricular Design: Learners (EM residents) were divided into three teams corresponding to their years of post-graduate training. Each team participated in treating a

set of simulated patients that were deemed to be appropriate for their level of training. Cases included the following patient scenarios: exposure to an unknown environmental agent, hazardous building fire, mass casualty incident triage, and hemorrhagic shock management. Learners not directly involved in the case observed from the audience. This three-hour simulation session was conducted during weekly conference using simulation mannequins, high-fidelity low-cost models, and faculty acting as patients and other personnel. Designated faculty members judged teams on their teamwork and management. After each case, faculty members conducted a debrief focused on the educational objectives for the case. After the simulation session, the residents completed a likert-type survey to assess resident learning and engagement.

Impact: The residents provided overwhelmingly positive feedback. They found that this simulation was more educational than other types of activities, helping them better understand and manage the relevant emergent pathology.

9 Gotta Escape EM all! Emergency Medicine Resident Education with Gamification

Kevin Hon, Marion-Vincent Mempin

Learning Objectives: Priapism drainage; Common causes of hyperkalemia; Pacemaker EKGs and errors; Common toxic botanicals and their treatments; Beta-blocker toxicity management; Psychiatric medical emergencies; Resuscitation of adult and pediatric burn victims; Wilderness resuscitation skills.

Introduction/Background: Traditional conferences provide a uniform, didactic review. Modern residents can benefit from a structure that engages them in active learning with immersive and collaborative experiences. Activities like flipped classrooms, simulation, and virtual learning have improved upon the ennui of prior conferences. We seek to appropriate the escape room to review key, uncommon topics in emergency medicine (EM) as a conference activity to address areas of improvement in residents' knowledge prior to their in-training exam (ITE).

Educational Objectives: At the completion of the escape room activity, residents and medical students will be tested upon and be able to perform the following: Priapism drainage Common causes of hyperkalemia Pacemaker EKGs and errors Common toxic botanicals and their treatments Beta-blocker toxicity management Psychiatric medical emergencies Resuscitation of adult and pediatric burn victims Wilderness resuscitation skills.

Curricular Design: A survey-based needs assessment was done by EM residents about the topics which needed more review before their ITE. Topics were assessed to determine an optimal method for review: lecture, group session, or gamification. Those selected for gamification were designed to fit a predetermined theme to complement a ninety minute conference lecture alternative escape room. Residents were split into four groups and raced to complete the activity. Afterward, residents were provided a review over each topic and the escape room was surveyed for its effectiveness and satisfaction with respect to the review of the objectives.

Impact/Effectiveness: An anonymous Likert scale survey provided to residents showed 90% rating the activity successful in achieving its academic goal and 95% as an activity that residents wanted to implement again in the future. 93% of residents who provided feedback regarding topic selection agreed that the activity addressed their prior curricular deficits.

10 Power Half Hour: A Short, Sweet, and Clinical Image-Based Peer-to-Peer Educational Curriculum

Lauren McCafferty, Leah Carter, Andrew Schaub

Learning Objectives: Our goal was to address knowledge deficiencies encountered by residents on shift through a peer-to-peer didactic curriculum covering high-yield EM core content through a series of clinical images obtained in our ED.

Background: In an EM residency curriculum, there are clinical scenarios encountered by trainees that are not adequately addressed in a traditional didactic format. When residents encounter these scenarios, they have the opportunity to enhance their own clinical acumen with "just in time" learning but no organized way to share the new information with their peers. There is evidence showing that peer-to-peer teaching fosters a supportive learning environment while not sacrificing the integrity of content delivered. Additionally, this format solidifies the concepts for the teaching resident and promotes their development into a skilled educator.

Curricular Design: In order to address knowledge deficiencies encountered by residents on shift, we created Power Half Hour (PHH), a resident-led didactic series, presented bi-monthly in conference, that centers around a series of clinical images. The images, including a combination of physical exam findings, ECGs, and diagnostic images, are presented with high-yield, clinically relevant teaching pearls.

Impact/Effectiveness: Our PHH innovation was incorporated as a recurring series into the resident curriculum. After a year of implementation, residents were surveyed on how educationally beneficial they found PHH. Of the 28 residents who completed the survey, 13 residents (46%) found PHH very beneficial, 12 residents (43%) found PHH somewhat beneficial, and the remaining were neutral. By implementing a clinical image-based

curriculum using a peer-to-peer teaching model, residency programs can address core content deficiencies, promote knowledge sharing amongst peers, and nurture resident development as educators.

11 Start Spreading the News: Best Practices for Summarizing and Distributing Residency Didactics

Joseph Pereira, Ryan Bodkin, Jason Rotoli, Valerie Lou, Julie Pasternack, Linda Spillane, Emily Fitzgerald

Learning Objectives: Create an easily digestible infographic including pearls from residency didactics which can be consistently reproduced with minimal time commitment to maximize learning through asynchronous spaced repetition; discover the basic functions of Canva and methods to implement this into your residency.

Introduction: The pandemic has introduced drastic fluctuations in clinical experiences for residents. Given these circumstances, maximizing didactic education is even more critical for trainees. Spaced repetition has been deemed a beneficial way to solidify information into long term memory for learners. Despite initiating best practices in virtual didactics, it can be difficult to engage learners adequately in virtual format to ensure active learning and promote knowledge retention. We sought to combat these challenges by designing and distributing weekly infographics summarizing key learning points from didactics.

Curricular Design: For any resident academic project, the rigorous schedule is an anticipated barrier to consistent production. The user-friendly graphic design platform, Canva, was used to create a template that could be easily reproduced and modified. Each week, several residents each committed to highlighting a single learning point from each lecture, editing the template, then disseminating the infographic 1 week later via multiple routes including email and social media to utilize spaced repetition.

Impact/Effectiveness: A survey of the CORD listserv found most respondents have interest in similar initiatives but have either failed to attempt or failed to operationalize it consistently. Barriers cited include lack of a platform, too arduous, and too time consuming. 6 months after implementing this system, we have been able to produce weekly content. Over half of our faculty and residents read these summaries, and feedback has been exceedingly positive. Faculty state they enjoy rapidly staying abreast of the topics covered in didactics if they didn't attend, and even use them as rapid reference material. Residents appreciate the reinforcement of critical concepts through spaced repetition. This is engaging learners, faculty, and alumni, reinforcing learning points, and can be disseminated on social media.

12 A Deliberate Educational Initiative in Diversity, Inclusion and Racial Equity

Vinodinee Dissanayake, Keya Patel, Sobia Ansari, Teresa Davis, Jerome Martin, Sara Hock, Braden Hexom

Learning Objectives: Covering the domains of knowledge, skills and attitudes, residents were expected to analyze structural violence and health gaps, demonstrate inclusive and trauma-informed care, recognize implicit bias, use strategies to reduce it, and critically assess the EM health equity literature.

Introduction/Background: Since the 2003 "Unequal Treatment" report showed that health gaps are not due to access or income, racial injustice and COVID-19 have laid bare worse inequities. In 2021, the ACGME EM Milestones addressed recognition of health gaps and personal bias, however there is no guidance on how to do this. ED patients require an unbiased evaluation to ensure rapid and accurate diagnosis and treatment, but implicit bias reigns with high cognitive load. Thus, we describe a deliberate and formal diversity, inclusion and racial equity (DIRE) curriculum.

Educational Objectives: Residents were expected to analyze structural violence and health gaps, demonstrate inclusive and trauma-informed care, recognize implicit bias, use strategies to reduce it, and critically assess the EM health equity literature.

Curricular Design: An ED survey confirmed the need for this curriculum. Since July 2020, the course has been available to all ED staff but is mandatory for residents. The free online platform, Canvas, was chosen for ease of access and use, and for resource sharing, discussion facilitation, and quiz scoring. Biweekly articles, online videos, a journal club and quarterly book clubs led to health equity discourse. Residents took part in simulated cases involving diverse patients. A workshop reviewed strategies to reduce implicit bias. Residents were assessed with quizzes, reflective writing and direct observation. Based on feedback, sessions are now held monthly with more media resources, live seminars, and diverse content.

Impact/Effectiveness: As of July 2021, residents have had positive feedback, 100% completion rates, and high knowledge retention. Structural violence must be included in resident didactics. Simulated cases provide an avenue to assess interpersonal communication skills for residents to develop tools to partner with patients. This model may serve as a blueprint for those seeking to improve DIRE knowledge, skills and attitudes.

13 Developing a Longitudinal Cultural Competency Curriculum

Ridhima Ghei, Minh Evans, Arlene Chung, Annemarie Cardell

Learning Objectives: Enhance EM resident cultural competence through the acquisition of knowledge, skills, and attitudes to effectively care for all patients. Objectives were developed using Bloom's taxonomy for each module within the curriculum.

Background: Training has been found to improve knowledge of cultural and behavioral aspects of healthcare and build effective communication skills. To the best of our knowledge, this is the first longitudinal cultural competency curriculum to be studied in EM residents.

Objectives: Enhance EM resident cultural competence through the acquisition of knowledge, skills, and attitudes to effectively care for all patients. Objectives were developed using Bloom's taxonomy for each module within the curriculum.

Curricular Design: Learners are 18 EM interns at a single urban 3-year program. Our 12-month curriculum was developed using Kern's 6-step model. A general needs assessment was conducted via literature search and consultation with experts in the field. A targeted needs assessment was performed using the validated Clinical Cultural Competency Questionnaire. Based on these results, 12 sessions were created: implicit bias; social determinants of health, race and antiracism; microaggressions; obtaining a culturally sensitive history; using interpreters; advocacy for undocumented immigrants; LGBTQ patients; ED management of sexual assault; gender disparities; social workers in the ED; and palliative care. Educational methods include lectures, simulation, facilitated discussions, problem-based learning, and journal club readings. Impact will be assessed through quarterly administration of the Tool for Assessing Cultural Competency Training (TACCT), a tool created by the AAMC. Further evaluation will be conducted through satisfaction surveys and the Program Evaluation Committee.

Impact: 3 initial sessions for the 2021-2022 year have successfully fulfilled several domains identified by the TACCT. Sessions were well received by learners. 94% of learners described the first session "Using Interpreters" as helpful, 100% recommended it for future orientations, and 72% reported learning new skills that they planned to incorporate in future patient encounters.

14 Of the Women, for the Women and by the Women: A Resident-Led Curriculum

Asma Hashim, Jennifer Lee, Tarlan Hedayati

Learning Objectives: To identify gender-specific needs among female EM residents and develop a curriculum to recognize these challenges and discuss strategies to overcome barriers to equality.

Introduction/Background: Women were first admitted to medical school in 1849, yet the discrepancies and disparities experienced by female physicians still persist. The challenges facing women in medicine begin early in the education and training process. A resident-driven "Women in Emergency Medicine" curriculum was established at Cook County's Emergency Medicine Residency Program to address these issues, promote mentorship and foster professional growth.

Educational Objectives: The objective of the curriculum was to unveil specific inequities experienced by a cohort of female EM residents and create a resident-led curriculum to address these challenges. The curriculum promoted safe spaces for focused discussions, provided directed mentorship and culminated in an educational retreat featuring speakers and activities based on surveyed needs.

Curricular Design: In August 2020, using the Kern model, a needs assessment survey was created and distributed among the 20 female EM residents, with the goal of identifying common obstacles faced by this cohort. Small group discussions were implemented over 7 weeks to address these topics. Based on the initial survey and discussions, the first annual Women in EM Residency Retreat was held in June 2021. The educational retreat included faculty presentations on resident wellness, mentorship, combating micro/macroaggressions, women in leadership, resilience and resume building. Anonymous pre- and post-retreat surveys were distributed for session feedback and evaluation of efficacy.

Impact/Effectiveness: The findings demonstrated that 100% of participants felt that a female directed curriculum was crucial for professional and personal development. Interestingly, while 100% of residents felt they had female faculty mentors to support them, only 46% felt similarly about male faculty mentors. This data presents an obligation for department leaders to address allyship needs by male faculty towards female trainees.

15 Prescribing Solutions: Development of a Community-Centered Approach to Teaching the Social Determinants of Health in the ED

Emily Craft, Matthew Stull

Learning Objectives: Following this session, learners will be able to recognize specific challenges facing their ED patient population, select community partners for patient referral based on personal experience, and be empowered to use local resources to prescribe social solutions from the ED.

Introduction: Patients are increasingly affected by societal and structural factors that impact their health. EM physicians must understand their community's unique needs and leverage the social determinants of health (SDH) to provide efficient, comprehensive care. SDH are traditionally taught in a classroom-based setting providing little guidance in translating this knowledge into clinical practice. This leads to dissatisfaction and burnout as trainees become aware of health disparities without potential solutions. We developed a community-centered experiential approach that introduces SDH to EM residents, providing tangible ways to intervene and prescribe solutions to ED patients facing SDH barriers.

Curricular Design: SDH in CLE Day was implemented during the orientation block for 12 EM PGY-1 residents. Over 5 hours, residents were introduced to the local community through population-based small group discussions. Residents toured two community centers to learn about accessible resources for patients in the ED. While traveling between sites, resident groups led by faculty facilitators discussed personal experiences with SDH as well as ED-based patient scenarios where SDH could be leveraged to optimize patient outcomes.

