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Best of Best Research and Innovation Abstracts

# 1 Facilitating Adaptive Expertise in Learning Computed Tomography, A Randomized Controlled Trial

Leonardo Aliaga, Rebecca Bavolek, Benjamin Cooper, Amy Matson, James Ahn, Aaron Kraut, David Duong, Mike Gisondi

**Background:** Adaptive expertise is the ability to transfer existing skills to novel situations. Error Management Training (EMT) improves transfer of skills and adaptive expertise by making learners solve difficult problems and produce errors before being shown how to solve them. While EMT been used in procedural skills training, its impact on transfer of cognitive skills in medical training is underexplored.

**Objective:** To compare the effects of EMT and Error Avoidance Training (EAT) on the transfer of cognitive skills, using head computed tomography (CT) interpretation as a model. We hypothesized that EMT, compared to EAT, would improve skills transfer when used to teach head CT interpretation to emergency medicine (EM) residents.

**Methods:** We conducted a prospective, randomized controlled study in six EM residency programs. Residents completed an online head CT curriculum using either an EMT or EAT strategy, followed by a head CT interpretation test we previously validated. Two experimental cohorts (EMT-1 and EMT-2) scrolled through head CT cases without guidance and tried to identify critical findings before receiving didactic explanation. The EMT-1 cohort encountered difficult questions leading to errors whereas EMT-2 encountered easy questions. The EAT cohort received didactic instruction before scrolling through head CT cases. The post-test included novel cases to assess transfer and familiar cases to assess direct application. Our primary outcome was transfer of head CT interpretation skill. We compared post-test scores by ANOVA.

**Results:** We enrolled 119 residents (Table). The EMT-1 cohort outperformed both EMT-2 and EAT cohorts on the novel cases assessing transfer, with a large effect size (Figure). There was no difference on the direct application cases.

**Conclusions:** EMT improves transfer of head CT interpretation skill. These findings support its efficacy to develop adaptive expertise with other cognitive skills in EM education.

Table. 119 residents completed intervention and post-test.

	EMT-1	EMT-2	EAT
<b>Total</b>	36	41	42
PGY-1	14	13	12
PGY-2	10	13	14
PGY-3	10	12	11
PGY-4	2	3	5

EMT = Error Management Training  
EAT = Error Avoidance Training

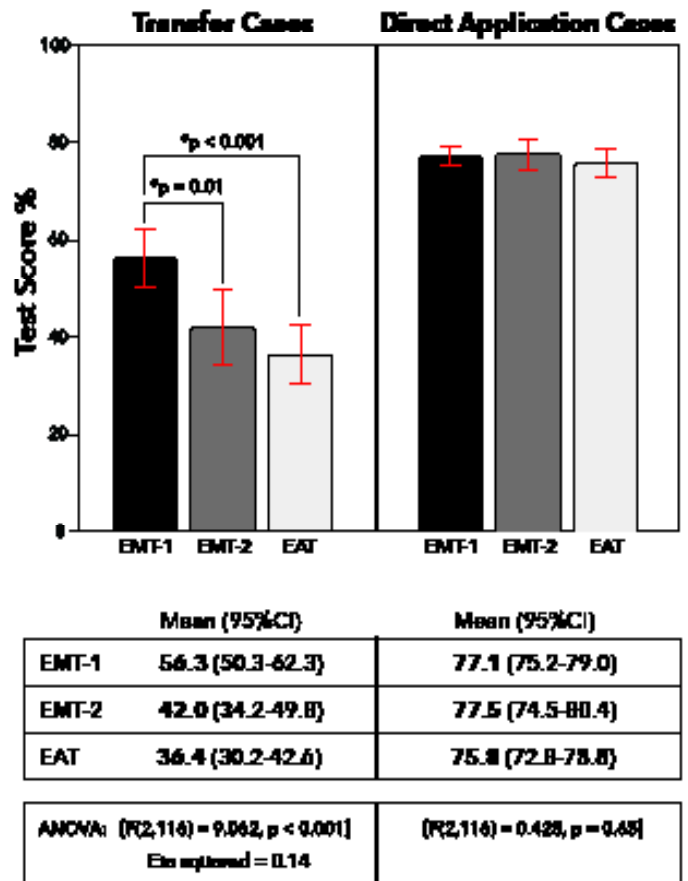


Figure. The FAIL CT study: a multicenter randomized controlled trial.

\*Tukey's Test used for post-hoc comparisons  
FAIL, facilitating adaptive expertise in learning computed tomography; EMT, error management training; EAT, error avoidance training.

# 2 Trends in Emergency Medicine Resident Procedural Reporting Over a 10-Year Period

Michael Gottlieb, Jaime Jordan, Sara Kryzaniak, Alexandra Mannix, Andrew King, Robert Cooney, Megan Fix, Eric Shappell

**Background:** Procedural competency is expected of all emergency medicine (EM) residents upon graduation. The ACGME requires a minimum number of essential procedures to successfully complete training. However, data are limited on the actual number of procedures residents perform and prior studies are limited to single institutions over short time periods.

**Objectives:** This study sought to assess the number of procedures completed during EM residency training and evaluate trends over time.

**Methods:** We conducted a retrospective review of EM resident procedure totals across 8 ACGME accredited residency programs over the last 10 years (2013-2022). Sites were selected

to ensure diversity of program length, program type, and geography. All data from EM residents graduating in 2013-2022 were eligible for inclusion. Data from residents from combined training programs, those who did not complete their full training at that institution (i.e., transferred in/out), or did not have full data available were excluded. We determined the list of procedures based upon the ACGME Key Index procedures. Sites obtained procedure totals for each resident upon graduation. We calculated the mean and 95% CI for each procedure.

**Results:** We collected data from a total of 914 residents, with 881 (96.4%) meeting inclusion criteria. The mean number of procedures and distribution by year are included in the Table. The least frequent procedures included pericardiocentesis, cricothyroidotomy, cardiac pacing, vaginal delivery, and chest tubes. Most procedures were stable over time with the exception of lumbar punctures (decreased) and point-of-care ultrasound (increased).

**Conclusions:** In a national sample of EM programs, procedure numbers remained stable except for lumbar puncture and ultrasound. Data were limited by the retrospective nature, self-report, and inability to distinguish simulated vs live patient procedures. This information can inform residency training curricula and accreditation.

system and percentage of students given the top grade during the academic year (AY) 2020-21 compared to AY 2009-10. We hypothesize trends towards pass/fail grading and an increased percentage of top grades.

**Methods:** Medical School Performance Evaluations (MSPEs) from 145 US medical schools in 2021-2022 provided the grading systems used by each school and grade distributions for each of the core clerkships. Core clerkships included internal medicine (IM), surgery, obstetrics and gynecology (OB/GYN), pediatrics, and family medicine (FM). The number of schools using a 2-tier (pass/fail) vs. ≥3-tier grading system were compared to AY 2009-10. The percentages of students receiving the top grade for each clerkship were also compared to 2009-2010.

**Results:** In AY 2009-10, 5.0% of US medical schools used a 2-tiered system, compared to 12.4% in 2020-21. The percentage of students receiving the top grade in IM increased from 26.07% to 34.73%, surgery from 30.44% to 37.54%, pediatrics from 32.93% to 38.45%, OB/GYN from 31.71% to 37.37%, and FM from 35.27% to 38.30%.

**Conclusions:** US medical schools are increasingly adopting a 2-tier grading system. There also was a notable increase in the percentage of top grades given across all core clerkships comparing 2009-10 to 2020-21, suggesting a trend of grade inflation. With schools moving to pass/fail or giving out more top grades and the transition of USMLE Step 1 to pass/fail, it is becoming more difficult to differentiate medical students as they apply for residency.

**Table.** Mean procedural numbers per resident by graduation year.

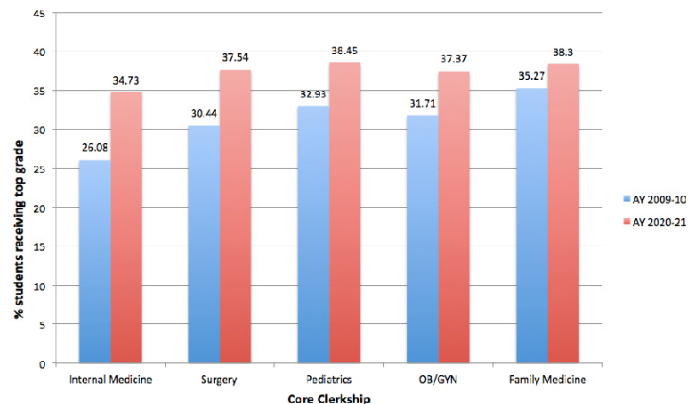
Year of Graduation	Total Procedures	Cardiac Pacing	Craniotomy	Cricothyroidotomy	ECG	ECG (Ambulatory)	ECG (Point-of-Care)	ECG (Treadmill)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)	ECG (Vital Signs)
2013 (n=70)	130 (25-182)	7 (0-10)	6 (0-7)	4 (0-6)	14 (3-16)	7 (0-8)	17 (13-19)	7 (0-12)	27 (0-33)	19 (0-32)	10 (0-9)	37 (0-47)	14 (3-15)	287 (220-340)		
2014 (n=80)	136 (31-194)	7 (0-10)	6 (0-7)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-18)	7 (0-10)	27 (0-30)	20 (0-30)	10 (0-9)	36 (0-30)	14 (3-16)	296 (201-308)		
2015 (n=87)	170 (200-244)	11 (0-15)	7 (0-9)	6 (0-10)	14 (3-17)	7 (0-8)	17 (14-18)	10 (0-12)	34 (22-38)	30 (0-35)	10 (0-9)	38 (0-37)	14 (3-17)	336 (287-395)		
2016 (n=80)	130 (23-185)	10 (0-15)	6 (0-7)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-11)	10 (0-10)	32 (0-30)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-16)	371 (221-430)		
2017 (n=80)	140 (23-185)	10 (0-15)	6 (0-7)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-11)	10 (0-10)	32 (0-30)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-16)	385 (237-398)		
2018 (n=80)	140 (23-185)	10 (0-15)	6 (0-7)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-11)	10 (0-10)	32 (0-30)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-16)	396 (241-398)		
2019 (n=77)	136 (31-194)	7 (0-10)	6 (0-7)	4 (0-6)	14 (3-17)	6 (0-7)	17 (13-18)	10 (0-12)	32 (21-35)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-15)	415 (270-480)		
2020 (n=80)	141 (23-185)	10 (0-15)	6 (0-7)	4 (0-6)	14 (3-17)	6 (0-7)	19 (14-11)	10 (0-10)	32 (20-36)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-17)	398 (231-400)		
2021 (n=80)	138 (23-185)	11 (0-15)	7 (0-9)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-18)	10 (0-10)	32 (21-32)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-16)	418 (248-475)		
2022 (n=80)	139 (23-185)	11 (0-15)	7 (0-9)	4 (0-6)	14 (3-15)	6 (0-7)	19 (14-18)	10 (0-10)	32 (21-32)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-16)	419 (241-490)		
TOTAL (n=80)	140 (23-185)	10 (0-15)	7 (0-9)	4 (0-6)	14 (3-17)	6 (0-7)	19 (14-11)	10 (0-10)	32 (20-36)	30 (0-30)	10 (0-9)	38 (0-37)	14 (3-17)	396 (231-400)		
ACGME Requirements	40	6	3	1	3	6	8	8	15	3	8	3	18	100		

### 3 Trends in Core Clerkship Grading Among Emergency Medicine Residency Applicants

Amanda Doodlesack, Andrew Ketterer

**Background:** Several studies have documented variability in clerkship grading systems, distributions and criteria used by US medical schools. As the United States Medical Licensing Exam (USMLE) transitions to pass/fail, transparency in applicants' remaining comparative data is increasingly important.

**Objectives:** To understand trends in core clerkship grading by looking at the number of US medical schools that have moved from a 3+ tier to a 2-tier (pass/fail) grading



**Figure 1.** Percentage of students receiving top grade by clerkship AY 2009-10 versus 2020-21.

**Table 1.** Number of United States' medical schools using each grading system.

	3+ tiers	2-tiers	Total # schools
AY 2009-10	113 (95.0%)	6 (5.0%)	119
AY 2020-21	127 (87.5%)	18 (12.4%)	145



## 4 The Association of Emergency Medicine Residency Training In Medically Underserved Areas And Current Practice In Medically Underserved Areas

Mary Haas, Laura Hopson, Caroline Kayko, John Burkhardt

**Background:** Recent publications are heralding concerns of oversupply and geographic maldistribution of the emergency medicine (EM) workforce. Patients in medically underserved areas (MUAs) are more likely to rely on care by emergency physicians (EPs). It remains unclear if establishing more residency programs in MUAs will increase the likelihood of EPs remaining locally to practice.

**Objectives:** We explored the relationship between residency location and ultimate practice location with regard to MUAs. We hypothesized that training in an MUA would increase the likelihood of currently practicing in an MUA.

**Methods:** We geocoded 2021 AMA Masterfile data using ArcGIS Pro, analyzed current EP practice location, and merged it with the ACGME roster of EM residency programs. Using spatial analysis tools, we mapped the intersection of practice location, residency, and U.S.-government-designated MUAs.

**Results:** Of 253 EM residency programs in existence at the time of the analysis, 44% (112/253) are located in MUAs. Of the 43% (25,672/59,588) of EPs who trained in MUAs, 30% (7828/25,672) currently practice in MUAs. Of the 57% (33,916/59,588) of EPs who did not train in MUAs, 22% (7530/33,916) currently practice in MUAs. Being trained in a program based in a MUA was associated with a slightly higher odds of future practice in an MUA (OR 1.52, 95% CI:1.46-1.58).

**Conclusions:** Training in an MUA was associated with higher likelihood of currently practicing in an MUA. Our data was limited to the residency program's main site and

current primary practice location and does not account for all locations that an individual EP has or currently practices so may underestimate true prevalence. This information may help to strategically locate EM residencies to address shortages.

## 5 An Examination of Trauma-Informed Medical Education in the Emergency Medicine Clerkship: Opportunities for Learner-Centered Curricular Development

Ahmed Taha Shahzad, Giselle Appel, Kestrel Reoppelle, Stephen DiDonato, Dimitrios Papanagnou

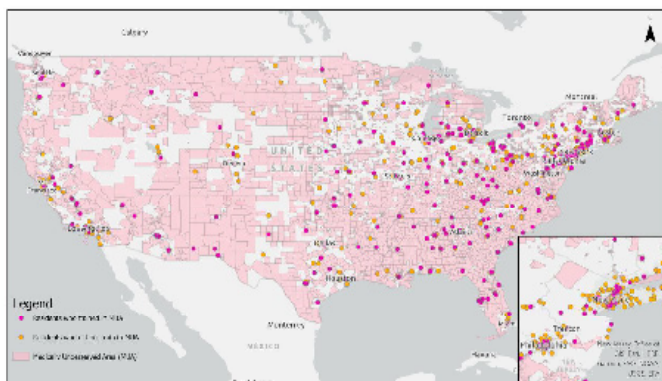
**Background:** During the Emergency Medicine (EM) clerkship, medical students are immersed in stressful or traumatic incidents with their patients and clinical teams. Trauma-informed medical education (TIME) applies trauma-informed care (TIC) principles to help students manage trauma.

**Learning Objective:** To collect, describe, and analyze medical students' EM clerkship experiences from the lens of TIME to guide curriculum development. We applied the critical incident technique (CIT) to 1) qualitatively capture students' critical incidents and 2) identify gaps in trauma-informed approaches to education.

**Methods:** We employed a constructivist grounded theory approach to explore experiences of medical students. We used the CIT to elicit narratives to better understand the six TIME components as they appear in the EM clerkship. In August 2022, twelve third-year medical students were interviewed and asked to describe a traumatic incident they observed/experienced and the impact the clerkship had on their ability to manage the situation. Using the framework method, transcripts were analyzed 1) inductively by making assertions about each clerkship incident's relevance to TIME and 2) deductively by categorizing elements into one of the six TIME principles.

**Results:** Consistent with current literature, the EM clerkship exposes students to trauma as they navigate learning and patient care. Preliminary analysis (Table 1) has revealed the need for debriefs that emphasize closure; correction of disparities between morally and academically acceptable actions; and educational structures that foster trust in students' skills.

**Conclusions:** Our early data supports TIME as a framework to guide trauma-informed and learner-centered educational programming. Despite a small sample size, preliminary data from medical student's clerkship experiences clarifies opportunities for curricular development in the EM clerkship that better support students working through trauma.



**Figure 1.** Geographic distribution of residency training by medically underserved area location.

**Table 1.** Preliminary data from deductive analysis of interviews.

TIME Principle	Synthesized Assertion	Representative Quote
Peer Support	Students in the clerkship are expected to navigate the hidden curriculum of performing well in the clerkship for a "good grade" with what is morally acceptable for the patients they are treating.	"And so I think that made me feel like I had to be the one responsible for owning that this woman was able to get home and avoid further intimate partner violence. I really felt like I was the one who decided, like, whether she would be undergoing more violence that night."
Empowerment, Voice, and Choice	Lack of closure on such a significant event, despite several opportunities to debrief, continued to loom over the student and the student's perception of their grade.	"I don't think I've ever seen someone...been there when they pronounce someone dead. It was kind of my first experience and seen then, I was still positive. [Counseling] was like, "I was going to reach out to you anyway. We made a list of those people who came up at the school counseling center meeting." I was feeling fine, so it wasn't like, "Wow, that's great", but it was like kind of nice for someone to be, "It's okay that you feel fine. You shouldn't feel bad that you're not, like, haunted by this", if that makes sense."
Collaboration and Mutuality	Students are expected to acknowledge, address, and reconcile interpersonal medical complications with their team and take ownership of their actions.	"The physician brought the event up quickly...and he said, "It's really important that we take ownership of what happened here. Instead of lying under making excuses, we take ownership and say what happened". But then he still had to go do other things, and then I was the one who initiated [more conversation about the event], which I think was appropriate from my sense and from the attending sense, a conversation about the event, really for a learning experience for me to talk about what happened."
Trustworthiness and Transparency	Clerkship education lacks opportunities to debrief about serious and clear incidents due to the lack of awareness of sensitivity of the provider.	"I think it would have been nice to have some acknowledgment because like, part of the frustration is feeling like you're the only person who sees it this way, you know? And it's like, it would have been nice if my attending turned to me and was like, "Hey, like that was kind of problematic. I hope you don't think that we all think that way because we don't like that kind of thing." I think it would have counteracted a little bit of the disillusionment I feel towards medicine in general."
Safety	Despite being in demanding situations and often being the most untrained members of the care team, students can be empowered to do their best because of the trust that care-team leadership places in them.	"If I wanted to express my thoughts/opinions during [after the situation] I think I probably could have. I probably could. I don't know what I would have said. It wasn't like the situation where I felt like I had something I wanted to say, and I didn't say it. I didn't think I had anything to say, but I talk like if I had shared something, I think it would have been received fine I mean, it might have seemed a bit weird for a med student to speak up like that, but I don't think it would have been like actively discouraged by any means."
Cultural, Historical, and Gender Considerations	Gender stereotypes in clerkship education discourages overt emotional expression by students and can foster imposter syndrome.	"I think there's always that feeling, especially like as a young female trainee, I feel like I kind of have to put on a brave face and not show that much emotion... I don't know. Like it's good to appear involved in your patients, but it's not good to be like, "Oh, like this is the worst thing that's ever happened, blah, blah, blah." Because obviously all these people have seen worse. So, no, I don't think that anyone would have written me a bad review if I was showing that I was upset. But I do think it subconsciously impacts what people think of you. Like, you know, maybe she's not cut out for this field or something."

## 6 Emergency Department Slit Lamp Interdisciplinary Training with Longitudinal Assessment in Medical Practice (ED SLIT LAMP) - A Preliminary Report on Physician Skill Acquisition

Samara Hamou, Shayan Ghiaee, Kelly Kehm, Christine Chung, Xiao Chi Zhang

**Background:** Ocular emergencies account for up to 3% of Emergency Department (ED) visits in the US, requiring emergency physicians (EPs) to have the skills and confidence to identify and manage ocular pathology. Due to insufficient ophthalmic training during residency—and infrequent use in clinical practice—EPs report a lack of confidence in performing a slit lamp exam.

**Objectives:** To design an evidenced-based, simulation-based mastery learning (SBML) curriculum to empower EPs to perform a structured slit lamp exam.

**Methods:** EPs at a tertiary academic institution were enrolled in an SBML curriculum and evaluated using pre- and post-test assessment, and follow-up skill utilization. Ophthalmology and ED faculty created the curriculum and a 20-item checklist based on targeted needs assessment. Participants first completed an in-person baseline slit lamp exam at Wills Eye Hospital (WEH), then received a learning packet, instructional video, and an independent readiness assessment (IRAT). Passing the IRAT (>90%) permits the

EP to schedule in-person SBML deliberate practice and final exam at WEH. Participants must score above 90% on the final checklist and complete a 3-month follow-up survey on provider confidence and knowledge dissemination to graduate.

**Results:** 17 EPs enrolled, with only 17% feeling confident in performing a comprehensive slit lamp exam for ocular complaints at the start of the study. All EPs successfully completed the final exam in one attempt. There was a significant increase between pre-curriculum (11.0, 2.78) and post-curriculum (19.22, 0.78) scores; with an average increase of 8.22,  $p < 0.001$ .

**Conclusions:** This is the first interdisciplinary SBML pilot curriculum between the Dept. of Ophthalmology and EM that demonstrated a significant improvement in clinician skillset. Further analysis will evaluate knowledge dissemination and physician attitude in regards to ED SLIT lamp with goals of dissemination and replication by other EM programs.

## 7 InnovateEM: Boosting Scholarly Productivity

Latha Ganti

**Introduction/Background:** Scholarly activity is the cornerstone of an academic emergency medicine training program. It is well known that a positive experience with research and scholarly activity during training is directly correlated with whether one will continue in academics. For this reason, designing a curriculum that has clear milestones and easily achievable publication goals is instrumental.

**Educational Objectives:** 1.To instill the love of scholarly writing in trainees and faculty. 2.To boost the numbers of publications in our program.

**Curricular Design:** Our curriculum consists of 2 components: 1) a longitudinal didactic curriculum of 12 lectures covering study design, critical appraisal of literature, and biostatistics, and 2) a formal 3 week rotation during the PGY-2 year. At any time prior to the rotation, the resident submits a written plan for what they will do with their time during their InnovateEM block. Once approved, any pre-work such as IRB approvals or data requests are handled by the research director. Templates for different types of publications are provided. The project can focus on clinical research, case series, survey, or quality improvement. They are also required to perform five journal article reviews, to gain an appreciation of what it is like to critique another's work. Trainees also learn to write an abstract for national EM meetings. The end-goal is publication in a peer-reviewed pubmed indexed journal.

**Impact/Effectiveness:** The impact is tracked by the number of pubmed indexed publications, which rose exponentially in the 5 years that the program has existed, from 1 per year in the first year to more than 65 in the current year 5. (figure 1). It also impacts residents' career choice with over

2/3 of our graduates choosing to pursue fellowship. Medhub was used to collect resident written comments regarding the rotation. Feedback is uniformly positive, with residents stating that “publishing never looked so easy!”

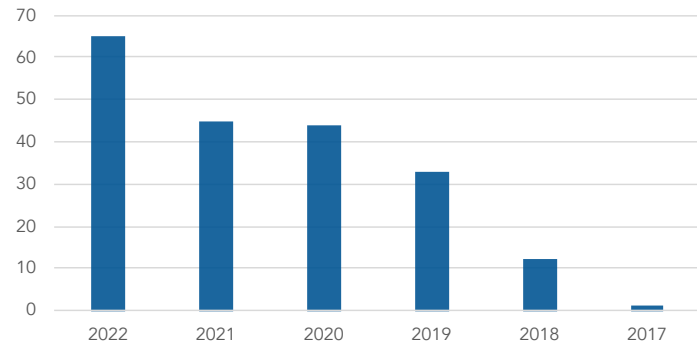


Figure. Number of residency publications by year.

## 8 Primary Palliative Care Boot Camp Offers Just-in-Skill Building for Emergency Medicine Residents

Julie Cooper

**Introduction/Background:** Emergency medicine residents routinely care for seriously ill patients. While Hospice and Palliative Medicine is a subspecialty of EM, the term “primary palliative care” is used to describe skills that are used by clinicians caring for seriously ill patients. Previous research has defined the skills most important to EM training but published curricula are lacking. We developed a “just in time” 4-week palliative care boot camp to teach PGY2 residents primary palliative care skills.

**Educational Objectives:** Learners will be able to: 1) define primary palliative care, identify patients with palliative care needs, initiate hospice evaluation 2) define the language of palliative care, 3) describe trajectories of life limiting illness, 4) describe the role of the interdisciplinary care team, and 5) use a talking map for goals of care conversations.

**Curricular Design:** Three weeks are a didactic curriculum with a content expert and address immediate questions and allow residents to share their experiences. The fourth week is a skills-based communication session focused on goals of care conversations. Table 1 shows the high yield topic breakdown.

**Impact/Effectiveness:** 77% residents reported prior communication skills training (at our institution). All learners “agreed” or “strongly agreed” that the objectives were met. For the communication session the majority of learners reported improved self-assessed confidence.

An advantage of this curriculum is that concentrated approach allows for integration of new skills when the skills are most

utilized. Limitations include that residents unable to attend miss the educational opportunity and faculty who have not had this education are not able to reinforce the concepts clinically.

As the role of primary palliative care in EM becomes better defined there will be a need to integrate these skills and concepts into all EM residencies and the boot camp format has proven a valuable educational tool

Table 1.