Impact: Twelve first-year residents (100%) completed post-orientation evaluations. The session was highly successful in enhancing interns' understanding of the local population with 92% agreement. Additionally, 83% agreed they felt empowered to intervene on SDH challenges in the ED as a result of the session. Residents described the day as "eye-opening," "valuable," and "humbling." Overall, a community-centered experiential approach to teaching SDH is effective in empowering EM residents to recognize and intervene on SDH facing their patients. Future directions include increasing the number of participating community sites and incorporating activities to better introduce concepts of power and privilege to trainees.

16 The Impact of an Experiential Social Medicine Curriculum in a County Emergency Medicine Residency Training Program

Hurnan Vongsachang, Laura Sprunt, Gabriel Padilla, Todd Schneberk, Jeff Riddell

Learning Objectives: To evaluate the effect of an Experiential Social Medicine Curriculum on residents' attitudes, perceived responsibility and competence towards vulnerable populations.

Introduction: Social Medicine (SM) is an emerging field that includes the study of the social determinants of health. Despite widespread acknowledgement of its influence in patient care, SM is underemphasized in graduate medical education. Attempts to incorporate SM into residency curricula have shown promising results, though the impact of SM curricula on emergency medicine (EM) residents remains unclear.

Objective: We developed a experiential SM elective for residents and evaluated the impact of the curriculum on residents' attitudes toward and care of vulnerable populations.

Curricular Design: In 2018-2019, all residents at our EM Residency Program were invited to participate in a two-week SM experiential elective focused on patients experiencing substance use disorders, experiencing homelessness, seen at the border health clinic, seeking asylum, facing primary care access barriers, involved in the Violence Intervention Program (VIP) at our hospital, or involved with the carceral system. Experiences and didactic material were coordinated with community-based organizations. Results: Residents were invited to complete a voluntary, anonymous post-rotation electronic survey exploring changes in their attitudes and competence. Of the thirty-eight residents who participated, twenty-two responded to the survey (58%). No responses were submitted for the elective involving patients experiencing substance use disorders. Overall, participants reported increased understanding and empathy, perceived responsibility, and perceived competence towards working with vulnerable populations after their elective (Table 1).

Impact: Our experiential SM Curriculum positively impacted residents' attitudes and informed their care of vulnerable populations. Given the pervasive impact of the social determinants of health in the practice of emergency medicine, it may be useful for residency program leaders to integrate experiential electives into existing residency curricula.

Table 1. Aggregate post-elective experience survey scores by domain.

Attitude Domain #1 (N=22)

Compared to how you felt prior to this elective, how would you rate your:	1 = Strongly Decreased	2 = Decreased	3 = Unchanged	4 = Increased	5 = Strongly Increased
Understanding of healthcare challenges faced by *?	0 (0%)	0 (0%)	0 (0%)	12 (54.5%)	10 (45.5%)
Ability to empathize with *?	0 (0%)	0 (0%)	0 (0%)	9 (40.9%)	13 (59.1%)
Sense of satisfaction when treating *?	0 (0%)	0 (0%)	0 (0%)	9 (40.9%)	13 (59.1%)
Sense of frustration when treating *?	0 (0%)	6 (27.2%)	9 (40.9%)	3 (13.6%)	4 (18.1%)

Attitude Domain #2 (N=22)

Compared to how you felt prior to this elective, how would you rate your level of agreement with the following statement:	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree
Emergency physicians are responsible for identifying and intervening on social determinants of health for *.	0 (0%)	1 (4.5%)	1 (4.5%)	6 (27.2%)	14 (63.6%)
There is a LOT that I can do to help *in the emergency department.	0 (0%)	1 (4.5%)	4 (18.1%)	10 (45.5%)	7 (31.8%)

Competence Domain (N=21)

Compared to how you felt prior to this elective, how would you rate your:	1 = Strongly Decreased	2 = Decreased	3 = Unchanged	4 = Increased	5 = Strongly Increased
Knowledge of the social support services and/or resources available to * at our institution?	0 (0%)	0 (0%)	5 (23.8%)	10 (47.6%)	6 (28.6%)
Ability to identify the social determinants of health that are contributing to a(n) * presentation?	0 (0%)	0 (0%)	2 (9.5%)	13 (61.9%)	6 (28.6%)
Ability to establish a therapeutic alliance with *?	0 (0%)	0 (0%)	3 (14.3%)	11 (52.4%)	7 (33.3%)
Ability to intervene on the social issues that are contributing to a(n) * presentation?	0 (0%)	1 (4.8%)	5 (23.8%)	11 (52.4%)	4 (19.0%)

*Data are reported n(%). *Patients experiencing substance use disorders, experiencing homelessness, seen at the border health clinic, seeking asylum, facing primary care access barriers, involved in the Violence Intervention Program (VIP) at our hospital, or involved with the carceral system.*

17 The Incorporation of a Case-Based Health Equity Curriculum Into M&M Conference

Jossie Carreras Tartak, Giovanni Rodriguez, Eric Goralnick, Wendy Macias Konstantopoulos, Daniel Egan

Learning Objectives: To deliver evidence-based health equity education in resident and faculty conference using case-based content to highlight examples of inequity in emergency medicine practice.

Background: While GME requires formal education on health disparities, there is a lack of standardized education in emergency medicine (EM) residency curricula on these topics.

Educational Objectives: 1. To evaluate health disparities in an evidence-based manner using anonymized ED-specific case examples 2. To increase structural competency regarding the systems that perpetuate these disparities 3. To equip EM providers with actionable steps to mitigate these disparities 4. To develop a curriculum that can be replicated by other programs.

Curricular Design: The Health Equity Curriculum (HEC) was developed using Kern's curricular design framework. A consensus group of residents and faculty members met over 4 months to identify curriculum gaps. Patient and provider-centered topics were identified through informal needs assessment of the trainees with the plan to deliver them over two years. To maximize reach, the 30-minute HEC lectures were integrated into the monthly morbidity and mortality (M&M) conference stressing how healthcare disparities lead to measurable adverse outcomes. This approach was modeled after a surgical M&M series at the University of Michigan with proven success. Interested residents prepared lectures for each topic using a standard format. Faculty experts were recruited to mentor each resident. The concept was introduced at faculty meetings and residency conference with the support of departmental and residency leadership. Monthly lectures were launched in February 2021, with topics presented in a stepwise fashion to allow each lecture to build upon previous ones. Feedback was collected after 6 months via anonymous surveys sent by email.

Impact/Effectiveness: Our HEC contributes to GME by providing an evidence-based series of lectures generalizable to all EDs. Our 6-month survey respondents expressed an overall satisfaction with the curriculum in increasing their understanding of health disparities.

Table 1. List of health equity curriculum topics, year 1.

Date	Topic	Educational Objective
1/10/21	**Introduction to Curriculum**	To provide a 10-minute overview of the HEC and its educational goals at faculty meeting at both academic medical centers and during resident conference
2/9/21	**What is Race and the Implications of Structural Racism in Medicine**	To understand race as a social construct and the foundational ideas of critical race theory and its importance in medicine. To identify examples of structural violence and to understand the impact of structures on healthcare. To recognize the process of naturalized inequality and the implicit frameworks which justify the perpetuation of structural racism by healthcare providers
3/9/21	**History of Racism in Medicine**	To understand the role that medicine played in constructing racial categories, the historical legacy of medical and scientific experimentation on African Americans, and how such a legacy impacts bias and trust in medicine today.
4/27/21	**Biases against Patients with Substance Use in the ED**	To discuss the physiologic nature of substance addiction, genetic factors and social circumstances that predispose patients to substance use, and behavioral interventions that may be effective at helping these patients.
5/4/21	**Intersectionality & its Role in Patient Care**	To recognize the impact of compounding biases and overlapping systems of oppression against "minority" groups (e.g., non-White races, sexual and gender diversity, women) and thus the complex intersection of anti-racism, LGBTQ+ affirmation, and feminist frameworks

Table 2. Feedback for 6-month healthy equity curriculum survey (1= strongly disagree, 5= strongly agree), n=38.

	Faculty Members	Residents
Number of respondents	24	14
The HAEMR Health Equity Curriculum has increased my understanding of the healthcare disparities that affect my patients	4.04	4.21
The HAEMR Health Equity Curriculum has increased my understanding of the disparities that affect my colleagues who are underrepresented in medicine	4.13	4.21
The HAEMR Health Equity Curriculum has increased my ability to identify instances of discrimination in the workplace	3.88	4.29
The HAEMR Health Equity Curriculum has increased my ability to respond to instances of discrimination in the workplace	3.96	4.21

18 A Comprehensive Approach to Increase Emergency Medicine Resident Involvement in Caring for Opioid Use Disorder

Mohamad Ali Cheaito, Nicholas Gozza, Alexandra Lekson, Eric Medrano, Mohamad Moussa

Learning Objectives: To train EM residents to: •Screen and identify patients with OUD •Manage OUD by

implementing evidence-based practices in EM, including initiating buprenorphine for patients in moderate to severe withdrawal •Support the transition of patients with OUD to long-term care for ongoing treatment.

Introduction: Opioid use disorder (OUD) is a chronic medical condition with alarming repercussions, including death and disability. Although, healthcare organizations, nationwide, have launched multiple initiatives to put an end to this epidemic, deaths related to opioids continue to be on the rise. More specifically, initiatives that involve abstinence have been shown to be less effective and are associated with high rates of relapse, including detoxification, rehab, 12-step programs, and Narcotics Anonymous. Medications for Opioid Use Disorder (MOUD), however, seems to be a promising approach to achieve recovery and reduce relapse. Our institution received a grant from the Ohio Department of Health to implement a program, called SAFER, that provides comprehensive care for patients with OUD presenting to our emergency department (ED). Our goal is to maximize the involvement of emergency medicine (EM) residents in implementing this program.

Curricular Design: The residency leadership identified three resident champions, who were involved in the process of developing and implementing SAFER in our ED, which will be launching in December 2021. The resident champions were trained by the SAFER educational specialist team. Through a train-the-trainer model, the champions will be educating their co-residents on the process of identifying the patients that can benefit from this comprehensive care program and ensuring their enrollment. This is achieved through a PowerPoint educational module that introduced the residents to the program followed by weekly updates on the evolution of the program during the didactics.

Impact/Effectiveness: We believe that involving the EM residents in this program will help improve the outcomes of patients with OUD, including reducing opioid overdose deaths, increasing retention in treatment, and decreasing relapse. We will be utilizing quantitative assessment tools to examine the effectiveness of this program.

19 Beyond ACLS: Training your novice resuscitationist for cases when the patient does not follow the algorithm

Alaa Aldalati, James Homme, Alexander Finch

Learning Objectives: To train Emergency Medicine residents how to properly and safely handle complex scenarios that require resuscitation outside the normal Advanced Cardiovascular Life Support (ACLS) algorithm using peri-code algorithms using both high and low fidelity techniques.

All Emergency Medicine residents get basic training running a code during their ACLS certification in the United States. However, there are not many easily applicable and accessible courses that provide comprehensive detailed training on peri-arrest scenarios. Beyond ACLS is a 1-day training course that took place in our simulation center. Residents were first given a questionnaire regarding their confidence and knowledge on scenarios that may require them to deviate from the ACLS algorithm. Residents were subsequently split into groups of three, each consisting of an intern, junior and senior resident. The intern was responsible for airway, the junior was running the resuscitation and the senior was overseeing the whole process, ultimately inserting them into an attending position to guide their junior colleagues. After that, each team ran a total of 8 stations, each with different scenarios designed to challenge them in different cardiac situations. These stations also helped them develop strategies to think outside the box when circumstances or presentations are not normal. They also focused on team dynamics and teamwork in which learners practiced how to interact with other medical staff that may be present during resuscitations. The stations used both high and low fidelity techniques, as well as ultrasound training. After the conclusion of the session, the same questionnaire was given to the residents to account for differences in confidence and overall knowledge.

20 Impact of Implementation of Prehospital Run Reviews into Resident EMS Curriculum

Sarayna McGuire, Aaron Klassen, Lisa Rentz, Aidan Mullan, Matthew Sztajnkrycer

Learning Objectives: Describe the impact of implementing a longitudinal resident run review process on resident EMS education, specifically ACGME-identified EMS training objectives.

Background: ACGME requires EM residencies provide experience in emergency medical services (EMS), particularly in prehospital medical oversight.

Educational Objectives: To evaluate the impact of a longitudinal resident run review process on resident EMS education.

Curricular Design: Within the residency, senior (PGY-2/3) EM residents participate in 1-2 EMS shifts per month. Discussion between an EM resident and EMS faculty led to the decision to incorporate into a pre-existing on-line EMS follow-up/care feedback request process the option of a formal run review. An outreach nurse received all EMS requests and assigned run reviews to senior residents to be completed during upcoming EMS shifts. Residents were provided patient details and a run review template with the following suggested sections: summary of patient care, positive aspects and areas for improvement of care, potential learning points, and suggested educational resources. Upon

completion, run reviews were sent back to the nurse who returned them to the prehospital personnel. Sixty-two run reviews were completed between 9/30/20 and 11/22/21. Eighteen PGY2/3 residents were surveyed in November 2021 to evaluate the curricular impact.

Impact: Fourteen resident responses were included in analysis (78% response rate). The majority agreed the process had provided a meaningful introduction to off-line medical control (93%), increased awareness of the prehospital environment and its limitations (78%) and provided insight to the practice and educational needs of EMS (86%). Those completing >3 reviews more strongly agreed the process improved upon interdisciplinary interactions with EMS compared to those completing <2 ($p = .014$). Implementation of a resident run review process within our residency's longitudinal EMS curriculum provided an opportunity to address ACGME-identified EMS training objectives. Future efforts should seek to evaluate the quality of these resident run reviews from the medic perspective.