Hour	Topic	ACGME Milestones	Objectives	Format
1	Intro to Primary Palliative Care in Emergency Medicine	<i>System navigation for patient centered care</i>  <i>Physician role in healthcare systems</i>	Define primary palliative care and identify common ED presentations of patients with unmet palliative care needs  Define Advance Care Planning, Goals of Care, Code Status and Treatment Limitations and describe how these are codified in legal and medical documents  Interpret a POLST form and describe its use in acute care settings	Small Group Lecture
2	Prognosis and Trajectory	<i>Diagnosis Treatment and clinical reasoning</i>	Describe four common trajectories of life limiting illness  Define prognosis and describe 2 strategies to assess prognosis in ED patients with serious illness	Case Based Lecture
3	Chaplain Chat	<i>System navigation for patient centered care</i>  <i>Interprofessional and team communication</i>	Describe the role of the chaplain in the interdisciplinary care of seriously ill patients in the ED	Guest lecture
4	Non Pain Symptom Management	<i>Pharmacotherapy</i>  <i>Diagnosis, treatment and clinical reasoning</i>	Choose appropriate first and second line treatment for seriously ill patients experiencing nausea and vomiting, dyspnea, or constipation (including opiate induced constipation) in the ED	Case based small group learning
5	Ask a Consultant	<i>Interprofessional and team communication</i>	Describe the role of the HPM clinician in the care of seriously ill patients in the hospital  Understand the role of HPM consultation in the emergency department	Case based guest lecture
6	Intro to Hospice	<i>System navigation for patient centered care</i>  <i>Physician role in healthcare systems</i>	Describe the scope of hospice services and the settings where it can take place  Identify patients who may qualify for hospice and how to initiate a hospice evaluation  Provide goal concordant care to patients enrolled in hospice who present to the ED	Guest lecture
7-10	VitalTalk* Mastering Tough Conversations	<i>Patient and family centered communication</i>	Practice using a talking map for goals of care conversations with a simulated patient	Small group skills based practice

\*VitalTalk is a nonprofit that teaches serious illness communication skills using nationally trained facilitators.

## 9 Social Determinants of Health Patient Care Reflection in the Emergency Medicine Clerkship

Gabriel Sudario, Alejandro Aviña-Cadena, Alexa Lucas, Sangeeta Sakaria

**Introduction/Background:** Curricular interventions in social determinants of health (SDH) are often sporadic,[1]

with steep dropoff in required curriculum at senior academic levels in US medical schools. [2] Additionally, there is concern that simple knowledge-based interventions are inadequate to create meaningful change. [3] With these limits in mind, it was our goal to develop a clinical SDH experience for medical students on their emergency medicine clerkship.

**Educational Objectives:** By the end of this experience, learners should be able to:

- Screen patients for social risk factors that affect their health.
- Recognize and reflect on barriers to health that patients from diverse socio-economic backgrounds face.
- Collaborate with interdisciplinary teams to formulate a plan to mitigate effects of SDH.

**Curricular Design:** Kerns' six-step model of curriculum design was used to design and execute this curricular intervention at the UC Irvine School of Medicine. [4] Through adaptation of an existing curriculum by Moffitt, et. al., health equity champions, faculty and students, met over summer 2020 to identify gaps, write objectives and design interventions/assessments. [5] The experience was divided into three components: Patient social history interview; interdisciplinary meeting regarding patient's SDH and reflection essay with novel rubric as assessment tool.

**Impact/Effectiveness:** Students were emailed a voluntary survey at the end of their clerkship. Of the 257 students completing the clerkship from 2020-2022, 33%

(n=87) students responded. Of those surveyed, 96% (n=84) participants agreed/strongly agreed that it was important to address SDH in patient care. Seventy-seven percent (n=67) of students agreed or strongly agreed that this exercise increased their confidence in identifying SDH in patients. Overall we found this assignment to be a meaningful experience for students and plan to continue similar interventions throughout our senior curriculum.

## 10 Wildermed - A Novel Curriculum for Resident Wellness and Wilderness Medicine

Grant Nelson, Jessica Vittorelli

**Background:** Extensive research and effort has focused on how to improve resident physician wellness and numerous studies have shown that exposure to natural environments has a strong correlation with feelings of well-being. Four years ago, we started a gamified wilderness medicine + wellness curriculum in an attempt to merge these two ideas. With increasing popularity of the curriculum, we've developed a custom mobile app for centralized photo sharing, quiz management, and event planning.

### Educational Objectives:

- \*Improve subjective resident wellness as measured by engagement and burnout surveys
- \*Encourage exposure to local natural settings to help improve overall wellness
- \*Increase knowledge of wilderness medicine topics and applications
- \*Achieve buy-in from majority of residents

**Curricular Design:** A point-based system was chosen for easy tracking of engagement. A main goal has been to minimize intra-resident competition and instead focus on resident vs. self. Residents can earn points for sharing outdoor activity photos and attending wilderness events, with the opportunity for more points by teaching/presenting topics. For broader engagement, we provide multiple event types to participate in. We have a longitudinal goal for a 1 month rural elective limited to 3 residents and a smaller goal for an overnight PGY-3 retreat open for all. A custom mobile app helps to track scores automatically, allow picture comments, and provide notifications for events and quizzes.

**Impact/Effectiveness:** Over 4 years, we have increased engagement with the curriculum from 33% to 70%. Recent successful changes focused on sustaining engagement from senior classes. The custom app provides a cohesive experience but requires its own time-consuming maintenance. A similar curriculum could easily be instituted via existing free platforms and help foster wellness at any program, while providing increased exposure to wilderness medicine topics.

I feel it is important to recognize and address the social determinants of health as part of whole patient care.  
87 responses

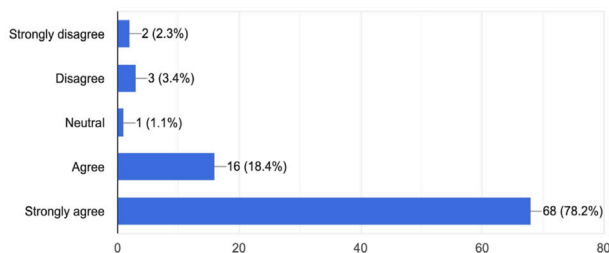


Figure 1.

This exercise made me more confident in identifying social determinants of health in other specialties.  
87 responses

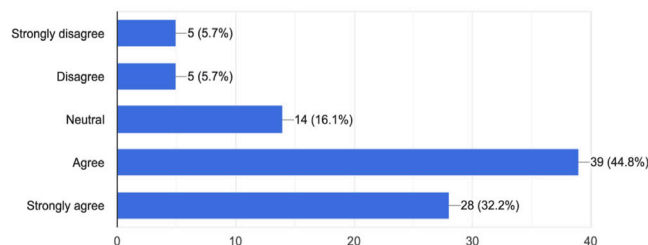


Figure 2.

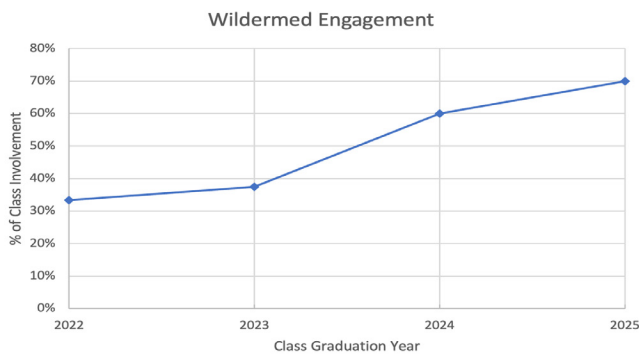


Figure 1.



Image 1.

Research Abstracts

**1 A Cast to Last: Implementation of an Orthopaedic Splinting Workshop for Emergency Medicine Residents and Effects on Splint Quality**

Jaron Raper, John Salmon, Maxwell Thompson, Andrew Bloom, Charles Khoury

**Background:** Immobilization is a core component of treating orthopaedic fractures and injuries in the emergency

department. However, emergency medicine (EM) residents at academic medical centers with orthopaedic training programs may receive limited formalized instruction on and evaluation of splint application. We sought to evaluate the implementation of a splinting skills workshop to improve EM residents' competency at this skill.

**Methods:** 26 EM residents of varying experience levels were assessed on their competency with splinting. Prior to the education intervention, residents were asked to apply a splint on a fellow resident. This splint was then assessed by three independent EM board-certified physicians on a scale of 1-5 in three categories: strength of splint, adequacy of padding, and overall quality of immobilization. Learners then completed a procedural workshop on proper splint application. Competency was then reassessed in these same categories. Before and after the session, learners were asked to self-assess their confidence in determining splint type, comfort with upper- and lower-extremity splints, and comfort with plaster compared to other commercially available splinting products.

**Results:** There was a significant improvement in the overall quality of immobilization (4.75 vs 3.15,  $p < 0.05$ ), strength of splint (4.72 vs 3.58,  $p < 0.05$ ), and adequacy of padding (4.53 vs 3.22,  $p < 0.05$ ). Similar differences were also noted in residents' self-assessed confidence in determining splint type (2.96 vs 4.00,  $p < 0.05$ ), confidence in applying upper extremity splints (2.88 vs

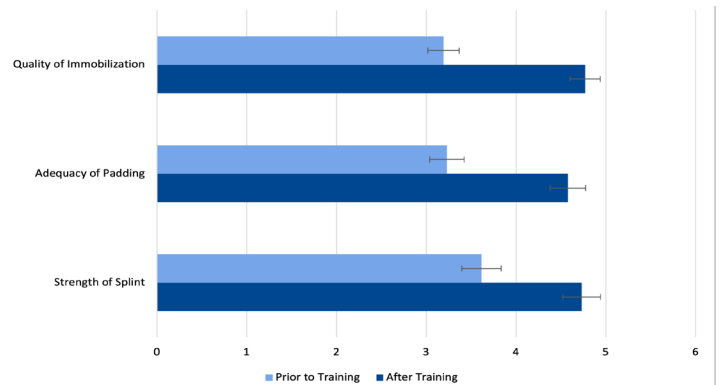


Figure 1. Panel evaluation of splint.

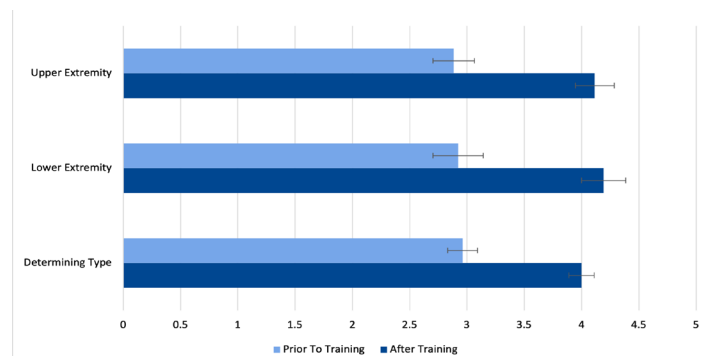


Figure 2. Panel evaluation of splint.

4.12,  $p < 0.05$ ), and confidence in applying lower extremity splints (2.92 vs. 4.19,  $p < 0.05$ ).

**Discussion:** The incorporation of a formal orthopaedic splinting skills workshop in EM training improves both splinting quality and learner confidence in splint selection and application.

## 2 A Multi-Procedure, Task-Training Kit And Curriculum For A Virtual Medical Student Rotation

*Abbas Husain, Rodrigo Kong, Shorok Hassan, Norman Ng, William Caputo, Simone Rudnin, Adil Husain*

**Background:** Due to the COVID19 pandemic, medical students' participation in ED clinical clerkships was significantly reduced which led to a loss in procedural skill training. To address this, we developed a multi-procedure, task-training kit and curriculum for use in a virtual format. Virtual procedure skill training with a specifically designed kit and curriculum can lead to improved confidence in performing those procedures for remote medical students. We discuss feasibility, resource allocation, and future development and application.

**Objectives:** Procedural training is essential in EM education as muscle memory contributes to practitioner proficiency. Practical skills labs are good ways to practice procedures that

are rare or difficult to perform on a patient for the first time. The objective of this task training kit is as an adjunct to a curriculum that provides training to medical students of the same caliber as a practical skills lab. This kit is to give our virtual medical students the experience they would have if they were in person.

**Curricular Design:** We created a lightweight (2.1kg), inexpensive kit (\$98.93) to teach 5 procedures: lateral canthotomy, cricothyroidotomy, tube thoracostomy, suturing and splint application. An accompanying curriculum was developed for use in a virtual format, including strategies for participant engagement, optimizing video and audio capture, and providing feedback. Kits were mailed to students. The curriculum was delivered via a video conferencing platform. The students completed pre and post session surveys.

**Impact/Effectiveness:** 12 Students have completed the rotation. Confidence to perform the steps of the procedures, as measured with a 5-point Likert scale, increased for four of the procedures with lateral canthotomy showing the largest change: from 2 (SD 0.89, Var 0.8) to 5 (SD 5.2, Var 0.27). There was no change with suture application.

## 3 A Needs Assessment for an Emergency Medicine Longitudinal Didactic Curriculum

*Maxwell Thompson, William Davis*

**Background:** Emergency Medicine (EM) encompasses many aspects of medical care. An ideal didactic curriculum prepares residents to pass the written board exam while also providing practical skills and knowledge essential for patient care. Designing such a curriculum is challenging due to advances in medical knowledge and changes to the content of the Qualifying Exam offered by the American Board of Emergency Medicine (ABEM). In 2019, ABEM released an examination blueprint detailing the breakdown of written exam content taking effect in fall of 2020. Content areas on the written examination are broken down based on their relative importance to practice. Frequently encountered and clinically significant content areas are given more weight in these guidelines. This project aims to identify areas for improvement in curriculum design to maximize preparation for the written board examination.

**Methods:** The didactic curriculum for an EM Residency Program was reviewed from July 2016 to June 2019. Each lecture was classified and compared to the updated ABEM examination blueprint. Additionally, the In-Training Exam (ITE) results for each of these content areas was reviewed and compared to national averages.

**Results:** When compared to the ABEM examination blueprint, 15 of 20 topic areas (75%) were underrepresented in the curriculum, with two content areas found to have comprised less than 1% of the didactic curriculum. ITE exam



**Figure.** A. The unpacked kit; B. Lateral canthotomy; C. Chest tube trainer; D. Cricothyroidotomy trainer; E. Suture trainer; F. Splinting supplies.

scores for the graduating class of 2019 were above the mean in all but 9 categories, overall (15%). Three content areas were also underrepresented in the didactic curriculum as well.

**Conclusions:** This needs assessment of the curriculum reveals that, when compared to the ABEM blueprint, a significant number of core content areas were underrepresented in the curriculum, with two being almost absent. The content areas identified represent an area in which the didactic curriculum can be improved to remain in accordance with published guidelines.

## 4 A Snapshot of Exam Usage in Emergency Medicine Clerkships

*William Alley, Iltifat Husain, David Story*

**Background:** Emergency Medicine (EM) clerkships often use a written exam to assess the knowledge gained over the course of an EM rotation. Clerkship Directors (CDs) may choose the NBME EM Advanced Clinical Exam (ACE), the SAEM M4 exam, which has two versions, or locally developed exams. There is little consensus on their optimal usage.

**Objective:** This survey-based study was designed to collect data regarding the use of common available EM exams during clerkships.

**Methods:** The authors designed a cross-sectional observational survey to collect data from EM CDs on exam utilization in clerkships. The survey population comprised the list-serve of the academy of CDEM on the SAEM website and a manual search of the EMRA Match website. 87 programs (42% response rate) completed the survey between August 2019 and February 2021. Data obtained include clerkship characteristics, exam utilized, weight of the exam relative to the overall grade, and testing alternatives if the preferred exam was previously taken.

**Results:** Of the 87 responses, most (82%) were completed by a CD. 53% of institutions require an EM rotation, of which 52% occur in the 4th year, 26% in the 3rd, and 22% occur in either. Students are tested in 74% of required EM clerkships and 69% of EM electives. In required rotations, 57% use the NBME EM ACE, while 51% of EM electives use the SAEM M4 Exam. A majority of programs (57%) weigh the exam score at 11-30% of the final grade. Data for extramural rotations mirrors that of EM electives.

**Conclusion:** This survey elucidates exam usage among EM clerkships. An EM clerkship is required at a majority of our sample, with a significant majority using an exam to evaluate medical knowledge, and while national EM exams are frequently used, there are several programs that use departmental exams, and the weight of the exam score relative to the final grade varies widely. Further scholarship on the best use of these exams to provide the most reliable assessment is needed.

## 5 Analysis of Emergency Medicine Clerkship Grades by Identification as URiM vs. non-URiM

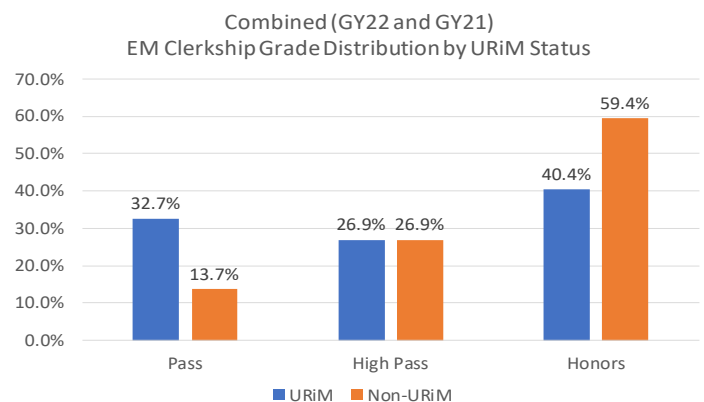
*Kevin Walsh, Joseph House, Laura Hopson, Elizabeth Holman*

**Background:** Previous studies have identified racial differences in both core clinical clerkship evaluations and components of residency applications, including the MSPE and SLOE. To our knowledge, no study has investigated the impact of Underrepresented in Medicine (URiM) status on EM clerkship grades.

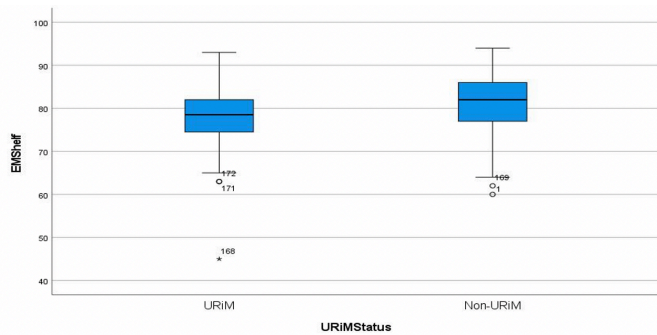
**Objectives:** To determine whether there is a difference in EM clerkship grades and its components (NBME exam scores and clinical assessments) between URiM and non-URiM medical students.

**Methods:** This retrospective sample was drawn from University of Michigan Medical School (UMMS) students in Graduation Year (GY) 2021 or 2022 who completed the required EM clerkship. Using a non-parametric Mann-Whitney U-test, we compared the overall composite score on the EM clerkship, the EM NBME Exam score, and clinical assessments between URiM and non-URiM identifying students.

**Results:** 334 students completed an EM rotation in GY 2021 and 2022. 11 students with “Missing” race data were excluded. 52 (16.1%) identified as URiM while 271 (83.9%) identified as non-URiM. There was a significant difference between URiM and non-URiM groups in performance on NBME Subject Exam ( $p=0.0001$ ), where the non-URiM group outperformed the URiM group (Non-URiM Mean = 81.2; URiM Mean = 77.6). There was no statistically significant difference for clinical performance ( $p=0.057$ ). Overall clerkship grades differed, as URiM students had a higher percentage of “Pass” grades (32.7%) and lower percentage of “Honors” grades (40.4%) than non-URiM students (13.7%, 59.4%).



**Figure 1.** Combined (GY22 and GY21) EM clerkship grade distribution by URiM status.



**Figure 2.** Combined (GY22 and GY21) EM Shelf score versus URiM status.

**Conclusions:** There was a statistically significant difference with respect to EM NBME Subject Exam score, which showed that URiM students performed lower than non-URiM; however, there was no statistically significant difference in clinical performance. Clerkship grade differences are mediated by the difference in exam score and raise questions on how to mediate equity concerns around standardized tests in clerkship grade decisions.

## 6 Applied Mathematics to Predict the Progression of Emergency Medicine Resident Productivity

*Matthew Singh, J. Adam Oostema*

**Background:** Throughout training, an emergency medicine (EM) resident is required to expand efficiency and productivity to ensure safe practice after graduation. Multitasking is one of the 22 ACGME EM milestones and is often measured through evaluations and observation. Providing quantitative patient per hour (PPH) data and efficiency projections to both residents and residency administration could improve a resident experience and training in many ways.

**Objectives:** Our study was designed to analyze various throughput metrics and productivity trends utilizing applied mathematics and a robust data set. The goals of our study were to define the curve of resident PPH over time, adjust for relevant confounders, and analyze additional efficiency metrics related to throughput.

**Methods:** This analysis used a retrospective, observational design in a single, urban, tertiary care center ED that sees approximately 110,000 adult patients per year from July 1st, 2019 to December 31st, 2021. A total of 49 residents from an ACGME accredited 3-year residency were included in the analysis. Patients under the age 18 were excluded. Data was collected using a secure data vendor and an exponential regression model was created to assess resident PPH data. Additional models were created

accounting for patient covariates such as triage acuity and geriatric populations.

**Results:** A total of 79,232 patients were analyzed over 30 months. Using an exponential equation and adjusting for patient covariates, median PPH starts at 0.898 and ends at 1.425 PPH. The median PPH by PGY year were 1.14 for PGY1, 1.38 for PGY2 and 1.41 for PGY3. Additional models were created to analyze a resident’s progression in other efficiency metrics such as door to decision time.

**Conclusion:** Productivity metrics such as PPH data are an essential part of working in an emergency department. Our study shows that residents improve with PPH over three years but tend to plateau in the second year.

**Table 1.** Median PPH by PGY year.

Residents	49
Months	30
Median PPH	
PGY1	1.14
PGY2	1.38
PGY3	1.41

## 7 Are First-Year Emergency Medicine Residents Still Behind on Level 1 Care-Based Milestones?

*Julie Cueva, Lindsay MacCoaghy, Madeleine Alexeeva, Peter Moffett, Nathan Stuempfig*

**Background:** According to the ACGME, Level 1 is described as what is “expected of an incoming resident.” A previous study in 2015 was published showing that less than 75% of PGY-1 residents had achieved Level 1 on care-based milestones in the ED. With Milestones 2.0 introduced in 2021 and the impact of the COVID pandemic on UME unknown, we chose to revisit these milestone assessments.

**Objectives:** To determine what percentage of incoming PGY1 residents have achieved a level 1 as assessed by faculty and themselves for patient care- based milestones ( PC 1-7) and to see if there has been an improvement when compared to this previous study.

**Methods:** Incoming PGY1 residents from 5 collaborating EM residency programs across the United States were assessed by faculty and themselves while on shift during the first month of residency. All were asked to determine whether the resident consistently demonstrated level 1 skills for 9 ED patient care-based sub-competencies. Data were then de-identified and combined between programs. Data were analyzed to determine what



percentage of residents had achieved a Level 1 based on ACGME milestone anchors.

**Results:** Forty-five residents from 5 programs were included. The percentage who received Level 1 for each milestone ranged from 33% to 83%. Patient care 5-pharmacotherapy was the only milestone where a majority of residents did not reach a level 1 (33%). Over 75% reached level 1 consistently for PC1,2,4,6 and 7. Self-evaluations ranged from 24-89% with only PC1 (89%) and PC6 (80%) being higher than faculty evaluations.

**Conclusions:** The majority of incoming pgy1 residents reached a level 1 across patient care milestones. These values trend higher than the previous study. In contrast to the previous study, residents scored themselves lower in all but two milestones when compared to faculty assessments.

## 8 Better Together: A Multi-Stakeholder Approach to Developing Specialty-wide Entrustable Professional Activities for Emergency Medicine

*Holly Caretta-Weyer, Stefanie Sebok-Syer*

**Background:** Entrustable Professional Activities (EPAs) are widely used as a framework for assessment. The variability in Emergency Medicine (EM) programs and training settings, however, make it difficult to develop EPAs that are designed to meet the needs of the specialty as a whole. Furthermore, incorporating the perspectives of multiple stakeholders (i.e., supervisors, trainees, and patients) in the development of EPAs is also complex.

**Objective:** We aimed to define a shared vision amongst all stakeholders in the development of EPAs for EM training.

**Method:** In an effort to tackle these challenges, we assembled an advisory board of 25 EM faculty to draft and reach consensus on a final list of EPAs using Delphi methodology; consensus was set at 80% over three rounds of voting. These EPAs were further refined based on feedback collated in focus groups from residents (3 groups, 9 participants) and patients (1 group, 8 participants). Data were analyzed using thematic analysis.

**Results:** 22 EPAs were adopted for EM residency training. The group additionally wrote an EM-specific supervisory scale to represent the unique constant presence of EM faculty and how autonomy is progressively awarded within the specialty. The resident focus groups highlighted differences in the priority of EPAs as well as when these should be achieved throughout residency when compared to faculty. All focus groups described differences in terms of how patients “fit” within the EPAs.

**Conclusion:** These 22 EPAs create a unified set of expectations for EM residents from the perspective

of faculty. Incorporating residents and patients as key stakeholders ensures optimal alignment of priorities and language within the EPAs across all affected by their implementation. It also situates patients as a priority within the assessment of these EPAs. As these EPAs are enacted, all stakeholders must be invested and engaged in the evaluation of their use for assessment both for and of learning.

## 9 Bounce Backs Quality Improvement Projects Are of Low Yield and Often Lack Meaningful Teaching Points

*Brian Walsh, Frederick Fiessler, Cosimo Laterza*

**Background:** Quality improvement (QI) projects are an important part of EM resident education. Bounce back chart reviews are presumed to be beneficial.

**Objective:** We sought to classify the likely etiology of bounce back patients in an EM training program in order to determine what lessons can be learned from this project.