21 Innovative Teaching Format: Environmental Emergencies

Alexander Tymkowicz, Yahuda Wenger, Erich Heine, Sara Baker

Learning Objectives: 1. Create content that varies in teaching format and requires active engagement by a small group of residents for six twenty-minute sessions 2. Teach a variety of environmental disaster medicine topics and their subsequent workup and management

Introduction: We present an Innovative Teaching Format (ITF) focusing on Environmental Emergencies developed during our 2021-2022 academic year at Orlando Health Emergency Medicine Residency Program, an ACGME accredited, Level 1 trauma center. The curriculum was introduced to PGY1-3 residents. Resident assessments were provided pre- and post- ITF.

Curricular Design: ITF: Environmental Emergencies is designed to review six environmental medicine categories, each the focus of 20-minute small group learning sessions. Topics include snake envenomation, altitude sickness, dysbarism, lightning strike, marine envenomation, and hypothermia. Stations are designed with intent to be engaging and require active participation, as well as vary in teaching style and format. Formats included SIM sessions, virtual hiking expeditions and toxic animal encounters, tabletop discussions, and oral boards cases. Seven staff members are required for this curriculum: six expert educators for stations, and one coordinator. Pre- and post- test assessments were given to residents with a total of 18 objective content questions and a subjective self- assessment. Google Forms via a QR code was utilized for pre- and post- test assessments.

Impact: We recorded 29 resident responses to our pre-test and 26 responses to the post-test. Average number of correct answers on the pre-test were 3.66/9 compared to 5.23/9 on the post-test. On a numbered scale from 1-10, residents initially reported confidence levels of 5/10 in knowledge, diagnosis, and treatment of environmental emergencies. Residents reported improvement of all categories on the post-test with a response of 7, 8, and 8 respectively. Although the ITF curriculum requires substantial preparation and many involved staff, these findings suggest those investments are worthwhile. Conclusion: Innovative Teaching Format: Environmental Emergencies is an enriching way to teach residents varying environmental emergency topics.

22 Night School: A Pilot of Emergency Medicine Morning Report for the Night Shift

Christopher Reisig, Justin Allen, Ramona Vanel, Marissa Cohen, Diksha Mishra

Learning Objectives: We piloted a structured learning model for residents on night shift ("Night School") and assessed learners' perceptions of Night School's value to their EM education.

Introduction: For many residencies, Morning Report is a cornerstone of their educational model. At the same time, junior residents may spend significant portions of their EM rotations on evening or night shifts, meaning they often go without daily, structured education during their formative training years. Despite this fact, to date there exists no reports of EM residencies instituting a didactic equivalent to morning report for residents on night shift.

Objective: We piloted a structured learning model for residents on night shift (termed "Night School") and assessed learners' perceptions of Night School's value to their EM education.

Curricular Design: Night School is a case-based learning model covering subjects from the EM Model of Clinical Practice. Depending on the material covered, sessions may be entirely oral, multimedia, simulated, or procedurally-based. Unlike Morning Report, Night School is attending-facilitated and kept under 30 minutes to decrease learners' extraneous load and fatigue. As part of the initial rollout, a core group of nocturnists were recruited to develop Night School cases and to ensure a uniform approach to sessions. On average, this team has conducted approximately 3 to 4 sessions a week since inception.

Impact: To date, learners' perceptions of Night School have been extremely positive. Despite the fact that 36% (N=72) of participants were "Tired" or "Very Tired" at the time of Night School, 89.5% (N=57) of respondents felt "Very Engaged" by the sessions. 86% (N=72) gave

the didactic sessions highest marks for quality, and 98% (N=59) of participants felt that Night School was a valuable addition to their night shifts. Our pilot suggests there is a need and appreciation for structured, educational experiences among residents on night shift and that Night School merits continued curricular development.

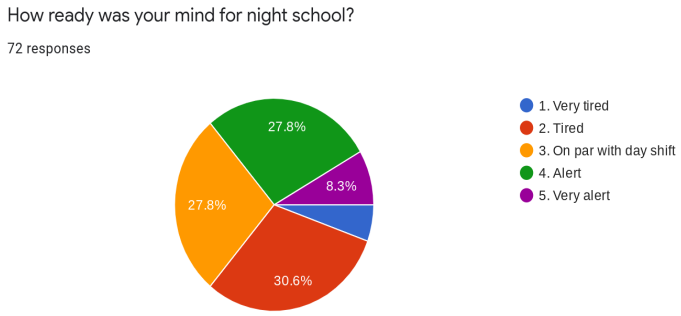


Figure 1.

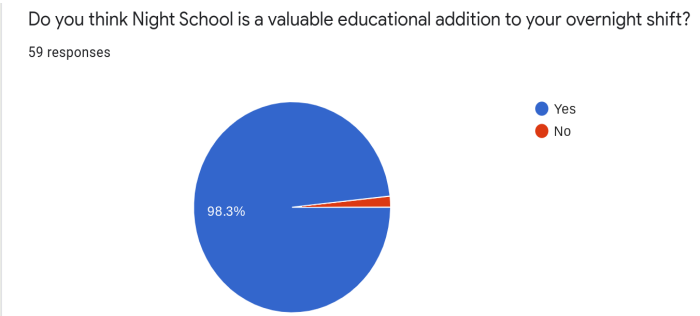


Figure 2.

23 The Research Escape-Hunt: An Escape Room for Resident Education on Research Design and Evidence-Based Medicine

Timothy Fallon, Tania Strout, Robert Anderson, Carl German

Learning Objectives: We sought to develop a research escape-hunt to teach EM residents: 1) predictive statistics and diagnostic test characteristics, 2) interpretation of data and statistical analysis, 3) study design, 4) informed consent for research, and 8) the ethical principles guiding research.

Introduction: Research and evidence-based medicine are important parts of residency training and the ACGME identifies scholarly activity as a core requirement for EM. EM training programs take a variety of approaches to addressing these requirements and there is not a standard, widely accepted curriculum available.

Curricular Design: We considered ways to incorporate active, participatory learning experiences that effectively engage adult learners. Within the CORD community, escape-hunts have demonstrated efficacy for other EM content. An escape-hunt was developed with each station focused on one topic and requiring participants to solve a series of puzzles. Prior to the event, participants reviewed materials covering the content including summary sheets and podcast links. The escape-hunt served as an opportunity to further explore and reinforce the asynchronous content. Faculty members were present to help guide teams through the stations and to answer questions about the content. Teams worked to solve each station with the first team to successfully complete all nine stations winning a prize. A subsequent COVID-impacted event was held the following year utilizing Zoom breakout rooms, demonstrating that this innovation can be successfully implemented both in-person and virtually.

Impact: Participants reported high levels of satisfaction (100% (21/21)) and engagement (95% (20/21)) with the activity, increased comfort with the content (91% (19/21)), and demonstrated improvements in knowledge across content areas (91% (19/21)). Participants reported using skills relevant to clinical practice such as 'working as a team,' 'task switching,' 'task delegation,' 'brainstorming,' and 'solving complex problems together.' Challenges exist related to props cost and the time for development; however, we now have a materials bank that can be used in the future and we have successfully implemented a COVID-safe virtual event, demonstrating the adaptability of this format.

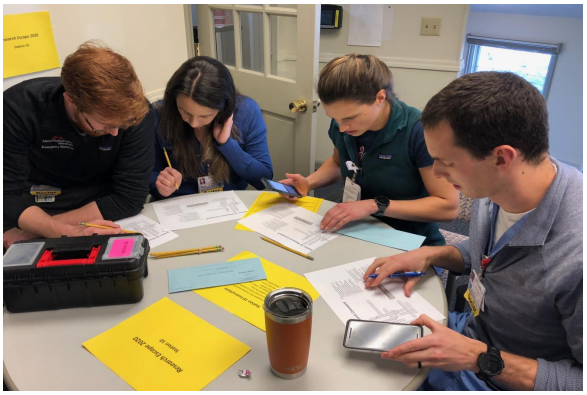


Image 1.

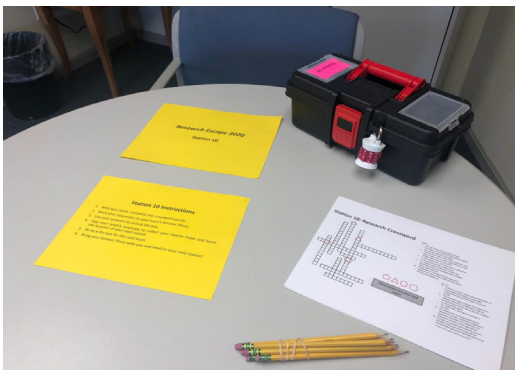


Figure 2.

24 The Unstandardized SDOT: PGY-year Specific Milestone Based Standardized Direct Observation Tool

Amber Billet

Learning Objectives: Utilizing a PGY-specific, ACGME milestone based standardized direct observation tool, feedback will be improved. This will improve the quality of feedback residents receive and increase the objective data for the clinical competency committee to assist in resident evaluation.

Introduction/Background: The standardized direct observation tool (SDOT) is one of the most common ways to provide emergency medicine residents feedback. There are various SDOTs available on the CORD website but not a comprehensive emergency department based clinical SDOT. With the introduction of the new ACGME milestones in July 2021, these were incorporated to create PGY-specific clinical SDOTS.

Educational Objectives: Utilizing ACGME milestone based SDOTS that are PGY-specific for PGY-1, PGY-2, or PGY-3/4 this will improve feedback. The objectives are to improve quality of resident feedback and to increase objective feedback for the clinical competency committee to assist in resident evaluation.

Curricular Design: Attending physicians performed one SDOT on every emergency medicine resident in a community academic hybrid residency program of 36 residents using the PGY-specific SDOT form. The PGY-1 SDOT focuses on interns taking an accurate history and physical exam (PC2), ordering appropriate diagnostic studies (PC3) and formulating differential diagnoses (PC4). The PGY-2 SDOT focuses on capturing more upper level responsibilities such as emergency stabilization (PC1) and reassessment and task switching (PC6, PC7). The PGY-3 SDOT focuses on emergency stabilization (PC1) and systems based practice (SBP). All three SDOTs contain Pharmacology (PC5), Medical Knowledge, Professionalism and Interpersonal and Communication Skills.

Impact/Effectiveness: The PGY-year specific milestone based SDOT was implemented in July 2021. This is applicable not only to emergency medicine but to other residency training specialties as well. Attendings (n=15) who have completed these SDOTs so far have rated this form as easy to use with an average of 4.5 on a 5 point Likert scale (1-not easy to use, 5-very easy to use). One limitation is the lack of objective data to accompany this and resident perception of quality and usefulness of feedback.

25 A High-Fidelity, Cost Efficient Model for Simulated Resuscitative Hysterotomy

Gurpreet Kaur, Megan Nowitzki, Michael Jax, Jonathan Bronner

Learning Objectives: To design an anatomically accurate, reusable model of resuscitative hysterotomy providing learners realistic practice without utilizing biological tissue. Secondary objectives included minimizing utilization costs, while developing procedural proficiency for large groups of trainees.

Introduction/Background: High-acuity and low-frequency procedures are an important component of emergency medicine training that not all residents encounter before graduation. The pregnant patient in cardiac arrest requiring resuscitative hysterotomy exemplifies this phenomenon. High-fidelity commercial models are expensive, thus less suitable for repeated use by inexperienced learners. Conversely, many low cost models lack anatomic fidelity required to replicate the procedure. We present a low cost, high-fidelity option that is non-tissue based and conducive to repeated use. This allows learners to practice the technique prior to performing an invasive procedure on a patient.

Curricular Design: Gaumard S500 Original Childbirth Simulator, a childbirth skills trainer was repurposed as a rapidly reusable model for resuscitative hysterotomy. The empty pelvic base was fitted with a plastic sac containing a baby in simulated amniotic fluid and adjacent placenta. Pelvic organs including a bladder, uterus, subcutaneous tissue and skin were designed using soft pourable silicone rubber. Layers were colored to match soft tissue texture and appearance prior to assembly within the pelvic base. As learners successively perform the procedure, the abdominal covering and uterus layers can be easily resealed for repeated incisions.

Impact/Effectiveness: A cost-effective and reusable model allows residents to practice high-acuity, low-frequency procedures in realistic patient care scenarios. This model was implemented with 40 GME and UME learners performing the procedure during a simulated case during weekly didactics. Each participant described the experience as realistic and effective in improving confidence. The model will be integrated annually into simulation activities with plans to expand to other healthcare professionals via in-situ simulation scenarios in the ED.

26 A Homemade, Cost-Effective, Realistic Pelvic Exam Model

Jessie Godsey, Ilya Kott

Learning Objectives: The learning objectives of this innovation is to provide a pelvic examination model to effectively and safely provide training to residents, medical students and mid-level providers in a controlled and safe environment prior to attempting the invasive examination on patients.

Introduction: Pelvic examinations are essential components to clinical practice but are challenging to teach, learn and practice on live patients secondary to patient comfort as this can be an invasive procedure. Resident physicians traditionally learn these methods through observation while actively working in the department. Simulation models can improve a provider's competency and confidence performing pelvic examinations which improve patient comfort and exam accuracy. A barrier to simulation training is the cost of the pelvic simulator models. The average cost is around $1000. The cost is high which limits the availability of a simulation model accessible to residency programs across the country. This barrier to pelvic models was overcome by developing a homemade alternative for cervical examination. The model can be easily manufactured for less than $20 and two hours of manufacturing time.