**Methods:** A retrospective observational study at a suburban teaching hospital with 100,000 patients annually. Study period: July 2019 through June 2020. Inclusion criteria: All patients seen by a resident who had a 72-hour return visit and a disposition of “admission” on the second visit. Exclusion: Patients admitted/observed on initial ED visit. Charts were obtained via the EMR. EM residents (PGY1-PGY3) performed chart reviews in both a closed and open questionnaire. Residents were asked to classify the underlying reason for the bounce back as being one of the following: decision making, charting, communication, system issue, lack of oversight, or no issue. Space was further left for narrative.

**Results:** 2.9% of all ED patients returned within 72 hours with an admission rate of 29%. A total of 261 bounce back patients were included in the analysis. The mean age of included patients was 44 (IQR 22 to 65), 54% were female, and 20% were pediatrics (<=18). The underlying reason for the return was determined to be as follows: No issue 79%, decision making 10%, charting 0.3%, communication 5%, system issue 5%, lack of oversight 1%. When asked if there were specific care issues, only 9% (n=24) reported “yes.” Of those with a narrative discussing the reason for bounce back, the following were listed: inappropriate/lack of testing 33%, consultant issues 21%, treatment issues 17%, physical exam problems 8%, left without being seen 8%, and unable to be determined 13%.

**Conclusion:** Patients seen by residents bounce back infrequently. The majority lack a specific reason for bouncing back and lack specific teaching points for the bounce back.

## 10 Combat Medical Readiness: The Rush University Medical Center Advanced Trauma Training Program

*Nicholas Cozzi, Jessen Schiebout, Dave Leckrone, Amy Marks, Corey Goldstein, Yanina Purim-Shem-Tov, Brian Dugal, Sophia Bodnar, Jerome Martin, Vinootna Sompalli, Crystal Lafleur, Haley Plattner, Hans Murica, William Mati, Louis Hondros, Edward Ward*

**Background:** Combat medical training is essential for U.S. Military Medical Service Members from both the Active and Reserve Components as it increases combat casualty survival while decreasing morbidity. Rush University Medical Center (RUMC) provides U.S. National Guard Service Members the Advanced Trauma Training Program (ATTP), a one-week course centered on trauma-care delivery, procedural competency, and military resiliency combating post-traumatic stress disorder (PTSD).

**Objectives:** The primary outcome of this work was characterizing course graduate feedback and identifying-self-reported belief of medical readiness.

**Methods:** ATTP graduates from 2010-2022 electronically completed an anonymous, on-line survey. Specific feedback was obtained on the program's content, instructor impact, and level of combat medical preparedness.

**Results:** Over the program's ten year history, RUMC has trained 876 U.S. National Guard Members with 61.1% being male. The prominent medical backgrounds are EMT-B (40.1%) followed by RN (27.3%) and PA (19.6%). Among course graduates, 49.2% had never been deployed and of those previously deployed, 95.6% rated ATTP as important to their combat medical experience. The average number of deployments per class was 9.75. In terms of deployment preparation, students rated the course as important to both personal (93.2%) and unit (97.0%) preparedness with a 98.5% likelihood to recommend. Students remarked the live-tissue and cadaver lab as extremely important (84.4%) while noting a post-deployment PTSD lecture as important (95.9%).

**Conclusions:** The Rush University Medical Center Advanced Trauma Training Program began as a targeted intervention to medically prepare U.S. Military Medical Service Members. These results suggest graduates believe this training is positively impacting their combat medical readiness and resilience. Further investigation with course graduates that were subsequently deployed to combat is ongoing.

## 11 Dental Emergency Management: An Emergency Medicine Workshop Curriculum

*Reshma Sharma, Eric Heine, Sara Baker, Evelyn Ramirez, Fallon Kelly, Chase Clemesha*

**Introduction:** Dental emergencies are common among

Emergency Department patients. Emergency Physicians often treat dental pain and perform temporizing procedures before definitive care. We considered the need for hands-on training to perform dental procedures in our residency and created and studied a unique simulation-based curriculum.

**Objectives:** The primary objective of our study was to assess resident confidence in, and knowledge of management of dental emergencies and performance of common dental blocks. We hypothesized that resident confidence, knowledge, and skill proficiency would improve after implementing our curriculum.

**Methods:** The workshop included five simulation-based stations: Performance of facial nerve blocks; post-extraction bleeding management; tooth preservation and reimplantation; tooth splinting; and treatment of dental fractures, using commonly available materials. Each station included 20 minutes of instruction and hands-on practice. Residents completed pre- and post-session surveys assessing comfort and medical knowledge. We also compared results of a skills assessment to identify and demonstrate facial nerve blocks between residents assessed before and after instruction.

**Results:** 27 residents (8 PGY-1, 9 PGY-2, 10 PGY-3) participated in the teaching session. On average, residents' confidence in managing dental emergencies improved from 3.09 to 7.33 on a 10-point Likert scale. Comfort with dental blocks improved from 4.55 to 7.96. Participant knowledge regarding dental emergencies improved from 66% to 92%. The average score for participants who completed the skills test after instruction was 70% compared to 43% for those who were tested before instruction.

**Conclusions:** After participating in this workshop, learners reported increased confidence and showed improved knowledge and skill performance. We believe this is an effective hands-on curriculum that residency programs can use in place of traditional lectures.



**Figure.**

## 12 Do Residents Need More Training on Head CT Imaging Interpretation? A Multicenter Needs Assessment

Jacqueline Tran, Saumil Parikh, Andrew Schweitzer, Kaushal Shah

**Aim:** We sought to determine if emergency medicine (EM) residents require further training in interpreting head CTs through a needs assessment. We hypothesized that residents gain confidence with increasing PGY-level and those who use PACS-windows and structured approaches are likely more confident in their interpretations.

**Background:** Head CTs are often interpreted by EM residents, however most do not have formal training. Studies have reported concordance between EM physicians and radiologists to be as low as 65%.

**Methods:** We performed a needs-assessment survey across two EM training programs. The survey was created by the Vice Chairs of Education of EM and Radiology, providing face validity. Elements included PGY-level, confidence level in accurately interpreting head CTs, use of PACS-windows, and desire for more training. The survey was piloted by graduating EM residents prior to study launch. Program Directors at each institution distributed the survey to their respective residents. Standard statistical methods, including student's t-test, were utilized to analyze the data. Study was IRB approved.

**Results:** Among 75 total residents, we received 71 responses (95%). On average, residents reported confidence in interpreting 57% of head CTs; 70% used PACS-windows; 48% had a structured approach. There were significant increases in confidence from PGY-1 (45%) to PGY-2 (65%) and PGY-3 (66%) levels. Residents who had structured approaches were more confident (62%) than residents who did not (51%,  $p < 0.05$ ). There was no significant relationship between confidence and use of PACS-windows. Of the 71 respondents, 99% reported a desire for more training.

**Conclusion:** Self-reported confidence of residents is low (~60%), and virtually all desire further training. Confidence increases with PGY-level and the use of structured approaches, suggesting that early training with tools such as checklists has the potential to improve resident confidence, and potentially skill.

## 13 Does Gamification Improve Medical Knowledge of 4th-Year Medical Students as Measured by the EM NBME?

Allison Beaulieu, Kamilah Walters, Joanne Vakil, Nicolas Kman, Christopher San Miguel

**Background:** Gamification increases learners' motivation and engagement by using game design elements. Although

gamification appears to have a positive impact on education, there is little evidence to support that it improves medical knowledge.

**Purpose:** The purpose of this study is to assess the impact of gamification on the medical knowledge of 4th-year medical students during their EM Clerkship as assessed by the EM NBME.

**Methods:** A pre-post experimental design compared EM NBME scores of 4th-year EM clerkship students at a Midwestern school before (May 2019-April 2021,  $n=323$ ) and after (May 2021-April 2022,  $n=132$ ) the implementation of a one-hour gamified review session. Sessions included 20 cardiology and pulmonology questions. Inferential statistical techniques were used to compare two groups. Data analyses were carried out using SPSS 28.0. Post-session evaluation comments were analyzed for themes.

**Results:** The cohorts were approximately equal as measured by the Levene Test. Post-intervention scores improved in both the Cardiology and Pulmonary subsections of the EM NBME, however they were not found to be statistically significant ( $p = 0.32, 0.32$ , Table 1). Overall test scores improved post-intervention and were statistically significant ( $p = 0.005$ , Table 1). Themes identified in student responses included that the session was helpful, interactive, fun, and engaging (Table 2).

**Conclusion:** The gamification cohort had higher exam scores indicating gamification improves medical knowledge and can be used as a method to enhance review sessions. Findings showed improvement, though not significant, in the cardiology and pulmonary subsections, indicating the need for further analysis of all subsections. Student comments reflected positively on learner engagement which is consistent with prior

**Table 1.** EM NBME scores with and without gamification intervention.

		Gamification Intervention		<i>p</i>
		With	Without	
Overall Exam	<i>n</i>	132	323	0.005*
	<i>M</i>	81.63	79.34	
	<i>SD</i>	6.61	8.32	
Cardiovascular Subsection	<i>n</i>	132	323	0.32
	<i>M</i>	79.44	78.2	
	<i>SD</i>	11.70	12.29	
Pulmonary Subsection	<i>n</i>	132	323	0.32
	<i>M</i>	81.70	80.43	
	<i>SD</i>	11.26	12.60	

**Table 2.** Select post-evaluation responses from 4<sup>th</sup> year medical students who completed the gamification review service.

Helpful	"The cases were helpful examples of questions that could come up" "Followed up by supplemental educational slides which was also a helpful review of diagnostic tests and workup for specific conditions" "The practice questions were helpful shelf exam prep" "...did a great job of explaining why each answer was incorrect, which was very helpful." "This was a very helpful learning session."
Engaging/Interactive	"I liked the 'quiz' style format because it was more engaging instead of just listening to a lecture" "Encouraged engagement from students." "Trivia style review sessions are always fun and engaging" "Interactive and engaging - Comprehensive" "Engaged, laid back but still teaching high yield topics well." "The interactive quiz format was engaging." "was more interactive than the usual lecture style review session"
Fun	"Great, fun interactive Q&A quiz session" "Extremely fun and useful!" "This was a great, enjoyable and interactive review session that I found very helpful!"

studies. Limitations include convenience sampling and that the gamification session was held in addition to the standard curriculum which includes cardiology and pulmonology.

## 14 Does Inclusion of Residents in EKG screening in the ED change the Time to Catheterization Lab Activation?

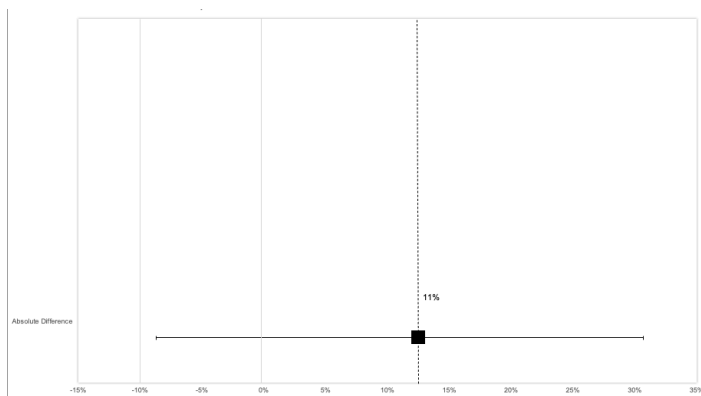
Sarah Aly, Kelsey Coolahan, Kirk Tomlinson, Duncan Grossman, Joseph Bove, Steven Hochman

**Background:** A significant amount of research has gone into EKG interpretation training modalities for emergency medicine residents, but few high-powered studies exploring the accuracy of resident EKG interpretation exist.

**Objectives:** This study aims to evaluate whether or not the inclusion of PGY-3 EKG interpretations is non-inferior to attending-only EKG interpretations in regards to timely STEMI activation.

**Methods:** This is a retrospective non-inferiority study of STEMI activation times before and after the inclusion of PGY-3 resident EKG interpretations performed at an academic, urban tertiary care center between November 2020 and April 2022, excluding pre-hospital activations. The primary endpoint is the proportion of STEMI activations within five minutes of EKG completion; time window chosen to account for operator delay. An absolute decrease of 10% between before and after inclusion of resident EKG interpretations was chosen as the non-inferiority margin.

**Results:** 39 STEMI activations occurred from November 2020 to July 2021 prior to resident inclusion in the reading of EKGs. 40 STEMI activations occurred from August 2021 to April 2022 after resident inclusion. In the attending-only period, 26 (66.7%) cases resulted in STEMI activation within 5 minutes of the initial EKG being obtained compared to 31 cases (77.5%) in the post-resident period. The absolute difference between groups' successful activations shows an increase of 11%, which lies within the non-inferiority margin (delta +11%, 95% CI



**Figure.** Difference in proportion of successful STEMI activations post- and pre- resident inclusion.

-8.68%, 30.7%). The proportion of STEMI activations within 5 minutes did not differ by resident reading,  $X^2 = 1.15$ ,  $p = 0.28$ .