Educational Objectives: Effectively train residents, medical students and mid-level providers the proper technique to perform a pelvic examination in the comfort of a simulation center prior to attempting the procedure on a patient.

Curricular Design: Learning the proper technique and skill to perform a complete and comfortable exam can be challenging for incoming residents. Therefore, appropriate training in a simulated environment is important. This is a guide to utilizing supplies from a local dollar store combined with home recycling products and a few common crafting tools. This model was created in an effort to allow for creation of an inexpensive, effective pelvic examination model for learners to become comfortable with the procedure prior to patient exposure and to ensure the comfort and accuracy of the examination.

Impact: Our model was compared side by side to a manufactured Clinical Female Pelvic Trainer by our residents during a simulation lab. The consensus found our homemade model to be comparable to the feel of a pelvic/cervical exam.

Table 1.

The following materials were utilized from a local dollar store:
- Pool noodle
- Facial exfoliation pads
- 32 flat-pack cosmetic foam wedges
- Four rubber bands
- Two felt sheets
- Two wash cloths, ideally skin color but any will suffice

The following materials were used from home recycling:
- Eleven 24 oz beverage cans. In this model empty Rockstar energy drink cans, were utilized
- Empty cardboard box, the one utilized for this model measured 7"x12"x10"
- Large, wide drink straw

The following tools were utilized:
- Scissors
- Razor blade or utility knife
- Hot glue gun
- Staple gun
- Brown and red marker

Table 2: Instructions:

1. The first step is to prepare the card board box by using either scissors or the utility knife to remove the longest closure flaps on one side of the box, leaving the shorter flaps. Once this is done, lay the box vertically with the opening facing the creator resting on the shorter end.

2. Cut the pool noodle. This was used for filling in between the cans for stability, for the vaginal canal and to hold the cervix, the noodle measured 10.5"
   a. The pool noodle was cut into pieces measuring 7" pieces to fill between cans for added stability.

Image 1.

27 Developing Procedure Guides to Improve Procedural Competence and Confidence

Aman Pandey, Samuel Parnell

Learning Objectives: Help resident physicians become experts on procedural competency by developing a peer-reviewed procedure guide.

Introduction: Emergency medicine physicians (EPs) need to perform a broad range of procedures quickly and effectively. While some procedures are common, others are rarely encountered. However, an EP must be ready to perform all these procedures, often with minimal time to prepare. While there are numerous procedural references, not all are reliable or easily accessible on shift. Developing a procedure guide repository would result in a useful clinical and teaching tool. Creating the guide itself will aid in mastery of the procedure.

Objective: Help resident physicians become experts

on procedural competency by developing a peer-reviewed procedure guide.

Curricular Design: 73 procedures were chosen for this project. Residents and attendings worked together to create a guide for each procedure. Each pair was given a standardized template to follow which included indications, contraindications, supplies, preparation, technique, aftercare, complications, follow-up, return precautions, video examples, and references. These guides will be published on an application with Apple and Android which will allow for greater accessibility while on shift. Residents and attendings were also asked to complete a survey about the project.

Impact/Effectiveness: By creating their respective guides, the residents and attendings should gain mastery at performing and teaching their assigned procedure. So far, we have received 6 completed procedure guides. The remainder are still in development with goal of completion by June 2022. An example guide is shown in Figure 1.

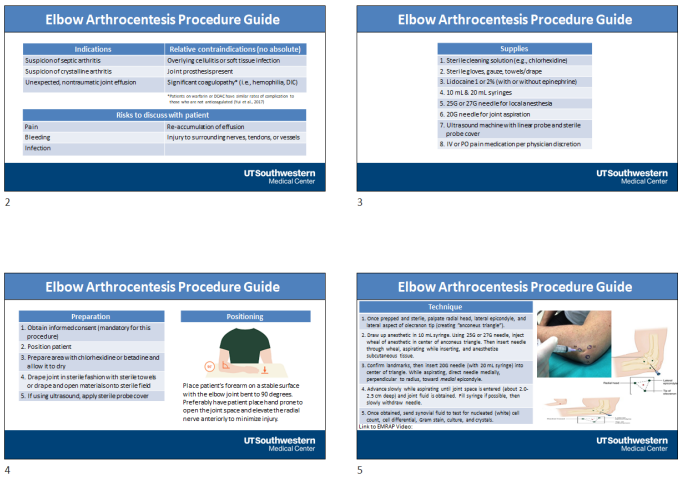


Figure 1. Elbow arthrocentesis procedure guide.

So far, 21 participants have completed the survey, and results are shown in Table 1. Comparing columns 4 and 5, preliminary results suggest that developing these guides help physicians become more confident with their procedure. We plan to implement the procedure guide application in 2022 and look forward to collecting more data to determine the effect on clinical confidence, competency, and bedside instruction.

Table 1. Procedure guide survey results.

	A procedure guide app would be useful for procedural guidance when performing procedures on shift.	A procedure guide app would be useful for procedural teaching on shift.	I am comfortable and confident performing my assigned procedure WITHOUT using a reference on shift.	Developing a procedure guide will enhance my confidence and competency performing the assigned procedure.	I would use a procedure guide app for reference when performing my assigned procedure on shift.	I would use a procedure guide app for reference when teaching my assigned procedure on shift.
Strongly Agree	17 (81%)	15 (71%)	2 (10%)	14 (67%)	12 (57%)	13 (62%)
Agree	4 (19%)	6 (29%)	5 (23%)	7 (33%)	7 (33%)	8 (38%)
Neutral	0 (0%)	0 (0%)	4 (19%)	0 (0%)	2 (10%)	0 (0%)
Disagree	0 (0%)	0 (0%)	8 (38%)	0 (0%)	0 (0%)	0 (0%)
Strongly Disagree	0 (0%)	0 (0%)	2 (10%)	0 (0%)	0 (0%)	0 (0%)

28 Low-Cost, Mid-Fidelity Fracture Simulation & C-Arm Education using Goat Legs

Nick Levin, Wesley Williams, Megan Fix

Learning Objectives: To orient emergency medicine residents and medical students to c-arm operation and dynamic utilization. Additionally to use the modality to teach fracture identification, reduction and splinting techniques.

Introduction: Adult and pediatric extremity fractures are a common presentation to Emergency Departments (EDs). Utilizing a c-arm dynamically helps facilitate more efficient and successful fracture reduction and splinting. The familiarization of utilizing a c-arm for fracture reduction is a critical skill for emergency medicine education and clinical practice.

Objective: To orient emergency medicine residents and medical students to c-arm operation and dynamic utilization. Additionally to use the modality to teach fracture identification, reduction and splinting techniques. We then assessed how effective this modality was at meeting those objectives for our learners.

Curricular Design: Fractures were simulated in cadaveric goat legs cast into an opaque gelatin mold. The fractures could not be identified visually and were interrogated by palpation and fluoroscopically using a c-arm. Participants were given tutorials on proper fluoroscopic technique and allotted time to practice reductions in a non-clinical setting. We sent a six-question follow-up survey inquiring how effective this simulation was on a seven-point Likert scale ranging from "Not Effective" (1) to

"Very Effective" (7). Twenty emergency medicine residents completed the post-simulation survey (74% response rate). For 40% of the residents, this was the first time using the c-arm. The simulation was quite effective at familiarizing residents to a c-arm with a mean score of 5.9 (SD=0.93), general fracture identification (4.9, SD=1.8) and reduction technique (5.1, SD=1.2), however it was even more effective at teaching those skills fluoroscopically (6.1, SD=1.1 and 5.7, SD=1.5, respectively).

Impact/Effectiveness: This innovation utilized materials found in many emergency departments and nearby communities and created low-cost, mid-fidelity fracture simulations in a non-clinical setting. This approach allows clinical trainees to utilize the equipment necessary for efficient and successful fluoroscopically-guided fracture identification and reduction.

Image 1.

Image 2.

29 Work for Idle Hands: A Simulation Model for Nail Bed Injury and Avulsion Repair

Rebecca Kreston

Learning Objectives: Wounds of the fingernail bed are a frequent injury encountered in the emergency department however residents often learn techniques for repair at the bedside. We aimed to develop and evaluate an economical and accessible simulation model of nail bed repair that could be used during online lecturing.

Introduction: Hand and fingertip trauma account for millions of visits to the emergency department annually. Nail bed injuries, including avulsions or unstable nails, are particularly common, however, there are limited opportunities for supervised practice and mastery of nail bed avulsion repair. We developed an economical and accessible simulation model to allow for practice of nail bed avulsion

repair during remote lecturing in the early days of the Covid-19 pandemic.

Curricular Design: The model consists of a halved hotdog with an acrylic nail embedded into and glued using nail glue at the terminal rounded end. Pressure was applied to the distal acrylic nail, tearing the hotdog at the insertion site of the nail, creating a horizontal nail bed laceration consistent with a nail bed avulsion injury. Red food coloring was used to mimic bleeding from a nail avulsion. The cost was approximately $0.20 per model. Models and suture material were available for residents to pick up at the hospital prior to the online conference.

Impact/Effectiveness: The model was tested with thirty-four emergency medicine residents during an online conference and simulation session performed over Zoom; the ultimate goal was to reapproximate the nail in good anatomical position with appropriately placed absorbable sutures. A voluntary survey was available for residents which yielded highly positive feedback with survey results confirming that the model provided valuable education.

Image 1.

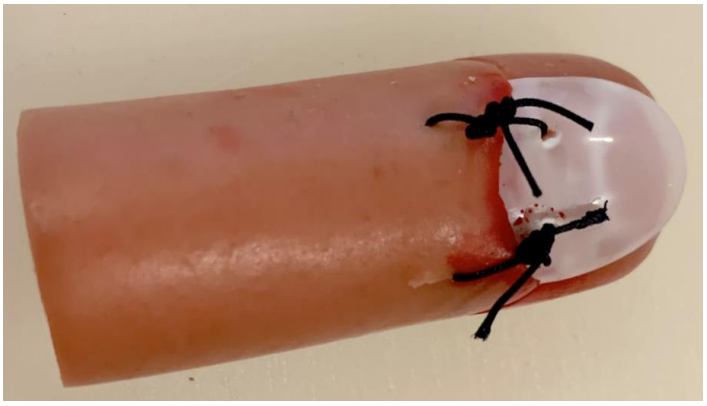


Image 2.

30 A day in the life of an emergency department (ED) patient: In-situ ED patient experience simulation for emergency medicine interns

Lynn McGowan, Amber Billet, Barbara Stahlman

Learning Objectives: The purpose of this educational innovation was to examine first year emergency medicine resident (EM-1) perspectives on the ED patient experience and examine how EM-1 empathy may change after experiencing a simulated ED encounter

Introduction/Background: Empathy is an essential trait for compassionate physicians and the importance of a positive patient experience in the emergency department (ED) is being increasingly emphasized. Currently, there is no best practice guidelines as to how to educate emergency medicine residents about patient experience.

Curricular Design: During the first week of EM-1 orientation, 12 residents at a community academic emergency medicine residency program consented to serve the role of patient, family member or observer. In groups of three, EM-1s navigated through four simulated ED encounters in their assigned role (left arm weakness, suicidal ideation, dyspnea, eye pain). Those role-playing as patient or family received a script based on chief complaint to utilize during the ED encounter. EM-1s individually completed a pre- and post-simulation written activity in which they listed all the tasks they believed the patient would encounter. Task totals of pre- and post-activity lists were compared using paired t-test (a=0.05). A debriefing session was conducted immediately after the simulation to obtain qualitative feedback. The entire activity took 2 hours (5 minute introduction, 15 minute pre-

activity, 40 minutes in the ED, 15 minute post-activity, 45 minute debrief).

Impact/Effectiveness: No significant difference was observed between pre- and post-activity task lists (p=0.17). Overall, qualitative feedback revealed the activity felt very realistic and provided a positive learning experience. Simulated patients felt "vulnerable" and "frazzled." Simulated family felt "anxious" and "stressed." Observers were surprised at how many steps occurred simultaneously in the encounter. All participants reported the importance of communication.

31 Airway Tape Review: Learning Through Retrospective Review of Video Laryngoscopy Cases

Justin Chapman, Lucienne Lutfy-Clayton

Learning Objectives: With Airway Tape Review (ATR), we sought to implement a curriculum where actual resident airway recordings are reviewed in a group setting. The lecture series highlights best airway practices, challenging cases and common mistakes encountered by learners.

Introduction/Background: Airway Tape Review (ATR) provides a novel approach to covering airway curriculum through real airway cases. The advent of video laryngoscopy has allowed viewing of resident intubation by the supervising attending, improving safety and feedback in real time. Recording these intubations allows for retrospective review, knowledge translation to learners and supervisors not present and aligns curricular goals and objectives to actual cases. Reviewing these cases in a group setting provides professional development of airway skills in a safe and supportive environment for both learners and supervisors.

Educational Objectives: •Review intubations to highlight curricular goals and objectives for airway skills •Improve professional development of learners through the experience of a larger quantity and variety of intubations •Discuss best practices in pre, peri and post intubation management •Align ATR with curricular goals and objectives.

Curricular Design: We have implemented vignette-based didactic sessions that permit a "walk-through" of complex airway situations encountered by residents. Established at the UMass Chan-Baystate Emergency Medicine (EM) residency by Dr. Lutfy-Clayton and translated to the UMass Chan EM residency, our lecture series consists of a 1-2 hour quarterly interactive session with a collation of resident intubations pre-reviewed and edited to highlight teaching objectives. The session emphasizes resident participation and can be paired with relevant resident education including journal club and simulation to provide for additional spaced repetition.

Impact/Effectiveness: Retrospective review plays a key role in development of clinical acumen as an EM physician. ATR provides a means to decelerate and distill discrete airway skills through repetition and the impact of real cases. Potential future uses for video laryngoscopy review include regular, direct resident feedback and tracking of resident improvement.

32 A Novel Curriculum for Reducing Distal Radius Fractures in an Emergency Medicine Residency Program

Steven Morrin, James Willis, Kayla Basedow, Lauren McCafferty

Learning Objectives: We developed a curriculum using a high-fidelity model for residents to learn proper reduction of closed, stable distal radius fractures without orthopedic consultation.

Background: EM residents are expected by the ACGME to be competent in managing orthopedic injuries. Given that these injuries make up 20% of ED visits, it is essential that residents feel comfortable and competent in managing them. In a recent survey sent to alumni of several EM residencies, more than half of respondents reported feeling not at all or somewhat prepared to independently reduce closed fractures. They also stated seeing wrist and distal radius and ulna fractures most frequently. We also received resident feedback from our own program that they felt uncomfortable reducing these fractures without orthopedic consultation, even though it fell within their scope of practice.

Educational Objectives: We developed a curriculum using a high-fidelity model for residents to learn proper reduction of closed, stable distal radius fractures without orthopedic consultation.

Curricular Design: Residents were given pre-reading materials on distal radius fracture reduction. During the session, residents were shown a brief presentation on the finger trap reduction technique and relevant anatomy. They were then given a demonstration by faculty using a SawBones high-fidelity simulation arm model. The simulation arm bones are radiopaque, allowing for both pre- and post-reduction x-rays in order to display proper alignment. After demonstration of reduction and radiographic confirmation, residents were able to practice closed reduction and x-ray interpretation under direct supervision.

Impact/Effectiveness: We administered an identical six-question survey before and after in which we assessed residents' current comfort level with distal radius fracture reduction and splinting. Few residents (17%) initially reported feeling comfortable reducing closed distal radius fractures. After the intervention, almost all residents (88%) reported feeling comfortable. We are currently collecting follow-up data on comfort and frequency of orthopedic consults in the ED.

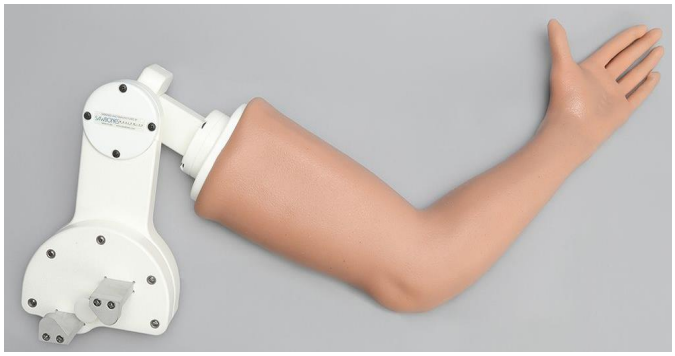


Image 1.

33 Medical Simulation Training on Trauma-Informed Care in the Emergency Department

Caroline H. Lee, Carlos Dos Santos, Taylor Brown, Henry Ashworth, Jason Lewis

Learning Objectives: To describe a novel simulation training developed to teach Trauma-Informed Care principles and applications for patient care in Emergency Medicine. To present results from pre- and post-surveys about effectiveness of simulations to learn and apply Trauma-Informed Care in acute-care settings.

Introduction/Background: Emergency Medicine physicians often care for patients experiencing direct sequelae from traumatic events including abuse, discrimination, and violence. Trauma-Informed Care (TIC) is a framework that recognizes the prevalence of trauma, promotes patient empowerment, and aims to minimize retraumatization. Limited curriculum on TIC in acute-care settings exists despite its widespread utility, with medical simulations (SIM) presenting a novel educational opportunity for this aim.

Educational Objectives: Describe principles of TIC and its importance in clinical practice. Present strategies for performing TIC-guided history taking and physical exams. Discuss situations when trauma screenings are indicated for patient safety and care. Facilitate the practice of TIC in acute-care settings.

Curricular Design: An SIM workshop reproducing relevant clinical encounters was developed for medical students to practice implementing TIC in the Emergency Department (ED). Students attended a didactic on TIC fundamentals and its applications in clinical care. Small groups then interacted with three SIM cases caring for patients with urgent medical needs and pertinent history related to intimate partner violence, transgender health, and discrimination in the healthcare system.

Impact/Effectiveness: Application of TIC principles is essential to providing patient-centered care in the ED. A pilot group of 12 students participated in these SIM sessions. The workshop was well-received, as 100% of participants found simulation training "Very" or "Extremely Useful" in preparing to apply TIC in patient interactions, compared to 42% prior to the session ($p<0.05$). Students also developed relevant skills, as 42% of students felt "Very" or "Extremely Confident" in using appropriate TIC language during physical exams, compared to 0% initially ($p<0.05$). Overall, this novel intervention represents a feasible and effective session for teaching TIC skills in Emergency Medicine.

34 Teaching and Assessing Bag Valve Mask Ventilation to 4th Year Medical Students via Checklist

Aman Pandey, Mary McHugh, Meghan Michael

Learning Objectives: Create a checklist that is expert reviewed to teach BVM to 4th year medical students. Implement a curriculum to teach using the checklist and then assess performance with high-fidelity simulation.

Introduction: Bag-valve-mask ventilation (BMV) is an essential skill to master when teaching medical students basic airway management. Standardized checklists help teach and assess learners. A validated checklist for teaching BMV to medical students does not exist in the literature. Current standards typically involve teaching learners BMV skills on mannequins in static situations.

Educational Objective: Create a checklist that is expert reviewed to teach BVM to 4th year medical students. Implement a curriculum to teach using the checklist and then assess performance with high-fidelity simulation.

Curricular Design: A previously published checklist was improved upon using expert consensus of 10 EM and 10 anesthesia faculty. A 2-handed technique using an oropharyngeal airway was emphasized to maximize a novice's success. Senior anesthesiology and EM residents taught 200 4th year medical students using rapid sequence deliberate practice methods and the checklist. After achieving proficiency, they participated in a SIM case that required BMV. Video review was used to assess the students' skills with the checklist.

Impact/Effectiveness: We now have a standardized, expert reviewed checklist to teach BMV skills to 4th year medical students. While all students achieved proficiency using a static mannequin, many of the students' skills deteriorated in the high-fidelity simulation. For example, in the simulation, only 65% of students connected the oxygen to the wall correctly, 24% of students did not use the two-handed technique, and 81% of students did not correctly size and insert the oropharyngeal airway. Since our goal is to teach students BVM for use in the hospital environment, by collecting the high-fidelity simulation

data we know that our method was inadequate for skill retention in the complex environment. This enables us to continue curriculum development this year incorporating more repetition in a complex environment.

Table 1. Bag-valve-mask ventilation checklist.

BVM Ventilation Check List					
Opening remarks will need to be clear that we want them to put in an OPA. Something like: You find a victim in this hospital bed who is unresponsive and you are assigned airway. You need to assess the airway, use an OPA, and use a BVM					
Step	**Skill**	**Score**			
1	Call for Help	2	1	0	N/A
2	Attach the mask to wall oxygen and turn it all the way up to 15	2	1	0	N/A
3	Establish position directly above the patient's head	2	1	0	N/A
4	Place the mask on the patient's face using the bridge of the nose as the guide with the most narrow portion of the mask on the bridge of the nose (bottom of the mask should not be past the chin or on the bottom lip)	2	1	0	N/A
5	Using a two handed technique and either the Thenar Eminence or the E-O technique				
5a	Thenar Eminence (thenar eminence and thumb of both hands are placed on the top of the mask while the remaining fingers of both hands perform jaw thrust under the angle of the mandible)	2	1	0	N/A
5b	E-O technique (place the neck of the mask between the webs between the thumbs and index fingers of both hands. Simultaneously, chin lifting should be performed with the other fingers of both hands.)	2	1	0	N/A
6	Open the airway by performing a head tilt and chin lift by extending the neck and lifting at the mandible pressing the face to the mask	2	1	0	N/A
7	Squeeze the bag to give a breath over 1 second and assure air entry (watching chest rise, listening for breath sounds, End-Tidal CO2)	2	1	0	N/A
8	Question the student (or observe them for accuracy): What is the rate of breaths for an apneic adult patient? (6-10 breaths/minute)	2	1	0	N/A
9	At some point the student should place an OPA without prompting. Note they size the OPA (tip of OPA at corner of mouth and phalange at angle of mandible)	2	1	0	N/A
10	Insert OPA with either technique:				
10a	With the C shape facing up and rotating it 180 degrees as it is advanced until the phalange is flush with lips	2	1	0	N/A
10b	With tongue blade assist and insert directly with C shape facing down until the phalange is flush with lips	2	1	0	N/A
Score Key: 2 = Done Correctly 1 = Done Incorrectly 0 = Not Done N/A = Not Applicable					

Table 2. Results of students' grades.

BVM Ventilation Check List Skill	% Done Correctly
1. **Call for Help**	**100%**
2. **Attach the mask to O2**	**65%**
3. **Establish Position at Patient's Head**	**73%**
4. **Place the mask correctly**	**99%**
5. **Use a two-handed technique**	**76%**
6. **Open the airway**	**82%**
7. **Squeeze the bag**	**43%**
8. **Use correct rate**	**40%**
9. **Place the OPA, after sizing**	**19%**
10. **Correct OPA technique**	**48%**

35 A Novel Social Emergency Medicine Curriculum: An Alternative to Lecture-Based Didactics

Ashley Vuong, Hannah Janeway, Amanda Amen, Lauren Fryling, Alexander Garrett, Jaime Jordan, Natasha Wheaton

Learning Objectives: We sought to create a Social EM rotation to improve residents' understanding of structural vulnerability, health inequity, and social determinants of health and improve their ability to address barriers to care and social needs in the emergency department.

Introduction: Social determinants play an important role in patient health. While many Emergency Medicine (EM) residency programs agree that Social EM is an important component of education, few programs have formal curricula addressing Social EM. Social EM education varies widely from program to program.

Objective: We sought to create a Social EM rotation to meet the needs of EM residents. This rotation would allow dedicated time to learn Social Medicine skills and familiarize residents with hospital and community resources. The main objective is to improve residents' understanding of structural vulnerability, health inequity, and social determinants of health and improve their ability to address barriers to care and social needs in the emergency department.

Curricular Design: We created a novel, two week Social Emergency Medicine rotation, exposing residents to a variety of Social Emergency Medicine concepts. Residents rotate with community organizations including a street medicine team, medication-assisted treatment clinics, a harm-reduction needle exchange, a medical asylum clinic, a food pharmacy, and a trauma recovery center. These activities are paired with didactics covering topics such as substance use disorder, immigration health, food insecurity, violence intervention, homelessness, incarceration, LGBTQA+ and gender identity, language equity, race and culture, financial insecurity, and healthcare access and coverage.

Impact/Effectiveness: Our novel Social EM rotation was successfully implemented. Five residents have completed the rotation. Residents reported increased knowledge about resources for housing, substance use, immigration rights, and food insecurity and also were more comfortable addressing gender diversity. Residents particularly valued performing asylum work in Tijuana and their street medicine experience. In the future, similar rotations can be implemented at other residency programs through partnerships with local organizations.

36 Implementation of Foundations of Emergency Medicine Cases Through High Fidelity Simulation for PGY-1 EM Residents

Jessica L. Beadle, Kathleen A. Murphy, Leila Getto

Learning Objectives: Describe the process of converting "Foundations of Emergency Medicine" cases to high-fidelity simulation scenarios, implement cases for PGY-1 EM, EM/IM, and EM/FM residents, and survey simulation specialists and residents regarding the resources required and the curriculum's educational value.

Introduction: Foundations of Emergency Medicine (FoEM) is an open-access curriculum that involves case-based table-top exercises, and is an established part of our weekly conference. Case-based simulation has been shown to improve clinical knowledge and comfort levels in the care of critical patients. The educational need for this pilot study arose from PGY-1 residents' requests for more time to run cases in our simulation center.

Educational Objectives: To convert FoEM cases into high-fidelity simulation cases to enhance PGY-1 residents' learning experience, and to evaluate the feasibility of the process.

Curricular Design: Simulation specialists converted 18 FoEM cases to high-fidelity simulation cases. A total of 17 PGY-1 EM, EM/IM and EM/FM residents performed FoEM simulation cases on 6 separate conference days during the 2020-2021 academic year in lieu of the standard FoEM table-top exercise. Three cases were run per session. Each case was 10 minutes long followed by a 20 minute debrief by EM faculty. Residents were surveyed to gauge educational satisfaction and clinical confidence. Simulation specialists were surveyed to identify resources required and to ascertain barriers to implementation.

Impact/Effectiveness: The post-implementation surveys had an overall response rate of 70%. All residents agreed or strongly agreed that performing FoEM through simulation was a positive addition to the curriculum and the information and skills were applicable to patient care. The majority reported that scenarios helped to solidify foundational knowledge and confidence in caring for patients. Simulation specialists reported taking 1-4 hours to prepare a case. Challenges included predicting learner decisions and interpreting the cases as a non-physician. We conclude that FoEM cases can be converted to simulation with reasonable effort and are a valuable addition to the curriculum. We have continued this curricular innovation in the 2021-2022 academic year.