**Conclusion:** Based on our data, we can conclude that including Emergency Medicine PGY-3 residents in reading EKGs is non-inferior to attending-only interpretation of EKGs with regard to STEMI activation time.

## 15 Effects of Wellness Credits on Resident Physician Burnout

Kirlos Haroun, Sandra Coker, Paul Kukulski, Adriana Olson, Navneet Cheema, Zayir Malik, James Ahn

**Background:** There is extensive literature on physician burnout showing that it correlates with individual mental and physical illness, leads to adverse patient outcomes, and is financially costly to health systems. Further, understanding physician burnout is a step towards improving physician wellness. Investments in physician wellness nationwide have occurred in a broad assortment of ways; however the literature does not present wellness funds to residents as a previously studied approach.

**Objective:** Our goal was to study the impact of wellness credits on resident burnout and assess residents' overall perspective of the intervention on their daily wellness. We hypothesize a decrease in burnout and an overall positive assessment of the program by involved residents.

**Methods:** In the Fall of 2021, the University of Chicago EM Residency program began to give financial stipends during the most difficult rotations as a novel approach to mitigating resident burnout. This was a quasi-experimental, prospective study investigating the impact of stipends on EM resident burnout. Following the intervention, a post-intervention survey was sent to residents to assess perspectives on the initiative.

**Results:** 36/49 residents (73%) responded to the survey. Over half of residents "often" or "always" (42%, 8%, respectively) had difficulty completing daily chores, and 72% of residents used more than half or all of the gift cards for such chores. In turn, 74% of residents "agree" or "strongly agree" that the initiative benefits their overall wellness." Finally, 100% of respondents would like to see the initiative continue.

**Table.**

Survey Question	Survey Response	Response Rate	Percentage
In the last academic year (2021-2022), how often have you experienced difficulty completing daily chores and/or fulfilling housekeeping requirements? (i.e. cleaning, walking pets, dry cleaning, meal preparation, meal/grocery delivery, etc.	Sometimes	14/36	39%
	Often	15/36	42%
	Always	3/36	8%
How much of the gift card did you intend to use for the items referenced above?	More than half or All	26/36	72%
The financial value provided by the Wellness Gift Card was adequate to support the items referenced above	Agree or Strongly agree	12/35	34%
My overall wellness benefited from the Wellness Gift Card initiative	Agree or Strongly Agree	26/35	74%
Would you like to see the Wellness Gift Card continued into the next academic year?	Yes	36/36	100%

**Conclusions:** All respondents felt that the gift card initiative should continue; the majority of residents used this help with daily chores that they had difficulty fulfilling. Further, residents reported an increase in wellness after this initiative. We plan on investigating this intervention in relation to individuals' Maslach Burnout Inventory.

## 16 Effect of Provider Level on Bounceback Rate and Patient Prognosis in the Emergency Department

*Katherine Chen, Marco Lorico-Rappa, Caroline Runco, Alberto Hazan, Saira Mehmood, Patrick Olivieri*

**Background:** Emergency Medicine providers have a limited time frame to decide whether patients can be safely discharged home or if they require inpatient hospitalization for further management. Some patients who are discharged home return unexpectedly to the ED within a short time period of their initial visit. These return visits are categorized as bouncebacks. For our quality-of-care measurement we utilized bouncebacks that ultimately require hospital admission, as we believe this serves as a better indicator than bounceback rates alone.

**Objective:** The primary objective of this study was to determine if the composition of the initial visit provider team was associated with a difference in 72-hour bounceback admission rates and 72-hour bounceback cardiac arrests.

**Methods:** Initial visit provider teams consisted of an attending physician alone or as a team with a resident physician. We conducted a retrospective cohort study of arrests. Initial visit provider teams consisted of an attending physician alone or as a team with a resident physician. We conducted a retrospective cohort study of Emergency Department visits between August 1, 2020, and August 1, 2021. Data was extracted from six community hospitals and categorized by provider and disposition. **Results:** Attendings saw 140,718 patients, with 1,207 bounceback admissions (0.86%), which was a lower rate than attending and resident teams, who saw 10,428 patients and had 153 bounceback admissions (1.47%;  $X^2 = 39.8, p < .001$ ). Attendings saw 14 (.001%) bouncebacks due to cardiac arrest, which was not statistically different from the bounceback rate due to cardiac arrest from teams of attendings and residents (1 bounceback; .009%;  $X^2 = 0.00, p = 1.000$ ).

**Table 1.** Bounceback admission rates based on provider level.

Provider Level	Admitted	p-value
Attending	1,207/139,511 (0.86%)	0.921
Attending/APP	1,036/127,718 (0.80%)	0.007
Attending/Resident	153/10,275 (1.47%)	<.001

**Table 2.** Bouncebacks admitted with cardiac arrest based on provider level.

Provider Level	Admitted	p-value
Attending	14/140,718 (0.01%)	0.138
Attending/APP	7/128,754 (0.01%)	0.278
Attending/Resident	1/10,428 (0.00%)	

**Conclusion:** The severity of the clinical diagnosis was not considered in the analysis. Even though the bounceback admission rates are higher in the attending/resident team, our study suggests that this team model is safe and can help foster a clinical learning environment, as long as patient-centered care is emphasized.

## 17 Emergency Medicine Resident Competency and Satisfaction After Implementing a Standardized Radiology Curriculum, a Prospective Study

*Gary Cook, Christopher Reilly, Priscilla Cruz*

**Background:** Currently, there is no radiology curriculum adopted by an ACGME accredited Emergency Medicine (EM) residency program, nor does the ACGME define specific outcomes regarding image interpretation and application. Studies have shown EM residencies are lacking formal radiology training. Thus, EM residents may not feel prepared to interpret images and make clinical decisions based on that imaging without a radiologist's interpretation. This study attempts to add to the limited amount of literature in regard to radiology education within EM residencies.

**Objectives:** We hypothesized that if an ACGME accredited EM residency program institutes a formal, standardized and brief lecture-style radiology curriculum, then those residents will show objective improvement in radiographic interpretation and subjective educational satisfaction and confidence in their ability to interpret imaging.

**Methods:** This was a single-center, blinded, prospective study performed at a community hospital. There were 28 EM residents followed over a four month study period from February to June 2022. Each week, the study investigators prepared and led brief, formalized radiology lectures. Prior to the start of the study, EM residents completed a formal assessment and survey. The same assessment and survey were then given at the end of the study period. This data was then analyzed using T-test statistical analysis.

**Results:** Of the 28 EM residents, 23 showed an improved assessment score. There was a 12% increase in

average assessment score across the group as a whole (95% CI 0.4-0.8, P = 0.00043). Survey data showed that 96.4% of the group reported improved confidence and 92.8% reported improved accuracy.

**Conclusions:** This study suggests implementing a formal radiology curriculum has the potential to significantly improve an EM resident’s ability to accurately and confidently interpret radiographic images. Limitations included sample size, generalizability and selection bias.

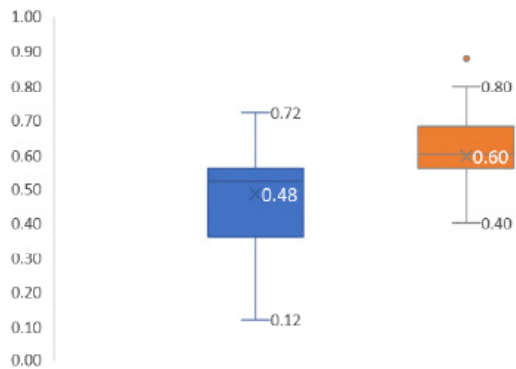


Figure 1. Quiz results: total.

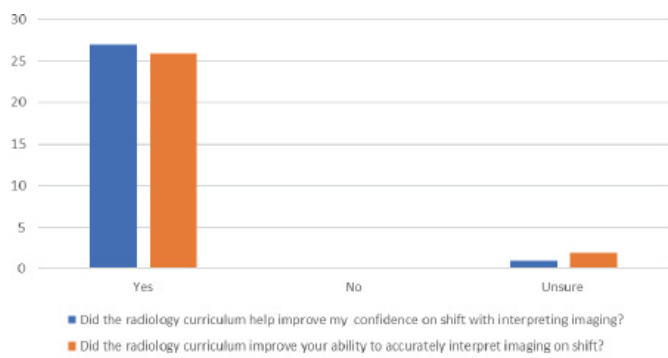


Figure 2. Post-survey: total.

## 18 Expanding an Emergency Medicine Sub-Internship Mentorship Program

Atizaz Hussain, Christopher Kuhner, Ridhima Ghei, Jeanette Kurbedin

**Background:** Mentorship is fundamental in medical education for trainees to receive career development advice. There are few formal mentorship programs designed for medical student success in both rotations & residency applications.

**Objectives:** We expanded an EM mentorship program for

4th-year EM-bound medical students on their sub-internship at an urban tertiary care hospital in Brooklyn, NY. Resident & attending mentors developed relationships with students & provided advice for the rotation along with the holistic residency application process. The goal was for students to view the mentorship positively & report that the program improved their performance.

**Methods:** Interns, senior residents, and attendings volunteered as mentors for 4th-year medical students. Mentorship groupings were based on schedules and pre-rotation survey responses. Resident mentors were trained to review patient presentations, differential diagnoses, and the application process with the students. Attending mentors were given a 1-hour presentation reviewing NRMP match data to guide students on applying. Students were sent a post-mentorship survey on their experiences. The data was analyzed via statistical analysis.

**Results:** Of the 40 sub-interns, 85% (n=34) responded. 100% (n=34) of students recommended continuing the program, 94.1% (n=32) rated the program helpful, and 76.5% (n=26) felt the program helped their performance. 64.7% (n=22) met their resident mentor out of work and 73.5% (n=25) had a shift with them. 29.4% (n=10) met their attending mentor out of work and 35.3% (n=12) had a shift with them. 67.6% (n=23) stated they will keep in touch with the resident mentor while 58.8% (n=20) were unsure if they will keep in touch with the attending mentor.

**Conclusion:** The data support that a formal mentorship program for medical students during their clerkship was beneficial. Including attending & resident mentors allow students different perspectives on the rotation & application.

## 19 External Validation of the Fresno Test - An Evidence-Based Medicine Assessment Tool

Catherine Yu, Sarah Dunn, Marc Berenson, Ariel Sena

**Background:** Evidence based medicine (EBM) is an entrustable professional activity for medical students entering residency. We have used the Fresno test for assessment of our emergency medicine (EM) clerkship EBM curriculum since 2018. It is a validated tool for assessing EBM competency and is composed of twelve free-response questions scored with a detailed rubric. Inter-rater reliability (IRR) for scoring this test was reported as 0.76 to 0.98 in the original development of this tool, however, there have been limited external validation studies for medical student cohorts.

**Objectives:** We sought to evaluate the IRR of the Fresno test as scored by multiple independent graders in our cohort of medical students as a measure of external validation of this tool.

**Methods:** In 2020-2021, grading of the Fresno test was done by a group of four faculty and two senior residents, with two individuals grading the test independently

for each student. EBM expertise and previous grading experience with the Fresno test varied among the graders. Each grader submitted scores on a separate spreadsheet and were blinded to their colleague’s responses during the grading process. The scores for each of the twelve questions in addition to the total score were collected for every test. Cronbach’s alpha (C. alpha) was used to determine the IRR of the test.

**Results:** 97 tests were scored by two independent graders. There was good IRR for the total scores (C. alpha = 0.90). Of the twelve questions, ten had good IRR (C. alpha = 0.77-0.97) and two had acceptable IRR (C. alpha = 0.64-0.69).

**Conclusions:** IRR for scoring the Fresno test in our group of graders was consistent with the original developers of the tool. Next steps could explore the variability of IRR among the individual questions and by experience level of grader. For complete external validation, further research is needed to better understand the meaning behind a learner’s score and its relationship to the learner’s level of knowledge.

Table.