Table 1. Resident suvery results, 5-point Likert Scale responses.

Resident type	Positive addition	Solidified knowledge	Increased Confidence in patient care	Increased Confidence in team communication	Applicable to caring for patients	Frequency of FoEM in simulated setting
Combined resident	Agree	Agree	Agree	Agree	Agree	Just right
Categorical resident	Agree	Strongly agree	Strongly agree	Strongly agree	Agree	Not enough
Categorical resident	Agree	Strongly agree	Agree	Neither agree nor disagree	Agree	Just right
Combined resident	Strongly agree	Strongly agree	Agree	Agree	Agree	Not enough
Combined resident	Agree	Neither agree nor disagree	Neither agree nor disagree	Disagree	Agree	Just right
Categorical resident	Agree	Agree	Agree	Disagree	Agree	Not enough
Categorical resident	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Just right
Combined resident	Agree	Agree	Neither agree nor disagree	Neither agree nor disagree	Agree	Just right
Combined resident	Agree	Agree	Agree	Neither agree nor disagree	Agree	Just right
Categorical resident	Agree	Agree	Disagree	Disagree	Agree	Just right
Categorical resident	Agree	Agree	Agree	Agree	Agree	Just right

Table 2. Simulation specialist survey open-ended responses.

What role did you play in implementing the Foundations of Emergency Medicine cases in the VEST center?	Length of time to convert case	Challenges	Describe Challenges	How many simulations specialists needed?	Number of simulation specialists appropriate	Do you think you needed more or less staff members to run the session?
My primary role is to assist in the set up and clean up of the simulation rooms for the session.	N/A	No		4-5; 3 to run the simulators and 1-2 for support or confederates.	Yes	
Simulation Specialist, may play the role of the manikin, role of confederate if staff available. Convert cases into sims	1-2 hrs	Yes	what route will the learners take	min of 3	No	more confederates in the room would help
Simulation Specialist to run the manikin or participate as a RN assisting the learners. Also participate in the pre-brief and de-brief		Yes	The cases are not always in an easy to understand format when you are not a EM physician.	2	Yes	
simulation specialist, RN	N/A	No		3	Yes	
Primary Design and Implementation Lead for Cases	Large range of time to develop and test cases budget for cases is usually 4 hours of building sim with 90 minutes to test sim	Yes	Challenges can be verifying that cases are reflecting current practice, including how cases are run in large Trauma Center. Other challenges include how to pare down case that is running over hours to 15 minutes, or case that is designed for docs taking the boards, to PGY1	Generally 2 or 3 per cases, when one case is running there will be 4 team members, when multiple cases are running, happy to have 2 per room	No	In the instance of running a high fidelity ED case, we need 4 or 5 ideally, 1 to run manikin and be voice, 1 to be family member, 1 to bedside RN, another to be respiratory or other ancillary position. 5th to have oversight to make sure all the parts come together.

37 "Prez Drillz" for med students: An online workshop to practice oral case presentation skills through peer-feedback, repetition, and application

Alexis del Vecchio, Anthony Seto, Paul Bryan, Logan Haynes, Nicole Ertl

Learning Objectives: Students at our university identified low confidence in presenting oral cases and a desire for more practice. We created a workshop, "Prez Drillz", to address this. We will describe an educational model for medical students to practice oral case presentations online and discuss its impact.

Introduction: Presenting clinical cases orally is a core skill for medical students, a task some find intimidating. Oral case presentations may influence preceptors' impression of students, as it highlights learners' cognitive and non-cognitive attributes. Students at our university identified low confidence in presenting oral cases and a desire for more practice. We created a workshop, "Prez Drillz", to address this.

Curricular Design: Before the workshop, students viewed a podcast on oral case presentation structure. 154 second-year students participated in the 2.5-hour workshop, hosted via Zoom videoconferencing, with 1 physician preceptor for 4-5 medical students. During the workshop, students first listened to a 5-minute case audio, outlining patient history and examination findings. Students delivered an oral case presentation, based on information extracted. Self-reflection and feedback from peers and preceptor followed. Students then practiced delivering a second oral case presentation by implementing the feedback received. Students completed a retrospective survey on their agreement (1=strongly disagree; 5=strongly agree) with self-efficacy

statements regarding presentation skills pre- vs post-workshop (effective frame/context, clear history/physical exam, convincing top differential diagnoses, comprehensive management plan, appropriate confidence, clear/effective communication, organized/structured approach). All ratings of self-efficacy (N=23) increased with statistical significance ($p<0.001$) and large effect size; the average self-efficacy rating was 2.50/5 pre-workshop versus 4.32/5 post-workshop. Average workshop rating (N=55) was 4.73/5.

Impact/Effectiveness: This workshop improved students' self-efficacy in oral case presentation skills. Peer-teaching, repetition, and feedback opportunity aided workshop success. Medical educators can adapt this educational model to help learners practice and elevate oral case presentations.

38 Buddy System: An Interventional Peer-Mentoring Program Between Fourth-Year Medical Students and Emergency Medicine Residents

Yehuda Wenger, Ramin Tabatabai, Brad Stone, Linda Papa, Jesus Roa

Learning Objectives: To implement a peer mentorship program and assess its impact on the levels of stress and self-esteem of fourth year medical students.

Background: Residents and medical students often face significant stress during their training which negatively impacts their wellbeing and job satisfaction. Peer mentoring is a dynamic social construct shown to have a positive effect on psychosocial wellbeing, stress reduction, and job satisfaction. We hypothesize that implementing a buddy system between emergency medicine (EM) residents and fourth year medical students will have a beneficial effect towards decreasing stress levels and improving self-esteem during their EM rotation.

Objectives: To implement a peer mentorship program and assess its impact on the perceived levels of stress and self-esteem of fourth year students.

Curriculum design: We implemented a 5-week 1:1 peer-mentoring program between 27 students and current EM residents at a Level I Trauma center over three rotation months. Prior to the rotation, they each received an email introducing the buddy system and outlining suggested topics and a meeting frequency of three times. Students completed surveys incorporating the 10 item Perceived Stress Scale and the Rosenberg Self-Esteem Scale both one week prior and on the last day of the rotation. Random numbers were assigned for anonymity.

Impact: In total, 25 of 27 pre and post surveys were collected. Preliminary data shows that 84% of buddy pairs met at least three times, 92% of students perceived the intervention positively, and 84% believed it contributed to their overall wellbeing. This is an easy platform to implement with no cost or constraints on a residency program. By implementing peer-mentorship early it can have a rapid positive effect, foster a larger network of mentorship, and improve the psychological safety of trainees.

39 Can a Modified Medical History Performed (in a Virtual Setting) by Medical Students Provide a More Efficient and Accurate History?

Simi Jandu, Kristen Cuadra, Steven Joseph, Brett Todd, Ronny Otero

Learning Objectives: To determine whether a history elicited by using an modified format of questions, i.e. past medical history prior to history of present illness, can reduce the amount of time necessary to obtain vital historical elements compared to the traditional history-taking format in a virtual environment.

Introduction: History-taking and communication skills are essential for accurate and efficient diagnosis in Emergency Medicine. The traditional history begins with the patient's chief complaint, followed by the history of present illness, past medical, surgical, social history, medications, and allergies. We propose an alternative history-taking method to obtain the medical history before eliciting the history of present illness to obtain key historical elements more efficiently.

Educational Objectives: To determine whether a history elicited by using a modified format of questions can reduce the time necessary to obtain vital historical elements while preserving complete assessment compared to the traditional history-taking format; history of present illness before medical history.

Design: The study enrolled 3rd and 4th-year medical students randomized to alternative history or traditional history taking methods. Students were placed in a Zoom room with a standardized patient who provided epigastric pain, flank pain, or syncope narrative. The virtual histories were recorded and later reviewed for comprehensiveness and timing. Results: Most students were 4th-year medical students (74.8%) who completed family medicine and internal medicine rotations (54.2%). The average time for history was 609 seconds vs. 617 seconds for the alternative and traditional groups, respectively (p-value 0.76). The alternative history elicited 14 of the 19 key elements of the history more than 70% of the time compared to the traditional (12 of 19).

Conclusion: This pilot study demonstrated that an alternative history method elicits more key elements than traditional history. It establishes that randomized simulated patient studies can be utilized in a virtual environment in place of in-person. Further studies can continue using the

virtual environment to determine whether this history-taking method is effective for more medically complex emergency department patients.

40 Development of a Longitudinal Elective Focused On Undergraduate Medical Education

Bryanne Macdonald, Liza Smith

Learning Objectives: We aimed to develop a longitudinal undergraduate medical education elective for academic-bound residents based on the responsibilities and expectations of an emergency medicine Clerkship Director.

Introduction: With the growing complexity and nuance of the EM application process, the need for well-trained Clerkship Directors (CDs) and advising faculty is greater than ever. Development of electives exposing residents to the intricacies of advising in the residency application process and of running an EM subinternship can help develop faculty skilled in these areas and prepared to take on the role of CDs in EM.

Educational Objectives: We developed a longitudinal elective introducing residents to undergraduate emergency medical education with objectives derived from the responsibilities and expectations of an EM CD. These objectives included developing skills in giving feedback and advising, reinforcing good practice in teaching and administrative responsibilities, and acquiring skills in summative evaluation.

Curricular Design: We chose to forgo the traditional block elective and instead utilized a longitudinal elective structure coinciding with medical student audition rotations. Residents worked fewer clinical shifts per month during audition rotations, allowing the flexibility to participate in and complete all elective responsibilities. Residents participated in monthly orientation, mid-rotation feedback and advising sessions, and composed Standardized Letters of Evaluation (SLOEs) with graded responsibility. After observing two blocks of each session, residents transitioned to leading these under direct supervision of the CD. Residents then completed summative feedback for use in the program's SLOEs.

Impact: Utilization of a longitudinal elective allows residents ample time for career exploration and skills development without the constraints of the traditional one-month elective timeline. Residents were able to apply advising strategies learned early on, confidently advising students in residency applications, accurately identifying at-risk students, developing introductory knowledge to complex cases and generating SLOE writing strategies.

41 Jazzing Up Virtual Interview Season With a Residency Program Information Portal for Interviewees

Ashley Rider, Bianca Velasquez, Yvonne Lam, Leonardo Aliaga, Holly Caretta-Weyer, Jennifer Kanapicki Comer, Kelly Roszczynialski, Luz Silverio, Sara Krzyzaniak

Learning Objectives: To asynchronously connect interviewees to our residency program through a digital platform designed to recreate personalized knowledge-sharing.

Background: Emergency medicine residency recruitment has continued in the virtual environment in 2021. Remote interviews limit the personalized exchange that occurs between program and applicant. Virtual interviews, while more equitable and financially feasible, result in applicants feeling less familiar with the program. To compensate, an emphasis on digital presence is needed. A well-curated website can provide foundational information about the program but typically lacks the personalized quality of an in-person on-site interview.

Objectives: To asynchronously connect interviewees to our residency program through a digital platform designed to recreate personalized knowledge-sharing.

Design: We created a website to convey personalized program information to 2021-2022 interviewees called the "Stanford Applicant Access Zone (SAAZ)." Through this private interviewee-only platform, we recreated many of the discussions and presentations that otherwise occur during an in-person interview. SAAZ contains interview logistics for the interview day, future engagement opportunities, videos highlighting unique features of the program, and a tour. We tracked the number of visits and page views to gauge use.

Impact/Effectiveness: As of 11/23/21, there were 184 users of 210 invitees who account for 1506 page views. The peak usage was in the first week of November after invites were sent, with spikes in usage on a weekly basis thereafter, consistent with interview days. The average engagement time was 248 seconds. Apart from the welcome page, the most commonly viewed page was "Interviews" at 337 views (2.36/user), followed by "Engage" at 279 (2.18/user), "Meet the Team" at 207 (1.92/user), and "ACCEL" at 152(1.54/user). The interview day length decreased from 5 to 3 hours by relocating content to the website. SAAZ is a novel means to provide asynchronous program details while preserving personalized information sharing and shortening the virtual interview day.

42 Choose Your Own Adventure (CYOA): A Medical Education Innovation for Virtual Interactive Teaching

Francesca Nichols, Sarika Sheth, Kristy Schwartz

Learning Objectives: Design an innovation feasibility project modeled after the Choose Your Own Adventure book series that involved an interactive curriculum to teach pediatric emergency medicine (PEM) topics in a virtual setting using gamification for group learning.

Introduction/Background: Gamification is gaining popularity in medical education and the pandemic necessitates novel virtual didactic methods. Virtual group learning with serious games fosters a sense of accomplishment, reinforces core knowledge, and builds teamwork via healthy competition.

Curricular Design: A novel, virtual interactive teaching tool, modeled after the popular Choose Your Own Adventure (CYOA) book series, was developed by PEM physicians. PEM topics with recent evidence-based updates were chosen: neonatal resuscitation, hematologic/oncologic emergencies, and pediatric trauma. For each topic, an hour-long CYOA module was designed on Google Forms. Various Pediatrics, Family Practice, and Emergency Medicine (EM) residents, PEM fellows, and EM and PEM attendings participated. Small groups were created via break out rooms mixing different training levels. The CYOA format began with a case vignette, then allowed teams to progress through medical management by choosing next steps in assessment and treatment of several patients. With each successful outcome, teams obtained a code of letters/numbers that, when unscrambled, yielded the answer to a final question. The winning team completed the adventure and submitted the final answer in the shortest time. Afterwards, each team summarized key learning points with the entire group, guided by the faculty facilitator(s).