Question	Cronbach's alpha
Q1 Write a focused clinical question for this patient encounter that will help you organize a search of the clinical literature for an answer.	0.94
Q2 Where might clinicians go to find an answer to questions like these? Name as many possible types or categories of information sources as you can. You may feel that some are better than others, but discuss as many as you can to demonstrate your awareness of the strengths and weaknesses of common information sources in clinical practice. Describe the most important advantages and disadvantages for each type of information source you list.	0.90
Q3 If you were to search Medline for original research on this question, describe what your search strategy would be. Be as specific as you can about which topics and search categories (fields) you would search. Explain your rationale for taking this approach. Describe how you might limit your search if necessary and explain your reasoning.	0.64
Q4 What type of study (study design) would best be able to address this question. Why?	0.77
Q5 When you find a report of original research on this question, what characteristics of the study will you consider to determine if it is relevant? Include examples.	0.78
Q6 When you find a report of original research on this question, what characteristics of the study will you consider to determine if its findings are valid? Include examples.	0.87
Q7 When you find a report of original research on this question, what characteristics of the findings will you consider to determine their magnitude and significance?]	0.69
Q8 A recent study of the diagnostic accuracy of arterial blood gas in diagnosis of pulmonary embolus included 232 patients with suspected pulmonary embolus, 49 of whom were subsequently determined to have pulmonary embolus. Of those with pulmonary embolus, 41 had abnormal alveolar-arterial oxygen gradient (A-a)DO2. Of the 183 patients determined not to have pulmonary embolus, 118 had abnormal (A-a)DO2. i) Based on these results, the sensitivity of (A-a)DO2 for pulmonary embolus is ___ ii) Based on these results, the specificity of (A-a)DO2 for pulmonary embolus is ___ iii) Based on these results, the positive predictive value of (A-a)DO2 for pulmonary embolus is ___ iv) Based on these results, the negative predictive value of (A-a)DO2 for pulmonary embolus is ___ v) Based on these results, the likelihood ratio positive for an abnormal (A-a)DO2 for pulmonary embolus is ___	0.87
Q9 A recent randomized trial found that 29% of diabetic with coronary heart disease (CHD) treated with pravastatin suffered a recurrent coronary event during 5 years of follow-up, while 37% of the placebo group suffered recurrent coronary events. i) The absolute risk reduction for recurrent events is ___ ii) The relative risk reduction for recurrent events is ___ iii) The number needed to treat (NNT) to prevent one recurrent event is ___	0.92
Q10 The recent HERS study compared women on estrogen supplements to women on placebo. Results revealed a relative risk of venous thromboembolic events of 2.89 for the women on estrogen. This suggests that	0.97

## 20 Factors That Affect Reactions and Outcomes to Not Being Made Chief Resident

Amanda Smith, Matthew Hysell

**Background:** Most literature surrounding chief residents discusses process and qualities which predict selection. There is little discussion regarding the potential negative impact on qualified candidates who went unselected.

**Objectives:** We sought to identify the impact of non-

selection on non-clinical participation (recruiting, teaching, research, etc.) in both the final year of residency and as an attending. We assessed different news delivery styles, resident reaction to the news and delivery, and unanswered questions about the process.

**Methods:** All graduated candidates who had applied for chief at a single community-based residency but did not get the positions were identified and contacted via phone or text. Consent was obtained. Approximately 30-minute interviews were recorded, with participant permission, and transcribed. A pre-determined set of questions were asked regarding their reaction to the news, how they were told, reasons they were given, and how this affected their participation during the final year of residency and as an attending. Common themes were identified.

**Results:** We were able to connect with 10 out of 13 (77%) potential participants. See table 1.

**Conclusion:** While our former residents did not feel significant downstream effects of not being made chief as attendings, most felt significantly decreased motivation to participate in non-clinical activities as residents. Most of our residents had significant questions about why they had not been selected.

Table 1.

Topic	Theme	Sub-theme
News delivery setting	With entire residency  Which mentor/program director	Better to know prior to general announcement Public disappointment  Trust Respect
How candidates felt	Why not selected  Concerns they did not fit the mold  Qualified candidates were selected  Negative responses to others' support	What did other residents say Who made the decision What were my shortcomings  No transparency with criteria Women felt they needed to be cheerleaders Social role vs administrative role  Respect for fellow residents  Fellow residents expected some to be chief made news handler Faculty who said that they would have supported candidates for chief
Downstream effects	As attending  As senior resident	Most felt none at ultimate job Some had decreased motivation to stay on as attending  Did not appreciate being asked to take on additional leadership roles when not made chief

## 21 Feedback on Feedback: Improving Quantity of Individualized Comments from Faculty on Student Evaluations

Morgan Wilbanks, Sam Corbo, Tom Yang, Nancy Jacobson, McKenna Knych

**Background:** The Standardized Letter of Evaluation

(SLOE) is one of the most important parts of a student’s application for emergency medicine residency. Our department utilizes an electronic post-shift evaluation form that includes prompts for faculty to leave comments on what the student did well and where they should improve. When students are not given written feedback, it can be more difficult to write the narrative portion of the SLOE.

**Objectives:** Prior to academic year 2022-23, we implemented this QI project to improve the rate of individualized comments on student evaluations. Our aim was to present data to faculty regarding how often students received written feedback in the prior year in order to improve response rate in the future.

**Methods:** Fourth-year EM student evaluation data from May-September was used. Feedback data was aggregated and coded for anonymity. Comments were categorized based on which prompt they came from: what the student did well (positive) and what they should improve on (negative). The percentage of evaluations with positive, negative, and no comments was tabulated and data was presented at faculty meeting prior to audition rotations. After this intervention, the data for the same time period in 2022 was obtained and analyzed. This project was approved by the MCW Department of Emergency Medicine QI/QA Committee.

**Results:** There were 427 evaluations received for 36 students in 2021. In 2022, there were 33 students with 443 evaluations. In 2021, 64% of evaluations included at least one written comment. In 2022, 88% of students received at least one written comment. In both years, faculty were more likely to leave positive comments than negative comments.

**Conclusions:** Informing faculty about the rates that they are leaving comments for students as a group, drastically increased the rate of comments that were left the next year, assisting the process of writing SLOEs.

Table.

Type of Comment	2021	2022
Comments present	64 (273)	88 (390)
Positive	57 (245)	87 (384)
Negative	36 (152)	72 (318)
No comments	36 (154)	12 (53)

## 22 Flipping Journal Club to Teach Statistics to Emergency Medicine Residents

Brian Milman

**Background:** ACGME’s Common Program Requirements state that programs “must advance residents’ knowledge and practice of the scholarly approach to evidence-based patient care.” Many EM residency programs utilize “journal club” to review medical literature and highlight

statistical concepts important to resident education.

**Objectives:** This study aims to determine whether a structured intervention using a podcast format for teaching basic statistical methods improves EM residents’ understanding of these concepts. We hypothesize that self-reported understanding of the discussed concepts will improve following implementation of a podcast-based flipped journal club.

**Methods:** In July 2022, University of Oklahoma Department of EM implemented a flipped journal club in which residents listened to a podcast discussing statistical methods prior to a classroom session discussing EM literature. Residents were surveyed in July 2022 prior to the intervention. Flipped journal club sessions were held monthly and residents were surveyed after each session. A Wilcoxon signed-rank test was performed comparing pre-survey and post-survey responses for each month’s session.

**Results:** 24 out of 26 (92.3%) of residents filled out the initial survey. The August session covered type I and type II error, the September session covered RCTs, and the October sessions covered non-inferiority studies. The response rates of the post-session surveys were completed by 84.2%, 50%, and 46.7% of session attendees in August, September, and October, respectively. Residents reported increased understanding of type I and type II errors ( $p = 0.002$ ) and non-inferiority trials ( $p=0.014$ ) following intervention. Understanding of RCTs did not significantly increase ( $p=0.129$ ).

**Conclusions:** Initial analysis of resident-reported understanding of statistical concepts shows statistically significant improvement in understanding following 2 out of 3 sessions.

## 23 Gastroesophageal Balloon Tamponade Simulation-based Training in Emergency Medicine: Curricular Needs Assessment

Cody McIlvain, Christopher Mowry, Maria Moreira, Anna Neumeier, Michael Kriss

**Background:** Gastroesophageal balloon tamponade (GEBT) tube placement is an infrequent, but potentially life-saving procedure used as a bridge to definitive therapy in patients with variceal hemorrhage refractory to medical and/or endoscopic therapy. Competency with GEBT tube placement is crucial to emergency medicine (EM) training although educational experience is variable, and proficiency may not be achieved by clinical exposure alone.

**Objectives:** We sought to understand the experience, confidence, and educational needs of trainees and faculty with GEBT placement.

**Methods:** A survey-based needs assessment was sent to residents, fellows, and faculty within the Denver Health Residency in Emergency Medicine. The assessment addresses the experience, training needs, and self-confidence with GEBT tube placement and management.



**Results:** 62 responses were included: 41/79 trainees (31 residents, 10 fellows) and 31/110 faculty (Figure 1). Most trainees agreed upon the need for proficiency in GEBT tube placement by training completion (4.8/5). Faculty agreed they should possess procedural proficiency (4.47/5) as most faculty expected to place a GEBT tube (4.4/5). Trainees had limited experience placing GEBT tubes in clinical practice (25% placed  $\geq 1$ ). Faculty had more experience (70% placed  $\geq 1$ ). Both faculty and trainees reported similar rates of prior simulation training (20% of trainees and 37% of faculty). Self-confidence with GEBT tube placement was low across all groups (trainees: 2.05/5; faculty: 3.28/5). Most respondents desired more training opportunities (trainees: 4.4/5; faculty: 3.8/5). The most desirable training modality was simulation-based training (trainees: 4.65/5; faculty: 3.86/5).

**Conclusion:** GEBT is an infrequently performed procedure and clinical exposure in emergency medicine training is insufficient to gain proficiency. Trainees and faculty within EM have minimal experience, low procedural confidence, and highly desire a simulation-based training.

Survey Question	Likert scale (1-5)	Mean Likert score (1-5)	
		Trainee	Faculty
I expect to place at least one GEBT tube during my career.	Strongly disagree (1) - Strongly Agree (5)	4.63	4.43
Trainees in my field should be proficient in GEBT tube placement upon completion of training program.	Strongly disagree (1) - Strongly Agree (5)	4.82	-
Faculty/attendings in my field should be proficient in GEBT tube placement.	Strongly disagree (1) - Strongly Agree (5)	-	4.47
Confidence placing GEBT tube without error.	Not confident (1) - Completely confident (5)	2.05	3.28
Confidence with management and troubleshooting of GEBT tube following placement.	Not confident (1) - Completely confident (5)	1.83	2.52
Confidence with instructing others how to properly place GEBT tube.	Not confident (1) - Completely confident (5)	1.91	3.06
I wish my current program had more training available.	Strongly disagree (1) - Strongly Agree (5)	4.4	3.83
How desirable is asynchronous video training.	Not desired (1) - Very desired (5)	2.7	3.89
How desirable is case-based training.	Not desired (1) - Very desired (5)	3.24	2.29
How desirable is simulation-based training.	Not desired (1) - Very desired (5)	4.59	3.86

Figure 1. Selected needs assessment questions with aggregated responses for emergency medicine (EM) faculty and trainees (residents and fellows).

## 24 Gender and Racial Distribution of Emergency Medicine Bound Medical Student Membership in Professional Honor Societies

Alexandra Mannix, Katarzyna Gore, Sandra Monteiro, Sara Krzyzaniak, Dayle Davenport, Teresa Davis, Al'ai Alvarez, Melissa Parsons, Michael Gottlieb

**Background:** Gender and racial inequities exist in medicine and medical education. Previous literature has evaluated disparities in race or gender on AΩA and GHHS membership. These studies have been limited to single

institutions and none have evaluated ΣΣΦ.

**Objectives:** Our study aimed to evaluate EM applicants honor society selection in AΩA, GHHS, and ΣΣΦ based on gender and/or underrepresented in medicine (URM) status.

**Methods:** We performed a multi-institution, cross-sectional study of applicants to three United States (US) EM residency programs during the 2019-2020 application cycle. Abstractors recorded the following: self-identified gender, self-identified race/ethnicity as URM, and membership in AΩA, GHHS, and ΣΣΦ. We calculated the odds ratio with 95% CI by gender and URM identity for the professional honor societies.

**Results:** A total of 2,168 unique applicants were identified, representing 66.3% of all US EM applicants for the 2019-2020 cycle. With respect to gender, 1336 (61.6%) identified as men, 829 (38%) as women, and 3 (0.1%) did not self-identify. With respect to race and ethnicity, 1675 (77.3%) identified as non-URM, 397 (18.3%) as URM, and 96 (4.4%) did not self-identify. We identified women being proportionally representation in GHHS [OR 1.33; 95% CI 0.96 - 1.84] and overrepresented in AΩA [odds ratio (OR) 1.47; 95% CI 1.09 - 1.98;] and ΣΣΦ [OR 1.49; 95% CI 1.01 - 2.22] compared to men. We identified URM applicants being proportionally represented in AΩA [OR 1.16; 95% CI 0.81 - 1.65], ΣΣΦ [OR 0.73; 95% CI 0.38 - 1.42], and GHHS [OR 0.80; 95% CI 0.51 - 1.24] compared to non-URM applicants.

**Conclusions:** During the 2019-2020 academic year, women Emergency medicine applicants were overrepresented proportionally in GHHS, and overrepresented in AΩA and ΣΣΦ. During the same time period, URM applicants were found to be represented in similar proportions in GHHS, ΣΣΦ, and AΩA honor societies to non-URM applicants.

Table 1. Total AΩA, ΣΦΣ, and GHHS membership for gender and URM identity

Group	Men/Women	URM/non-URM
All Applicants	Men (1336) - 61.6%	URM (397) - 18.3%
	Women (829) - 38%	Non-URM (1675) - 77.3%
AΩA/MD	Men (104) - 52.3%	URM (47) - 23.6%
	Women (95) - 47.7%	Non-URM (146) - 73.4%
ΣΣΦ/DO	Men (76) - 57.1%	URM (12) - 9.0%
	Women (56) - 42.1%	Non-URM (117) - 88.0%
GHHS	Men (88) - 55.3%	URM (25) - 15.7%
	Women (71) - 44.7%	Non-URM (130) - 81.8%

## 25 Gender Disparities in Emergency Medicine Faculty Evaluations by Residents

Ynhi Thomas, Aleksandr Tichter, Saira E. Alex, Malford Pillow, Anita Rohra

**Background:** Faculty evaluations are needed for professional development. Multiple studies have shown gender implicit biases in these processes across multiple specialties, affecting advancement. No studies to date have examined Emergency Medicine (EM) faculty evaluations for gender-based differences.