Impact/Effectiveness: Anonymous pre- and post-session evaluations focused on learners' confidence in identifying and managing PEM emergencies, as well as performing pertinent procedures. The same five questions were presented before and after each CYOA activity using a five-point Likert scale. Neonatal resuscitation showed statistically significant improvement in confidence, as did performance of pediatric trauma procedures and identifying/managing tumor lysis syndrome. Qualitative feedback was positive. Areas for improvement included involving more trainees and developing other CYOA topics.

Figure 1. Average Likert Scales for comfort with neonatal resuscitation (majority resident evaluations.

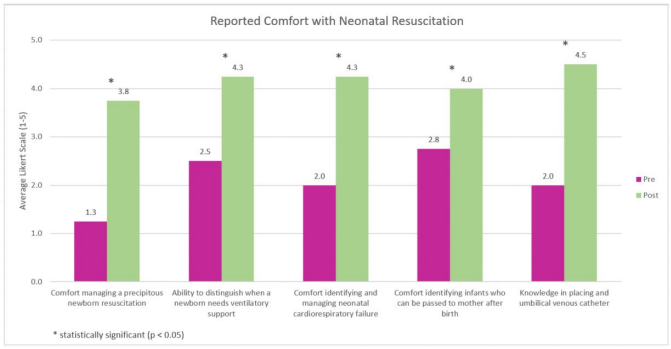
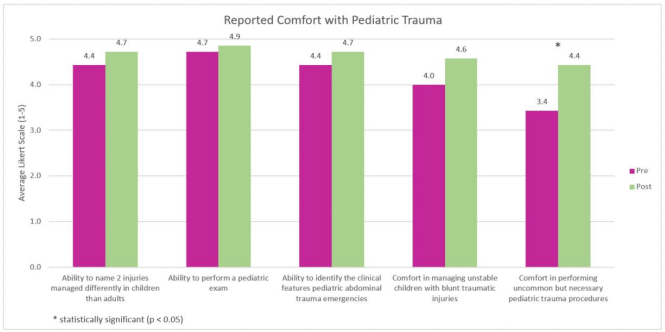


Figure 2. Average Likert Scales for comfort with pediatric trauma emergencies (majority fellow or attending evaluations.



43 Establishing Interest in the Development of a Novel Telehealth Curriculum for Emergency Medicine Resident Physicians

Nico Kahl, Ryan Korn, Frannie Rudolf, Brian Kwan, Christian Dameff, James Killeen

Learning Objectives: To assess EM resident enthusiasm for a telehealth curriculum and to develop a series of telehealth training modules for EM resident physicians.

Introduction/Background: According to the American College of Emergency Physicians (ACEP), emergency telehealth is a core domain of emergency medicine (EM) and is inclusive of remotely providing acute medical care. In 2016, the American Medical Association Council on Medical Education released a report advocating for the implementation of formalized telehealth training into graduate medical education accreditation requirements. There was rapid growth in telehealth during the COVID-19 pandemic: An industry analysis showed overall telehealth

utilization grew 38 times from February 2020 to February 2021. Despite this, training in telehealth for residents remains substandard, with experts calling for formal curricula. To our knowledge there is no standardized graduate medical education curriculum for telehealth.

Objective: To assess EM resident enthusiasm for a telehealth curriculum and to develop a series of telehealth training modules for EM resident physicians.

Curricular Design: We distributed a ten question survey to 44 EM residents to gauge their interest in pursuing telehealth education. We developed a series of 30 minute modules focused on different aspects of telehealth delivery targeted to an audience of EM residents. We created four key telehealth learning modules to train EM residents: Historical Socioeconomic Relevance, The Virtual Patient Encounter, The Telehealth Physical Exam, and Documentation Medicolegal Implications.

Impact/Effectiveness: The vast majority of survey respondents feel that telehealth education is probably or definitely important, and would pursue education in telehealth. Future directions include soliciting feedback from residents who complete the curriculum and learning assessment. As telehealth continues its rapid growth beyond a protracted pandemic it is critical that we educate and equip the next generation of emergency physicians to harness the skills to provide emergency telehealth services to their patients.

44 OMG it's an OMI: Utilizing Retrieval Practice to Teach Occlusive MI EKGs

Ivan Zvonar, Allen Lockhart, Laura Welsh

Learning Objectives: Residents will be able to: 1. Recognize challenging territorial distributions of acute STEMIs. 2. Identify classic ischemic EKG syndromes: Wellen's and de Winter's T waves. 3. Apply modified Sgarbossa criteria to identify ischemia in the setting of conduction abnormalities.

Introduction/Background: As some emergency medicine experts advocate for a shift away from STEMI-NSTEMI to that of occlusive MI (OMI) - non-occlusive MI (nOMI), there is a need to enhance residents' education of high risk ischemic EKGs within this new paradigm. We developed an EKG curriculum leveraging retrieval practice to improve EM residents' diagnostic skills for recognition of ischemic STEMI and non-STEMI EKGs that can represent acute MI necessitating emergent catheterization.

Curricular Design: The curriculum was initially implemented over a one week period in July 2020 for PGY-2 EM residents and repeated for the next class in July 2021. The curriculum consisted of three didactic sessions addressing: 1) OMI pathophysiology and STEMI, 2) Differentiation of STEMI from non-ischemic STE, and 3) OMI patterns not meeting traditional STEMI criteria. Each session was separated by at least 1-2 days. Before the start of each session, a 10 question formative EKG quiz was administered representing topics from the previous session and answers were subsequently reviewed. A baseline EKG quiz was obtained at the beginning of the course and once again after the final session as a summative assessment, and residents were also surveyed about their attitudes and experiences.

Impact/Effectiveness: We provide an easily implementable curriculum to introduce residents to these topics. Following our first two years, satisfaction surveys demonstrate that all residents find the curriculum useful and the majority have increased confidence in approaching these EKG patterns. Although we did not appreciate improvement in pre and post summative assessments, future directions include earlier implementation of this curriculum in our program with further spaced retrieval practice to achieve superior retention and educational effectiveness.

45 Online simulation effectively teaches introductory disaster triage skills to medical students

Kiran Pandit, Ashley Kingon, Raleigh Todman, Melissa Wright, Marc Raymond, Christopher Tedeschi

Learning Objectives: To use online simulation to teach disaster triage skills to medical students.

Background: Practicing disaster triage teaches skills of rapid patient evaluation. Triage simulation (with structured debriefing) results in improved accuracy in pediatric residents and improved confidence in medical students. Screen-based simulation of disaster triage improved triage accuracy in prehospital providers, and virtual reality (VR) simulation improved medical student triage skills. Few studies have evaluated online simulation to teach disaster triage skills to medical students.

Design: In May 2021, 15 final-year medical students engaged with online simulation to practice triaging respiratory disease outbreak patients. Students submitted personal reflections and participated in a faculty-led debrief. In October 2021, 9 additional students participated.

Outcomes: 14/15 students completed an anonymous post-course survey. Students found the exercise "very" or "extremely" helpful for learning, on a 5-point Likert scale, with a mean of 4.4 (SD+/- 0.8). Students rated their pre-exercise competency as "beginner" or "proficient" on a 4-point rubric (mean of 1.5). Most students rated their post-exercise competency as "proficient" (mean 2.8). Average increase in self-reported competency was 1.3 points, yielding a large effect size (Cohen's d). 8/9 October students rated the simulation a 4.6 on a 5-point Likert scale (5 = extremely helpful for learning).

Strengths: This module overcomes resource limitations of live and VR simulation, and can be completed asynchronously anywhere.

Limitations: Participants need internet access. The debrief requires a facilitator skilled in disaster triage and debriefing. Assessment of effectiveness included neither triage accuracy/speed, nor comparability to live simulation/VR.

Feasibility and transferability: This innovation is freely accessible online. Future development will allow learners to select their experience level, for simplified or complex cases. Open source code allows anyone to develop their own adaptation.

46 Use of Virtual Reality for Teaching Procedures

Phillip McCoy, Stephen Miller

Learning Objectives: The objective of this innovation is to provide virtual reality as an alternative method for learners in emergency medicine to build procedural competence. We will also be looking at feasibility of VR for education and participant satisfaction.

As part of a wider virtual reality curriculum, we are developing and assessing the feasibility of using virtual reality as an alternative method for learners to build competence in procedural skills. This innovation is being tested and implemented with medical students rotating through on their 4th year emergency medicine elective. The study's plan is to look at how practicing procedures with virtual reality compares to more traditional hands-on simulation techniques. Medical students were given a lecture on how to do a surgical chest tube. Then, depending on the month, students were either assigned to practice with virtual reality programs or with simulation task trainers. The following week students were assessed on their ability to walk through and perform a surgical chest tube based on clinical skills evaluation that is already used for emergency medicine residents at VCUhealth. The goal of this innovation is to allow for more easily accessible ways to practice procedures through deliberate practice and allow residents to build experience and competence in procedures in emergency medicine. This has the potential to be especially beneficial in high acuity, low frequency procedures.

47 Reducing Electronic Health Record (EHR) Click Fatigue: An Innovative Approach to Common Order Sets

Eric Medrano, Mohamad Ali Cheaito, Mohamad Moussa

Learning Objectives: Our initiative aims to develop an education innovation that contributes to: • Enhancing EHR usability through facilitating the process of placing medical orders. • Decreasing click fatigue while increasing professional satisfaction among emergency medicine residents.

Introduction/Background: Bureaucratic tasks are the leading cause of burnout among emergency medicine physicians. Among those tasks is placing medical orders in the Electronic Health Record (EHR), which is a time-consuming and rigorous process that can lead to click fatigue and increase physician burnout. Therefore, we believe that optimizing the EHR experience for order placement will not only decrease the amount of time spent using the EHR but will also decrease click fatigue and improve overall satisfaction of emergency medicine physicians.

Curricular Design: We designed a PowerPoint educational module for the emergency medicine residents that guides them through the process of creating their own personalized order sets. In this module, we demonstrated the step-by-step process of developing order sets for three of the more common presentations to the ED: chest pain, abdominal pain, and headache. This is a significant, minimal cost method that can be used to facilitate many patient encounters through expediting the placement of workup and management orders. After partaking in the educational module, residents were able to develop their own personalized order sets, which will inevitably reduce the number of clicks.

Impact/Effectiveness: Integration of this module has been successful among the emergency medicine residents and was very well received. The number of clicks saved using the order sets presented in the PowerPoint educational module was eight, six, and fifteen clicks for the chest pain, abdominal pain, and headache order sets, respectively. This educational innovation has high transferability to other institutions that use EHRs. We expect that employing this strategy will decrease the amount of time spent on bureaucratic tasks, decrease click fatigue, and improve the overall wellness of the ED physician. Our long-term plan includes expanding our educational curriculum and utilizing qualitative assessment tools to examine its effectiveness.

48 Value Transformation through Process Mapping- An Idea Generator for Resident led QI Projects

Joel Atwood, Amber Billet

Learning Objectives: Review fundamental principles in high-value care Develop a list of opportunities to optimize value based care in the ED Introduce Value Process Mapping to explore barriers to high value care.

Introduction/Background: Quality Improvement (QI) is a key component of resident education and an ACGME requirement. Despite being on the front lines and witnessing low value care on a regular basis, many residents struggle to complete robust QI projects throughout residency. A key barrier to resident participation in QI projects is inexperience

and poor understanding of the key components of QI. We developed a two-hour course that stresses individual thought and hands-on expert guided experience to empower residents to start their own meaningful QI projects.

Curricular Design: An expert in value based care led two 1-hour sessions to teach our residents components of QI and review key principles of our institutions transition to value based care: Care Variation, Waste in Care, Appropriate Setting of Care, Quality, Access and Advanced Analytics. For the first 1 hour session, key institution wide examples of each focus area were introduced to residents in chart form for 15 minutes. For 30 minutes residents were then separated into groups of 3 and they compiled their own ED specific examples for each focus area. For the final 15 minutes each small group shared their examples with the entire group. Several weeks later a second 1 hour session reviewed key principles in value process mapping. In preparation for the activity, residents were asked to process map some of their original ideas from the first session and send them to the instructor (senior VP and chief quality officer). Our expert reviewed each process map with the group and made suggestions for improvement. Results of both sessions were documented and reviewed with residents during PD led individual meetings regarding QI projects.

Impact/ Effectiveness: These two introductory activities have resulted in increased resident engagement in QI activities with a specific improvement in confidence to develop and implement meaningful QI projects in our department.

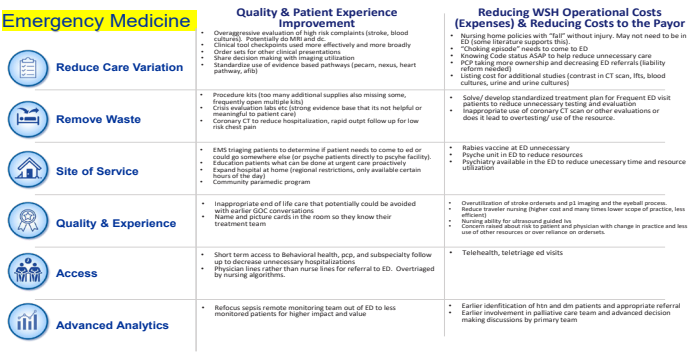


Figure.

49 Implementation of a Dedicated Social Worker/Coach for Emergency Medicine (EM) Residents

Jennie Buchanan, Sarah Meadows, Jason Whitehead, Gannon Sungar, Todd Guth, Barbara Blok, Katie Bakes, Christy Angerhofer, Malorie Millner, Megan Stephens, LaVonne Salazar, Abraham Nussbaum, Bonnie Kaplan

Learning Objectives: The pandemic exposed the mismatch between trainee mental health needs and their access to support services; therefore, the objective of our innovation was to support an opportunity for residents to work with a social worker/coach who could provide coaching on an emergent, urgent, or regular basis.

Introduction/Background: EM training requires sleep-wake disruptions, includes potentially traumatizing encounters, all during the COVID-19 pandemic while many residents relocate away from their customary psychosocial supports for training. The shift-based training model limits access to psychosocial care and services, so trainees need just-in-time resources which can support them before mental health concerns develop.

Educational Objectives: The objective of our innovation was to support an opportunity for our residents to work with a professional social worker who could provide coaching on an emergent, urgent, or regular basis.

Curricular Design: The leadership team identified a clinical social worker and trained coach to provide small group and individual coaching sessions to residents (4-year urban safety-net program with 68 residents) budgeted at an initial cost of $15,000. It was agreed that what was shared in the discussion would not be shared without consent and legal limits to confidentiality were followed.

Impact: From October 1, 2020 when implemented to October 1, 2021 there were 49 group and 73 individual sessions. After implementation in 2021, we compared this rotational mean score as ranked by all residents to all other wellness initiatives. Overall response rate was 80.88%. The overall mean score of the initiative was 2.25 (1-lowest and 4-highest) versus 3.73, the mean of all other wellness initiatives. Summary comments from the residents revealed the innovation was useful but shared concern regarding ability to attend sessions and capacity of social worker to relate with them. If other programs are considering implementation of a similar program recruiting someone with ED/graduate medical education experience or making sure they are oriented is key. Application of a social worker coaching program in an EM residency appears to be a feasible novel wellness intervention with potential to improve well-being, but needs framing to benefit trainees.

50 Improving Physician Well-Being and Reducing Burnout Using a Peer-to-Peer Recognition Program

Jenny Chang, Alexis Cortijo-Brown, Vinay Saggar, Simiao Li-Sauerwine, Katie Rebillot, Michael Jones, Jill Corbo

Learning Objectives: The objective of our study is to utilize a peer-to-peer recognition program to reduce burnout and improve well-being in our residency program by demonstrating a 10% increase in the Stanford

Professional Fulfillment Index (PFI) after participating in this program for 6 months.

Introduction/Background: Physician burnout is a well-known phenomenon and is a work-related syndrome driven by an intricate interplay between healthcare organizational structures, societal influences, and individual level factors. Burnout has been labeled to be a public health crisis and reported to be as high as 70% amongst Emergency Medicine (EM) residents. Given that burnout can lead to an increase in substance abuse, physical/mental health issues, and professional attrition, interventions that can help decrease this phenomenon are imperative. In the traditional workforce, peer-to-peer recognition programs have shown great success in reducing burnout by building a sense of community and camaraderie to create a wellness culture.

Curricular Design: This is a 6-month study that involves 84 EM residents in an urban EM residency. All residents have access to the recognition platform called Bonusly, an intuitive program that allows residents and attending physicians to acknowledge the residents for their achievements through praise on a public forum and the provision of points that can be redeemed as meaningful rewards. Residents were queried with an anonymous voluntary survey before the implementation of the intervention and then will be surveyed again at 6 months. The survey contains the Stanford PFI and 6 additional Likert-style questions assessing well-being and work engagement. The pre-intervention survey answers showed that 86% of the EM residents answered some degree of burnout and only 11 % were happy at work.

Impact: Our intervention aims to reduce the onus of physician self-care on an individual level. Since inception in July 2021, on average each month, 87% of residents are recognized on the platform and 70% of residents gave recognition. Using the Stanford PFI, we hope to show that the implementation of a peer-to-peer recognition program improves physician well-being and if successful, can easily be extended into residency programs across the nation to help build a culture of wellness.

51 Resident-Led Wellness Program

Sean Scott

Learning Objectives: 1) Anonymously survey residents to obtain rates of burnout and identify gaps in resident wellness. 2) Create a resident-led, self-sustaining wellness committee 3) Integrate wellness education into a formal grand rounds curriculum 4)Reduce self-reported resident burnout rates

Introduction/Background: Residents suffer from numerous stressors that lead to poor mental health and significant rates of burnout. The Madigan Army Medical Center Emergency Medicine (EM) residency program had aspects of wellness built into its program but lacked a formal wellness curriculum or internal evaluation system.

Curricular Design: To address the lack of formal wellness resources, anonymous surveys were sent to residents, a formal wellness curriculum developed, and a resident-led wellness committee was formed. Following an introductory wellness lecture, residents were anonymously surveyed to assess knowledge of local wellness resources, rates of burnout, and gaps in resident wellness. This survey will be administered biannually, at the beginning and middle of each academic year. A resident-led wellness committee was formed with the goals of serving as a monitoring group for resident mental health and wellness, serving as a think tank to address identified mental health and wellness gaps, and creating and planning wellness interventions. A wellness curriculum was added into the current grand rounds curriculum, covering burnout, mindfulness, financial planning, professionalism, peer support, local behavioral health resources, sleep hygiene, and faculty experiences on work-life balancing.

Impact/Effectiveness: This innovation will provide an anonymous before and after evaluation of a multi-faceted approach to resident wellness in an EM residency program. Formal reevaluation of resident wellness and burnout rates are pending repeated surveying. The initial survey generated multiple initiatives, which the wellness committee has already addressed such as EM food pantry creation and shift schedule alterations. Anecdotally, residents have responded very positively to these interventions and the renewed focus on resident wellness. Program leadership is supportive of this program and plans are in place to sustain this initiative for the foreseeable future.

52 Virtual Peer Support Program: A Novel Community-Building Platform in an Emergency Medicine Residency Program

Hurnan Vongsachang, Aarti Jain

Learning Objectives: Our Virtual Peer Support Program aimed to enhance residents' comfort engaging in discussions about their workplace challenges and foster a sense of community within the residency program.

Introduction: Burnout is highly prevalent in resident physicians and is associated with depression, substance use, and suicide. While residents' social networks are integral in supporting wellness, the recent pandemic has limited in-person social support, potentially exacerbating residents' existing burnout and increasing barriers to communication. As such, we sought to implement a Virtual Peer Support Program (VPSP) within our residency program to provide a safe space for residents to discuss the work and life

challenges they encounter during residency training. Our VPSP aimed to enhance residents' comfort engaging in discussions about workplace challenges and foster a sense of community within the residency program.

Design: During the 2020-2021 academic year, all residents at our Emergency Medicine Residency Program were invited to attend virtual peer support sessions scheduled during protected educational time. These 90-minute small group sessions were hosted semesterly on a video conferencing platform. To promote psychologically safe discussions, we engaged recent alumni of the program as group facilitators, ensuring that none evaluated residents. Discussions were freeform but guided by prompts generated by the resident wellness committee and distributed to group facilitators. At the conclusion of the sessions, all attendees were invited to complete a voluntary anonymous electronic survey consisting of Likert scale questions. Results are illustrated in Figure 1.

Impact: VPSP is a sustainable, low-cost intervention that may augment residents' existing social networks and encourage vulnerable discussions about residency. Program alumni are underutilized, non-evaluatory individuals who can empathize with the challenges of training and may serve as effective group facilitators. Given the importance of social support in promoting resident wellness, it may be useful for residency program leaders to integrate VPSPs into existing residency curricula.

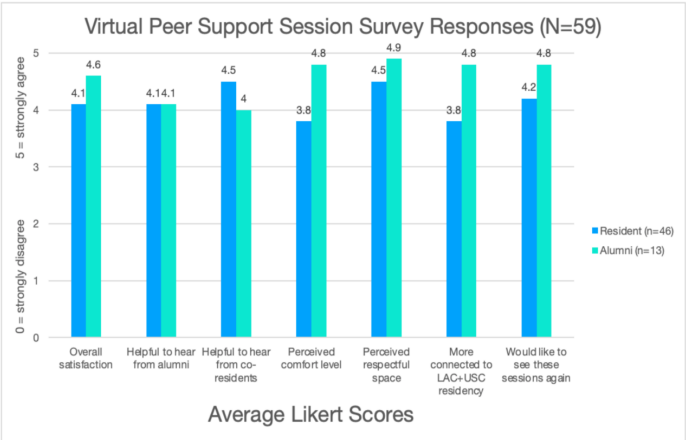


Figure 1. Virtual peer support session survey responses.

53 What Is a Wellness Chief?

Larissa Unruh, Benjamin Fitzgerald, Loice Swisher

Learning Objectives: The objective of this project is to develop and distribute a Chief Wellness Resident (CWR) Playbook to clarify the responsibilities of the CWR in order to improve wellness outcomes at both the GME and UME level.

Introduction: In 2018, in response to resident suicides and physician burnout, the ACGME implemented wellbeing requirements. Since then, chief wellness residents (CWRs) have become increasingly common, but their responsibilities and purposes remain nebulous.

Educational Objectives: Two EM CWRs (Cook County Hospital and the University of Iowa) met to discuss the development of a CWR Playbook with the following objectives: 1) outline the role of the CWR and 2) identify resources that a CWR needs to be successful.

Curricular Design: CWR Playbook Sections. 1. Wellbeing Requirements: The ACGME outlines residency program wellness requirements and unwellness mitigation (e.g., depression, suicidal ideation, addictions, fatigue). The CWR can highlight the programmatic requirements, provide resources, and identify appropriate self-surveys. 2. Wellness Frameworks: Few residents receive positive wellbeing training. A CWR can help educate co-residents on various frameworks, skills, and tools to maintain self-wellness. Three previously defined frameworks include: 1) the ACEP wellness wheel, 2) PERMA, and 3) Doty's circle of wellbeing tools. 3. Initiative Development: The CWR Playbook outlines possible wellness initiatives that CWR's may use to help improve peer wellbeing. 4. Peer Assistance: Physicians desire peer discussion on professional issues. A CWR can provide peer assistance and problem-solving strategies when issues arise. 5. Systems Wellness: Systemic issues play a critical role in burnout. A CWR can assist in identifying and advocating for changes. 6. Support: A wellness committee with funding, encouragement, and attending physician champions is important for CWR success.

Impact/Effectiveness: A CWR Playbook allows future wellness chiefs to identify and address the most appropriate wellness goals for their programs. While these interventions are currently being implemented at a GME level, many of these ideas may be applied at the UME level.

CORD Abstracts Special Issue - Author Index

UC Irvine Health
School of Medicine

Department of Emergency Medicine

Position: Ultrasound Director

The Department of Emergency Medicine at the University of California, Irvine School of Medicine is seeking applicants for a faculty position in the Health Sciences Clinical Professor Series, at the Assistant, Associate, or Full Professor rank.

The University of California, Irvine Medical Center is a 472-bed tertiary care hospital with all residencies. The ED is a progressive 35-bed Level I Trauma Center with 50,000 patients, in urban Orange County. The ED has collegial relationships with all services and offers excellent salary and benefits with an incentive plan.

Criteria for the Health Sciences Clinical Professor Series:
The incumbent will be expected to teach residents and medical students; provide direct patient care; perform research and/or creative work; and public and University service. Candidates must have demonstrated capabilities for teaching and research or creative work suitable for this series.

Candidates must possess an M.D. or D.O. degree, board certification in Emergency Medicine, and be eligible for a California Medical License. Fellowship sub-specialization in Ultrasound is also required.

The successful candidate will be expected to engage in the following:

- Maintain function and peak performance of all 6 ultrasound trollies, 4 boom-mounted machines, and 8 handheld units
- Review all EM resident scans for competency and graduation requirements
- Optimize documentation templates
- Maintain Clinical Ultrasound Accreditation Program through ACEP
- Monitor credentialing progress for each new faculty and nurse practitioner
- Administer annual “bootcamp” for all new EM faculty, residents, and fellows
- Provide Chair with quarterly faculty ultrasound metrics
- Work with hospital IT to troubleshoot workflow and middleware issues
- Establish and maintain an active transesophageal echo program
- Oversee ultrasound quality assurance

Academic rank, step, and salary will be based upon the candidate’s training, qualifications, and experience.

Application Instructions - To be considered for the position, interested candidates should visit: https://recruit.ap.uci.edu/JPF07727, complete an online application profile and upload application materials electronically.

WestJEM Integrating Emergency Care with Population Health

Call for Reviewers!

Please send your CV and letter of interest to
editor@westjem.org

CPCEM Clinical Practice & Cases

WestJEM

Integrating Emergency Care with Population Health

CALL FOR SECTION EDITOR

Trauma Care
Critical Care
Disaster Medicine
Education
Musculoskeletal

Submit your CV to editor@westjem.org today!

WELCOME

Las Vegas

CORD ACADEMIC ASSEMBLY

Caesars Palace

March 21-24, 2023

(Pre-Day – March 20)

#CORDAA23

CORD EM

COUNCIL OF RESIDENCY DIRECTORS IN EMERGENCY MEDICINE