**Objectives:** In this study, we sought to determine if faculty evaluations in MedHub by residents had any gender-based differences across all categories including teaching, availability, patient care, systems-based practice, and overall performance.

**Methods:** We performed a retrospective, cross-sectional study at a single, 3-year EM training program in a high-volume, urban, academic medical center. The study was approved by the Institutional Review Board with waiver of written informed consent. The study examined 567 evaluations of 30 residency core faculty members by 56 EM residents between July 1, 2019 to July 1, 2021. The population was defined as EM core faculty members. The primary outcome was faculty rating on a 5-level scale across 5 domains: teaching, availability, patient care and professionalism, systems-based practice, and overall rating. The main predictor was the gender of the faculty member being evaluated. We used logistic regression to measure association between faculty gender and rating score, dichotomized as low (score of 1-3) and high (score of 4-5).

**Results:** Female faculty scored lower than male faculty for every evaluation question, except “places the patient’s

interest first” for which there was no difference (p-value <0.05). When compared with males, females have 0.36 times the odds of being scored a 4 or 5 on their overall rating, on average.

**Conclusions:** Female faculty were more likely to score lower than males for nearly every evaluation question by residents, including overall performance. More studies are needed to understand the reasons for these differences and address any potential implicit biases.

## 26 Hands On Training Lateral Canthotomy and Inferior Cantholysis Using Three-Dimensional Model

Andrew Crouch, Quinn Piibe, Terry Lefcourt

**Background:** Orbital compartment syndrome (OCS) is due to an acute rise of intraocular pressure and has a high risk of permanent vision loss if not treated promptly.

**Table 1.** Frequency and percentage of female versus male faculty scoring 4 or 5 by category.

Category	Subcategory	Male		Female		Univariate OR	95%CI	p-value
		Freq	%	Freq	%			
Teaching	Habits enthusiasm and interest in teaching resident?	251	87.15	180	74.77	0.44	0.27-0.69	<0.05
	Willing to explain thought process behind workup/treatment/Disposition decisions?	281	97.57	198	92.52	0.31	0.12-0.76	<0.05
	Asks questions in a non-threatening way?	242	84.03	157	73.38	0.52	0.34-0.81	<0.05
	Uses bedside teaching to demonstrate history-taking and physical exam skills?	339	82.99	157	73.38	0.58	0.37-0.87	<0.05
	Provides references or other materials that stimulated me to read, research, and review pertinent topics?	252	87.5	149	69.63	0.33	0.21-0.52	<0.05
Availability	The faculty makes him or herself openly available for discussion, questions and cross-business about various aspects of Emergency Medicine?	258	89.58	187	78.04	0.41	0.25-0.68	<0.05
	Encourages active housestaff participation?	282	90.97	170	79.44	0.38	0.23-0.65	<0.05
Patient Care	Places the patient's interests first?	285	92.01	187	87.38	0.6	0.33-1.08	0.087
	Treats each team member in a courteous and respectful manner?	239	89.93	161	75.23	0.34	0.21-0.56	<0.05
	Demonstrates a thorough understanding of emergency medicine including policies, procedures and patient care?	270	93.75	181	84.58	0.47	0.28-0.87	<0.05
Systems Based Practice	Provides useful feedback including constructive criticism to team members?	239	82.99	154	71.96	0.53	0.34-0.81	<0.05
	Balances service responsibilities and teaching functions?	353	87.5	184	76.84	0.47	0.28-0.75	<0.05
	Overall rating of attending performance.	256	88.89	159	74.3	0.36	0.22-0.58	<0.05

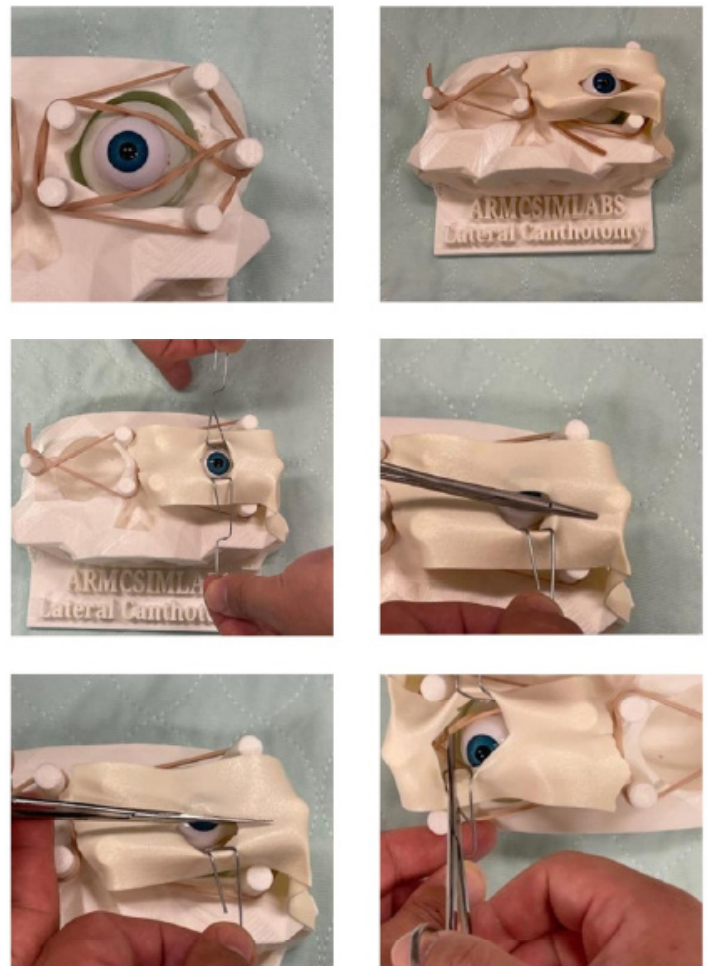


Figure 1.

Lateral Canthotomy and Inferior Cantholysis (LCIC), if performed within two hours of injury, leads to the highest chance of visual preservation. OCS has an incidence of 0.4%-0.65% in patients with orbital fractures. Due to the rare incidence, up to 90% of emergency physicians do not feel confident managing OCS. Simulated training is often the only way that providers gain procedural competency on rare procedures such as LCIC. Although some providers have access to cadaveric models, they are frequently not feasible or cost-effective. Previous low-cost trainers do not have feedback indicating successful cantholysis or have prolonged assembly time.

**Objective:** We propose a reusable, low-cost 3D printed device to train providers performing LCIC. We hypothesize that performing simulated LCIC will improve provider comfort in performing LCIC.

**Methods:** An observational prospective pre and post survey using a six point Likert scale from strongly agree to strongly disagree was conducted from March to September 2022 in the medical office building of a level II trauma center. A convenience sample of 32 medical students, residents, and physician assistant fellows viewed an instructional simulator set-up video, assembled the model themselves, and performed the simulated LCIC in addition to the surveys.

**Results:** 53% strongly agreed and 40% agreed the model was easy to set up and use while none disagreed. 78% agreed or strongly agreed they were comfortable performing LCIC following simulation compared to 43% prior to the simulation. 88% of those who had previously performed the procedure agreed or strongly agreed it was an adequate simulation of a true LCIC.

**Conclusions:** This model enhances provider comfort and skill at a low cost with rapid set up compared to high fidelity or cadaveric simulations.

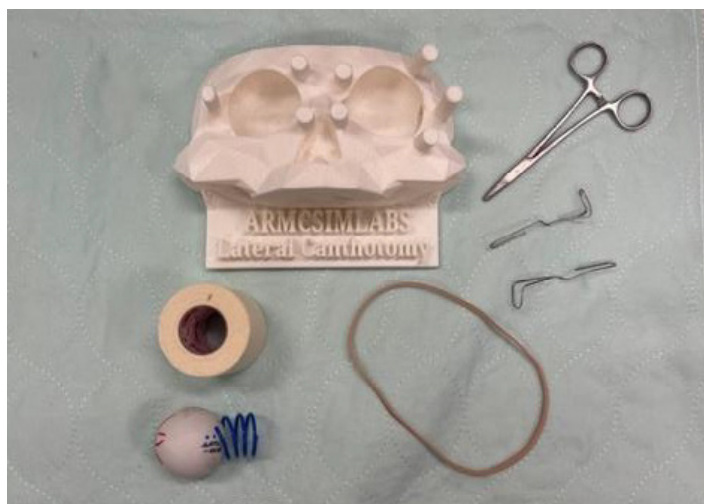


Figure.

## 27 Heart Rate and Variability as Indicators of Stress in Emergency Medicine Faculty and Residents During Simulation

Angela Cornelius, Jaime Jordan, Brad Goldman, Eric Clifford, Urska Cvek, Marjan Trutschl, Phillip CSR Kilgore, Shane Jenks

**Background:** The emergency department (ED) is a stressful clinical environment. Stress activates the sympathetic nervous system, which leads to physiologic responses such as increase in heart rate and heart rate variability. Studies have shown a relationship between heart rate variability (HRV) and cognitive performance. As a training tool, simulation attempts to mimic real world conditions including the reproduction of physiologic stress reactions in learners.

**Objectives:** We sought to assess physiologic indicators of resident stress and measure cognitive performance during a simulated clinical scenario.

**Methods:** A wearable device was used to measure heart rate, heart rate variability (HRV) and electrodermal activity (EDA) at two ACGME accredited emergency medicine (EM) residency programs during a simulation scenario. All residents at participating sites were eligible to participate. A standardized simulation protocol was utilized. Before and during the scenario, participants completed a cognitive test (Trail Making Test) and time for completion was noted. We calculated and reported descriptive statistics.

**Results:** Twenty-six residents participated including 7 PGY1s, 8 PGY2s, and 11 PGY3s. 11 (42.3%) participants were females, 15 (57.7%) male, and mean age was 30.7 years. The mean heart rate range was 59.11-117.46. Average percentage of time the heart rate was above 120, 130, and >160 were 2.475%, 0.88%, and 0.041%. HRV showed the mean standard deviation of the interbeat interval was 87 milliseconds(ms). EDA showed a trend of increasing throughout the scenario. Mean time for completion of cognitive test was 54.07 seconds before and 46.90 seconds during the simulation.

**Conclusions:** Simulation induced physiologic stress as evidenced by increased heart rates, HRV, and EDA. The cognitive test was completed in less time showing cognitive arousal during the simulation.

## 28 Impact of a Grading Committee for a Fourth-year Emergency Medicine Clerkship

Meredith Thompson, Megan Rivera, Jeffrey Katz, Caroline Srihari, Nicholas Maldonado, Michael Marchick, Rosemarie Fernandez

**Background:** As Step 1 has moved to pass/fail it has

been theorized that clerkship grades will have more bearing on residency recruitment. As such, the integrity of the grade selection process should be scrutinized. Problems abound in the literature with current processes. Group decision making in the form of a clerkship grading committee may provide several benefits.

**Objective:** We sought to examine the impact of a grading committee for our EM clerkship during the 21-22 academic year.

**Methods:** We conducted a retrospective observational study to describe grading committee decisions for the University of Florida fourth-year EM Clerkship from 8/2021 – 4/2022. Committee meeting procedures were highly structured based on best practices for group decision making. Most meetings were audio recorded. Outcomes included discussion time per student, times the committee grade differed from historical grade cutoffs with reasoning, and the frequency of a committee member voicing a first-hand account of student performance.

**Results:** Data from 9 meetings were reviewed and 86 students were evaluated. 7 were recorded. The mean discussion time per student was 2 minutes and 13 seconds (range 11 seconds to 9 minutes 22 seconds). The final committee decision differed from historical grade cutoffs for 9 students. 6 students had a grade assigned that was adjusted above what would have been earned using historical cutoffs, and for 3 students the grade assigned was adjusted below. 64% (41/64) of the time a committee member had worked with the student that was discussed. Positive grade adjustments tended to occur due to outlier evaluations and negative adjustments were made for professionalism concerns.

**Conclusion:** Grading committees are a means to conduct a holistic review of student performance and offer shared ownership of the grade decision amongst committee members. More study is needed to directly determine their potential benefit in addressing the challenges of clerkship grading.

## 29 Impact of a Simulation-Based Patient Safety Intervention on Self-Reported and Objective Measures of Situational Awareness

*Casey Morrone, Morgan Battaglia, Kamna Blahara, Nathan Olson, Nicholas Hartman, Adriana Segura Olson*

**Background:** Situational Awareness (SA) is a key element of patient safety in the ED; there are few educational programs targeting and increasing SA in EM residency training. SIM is an ideal modality for these interventions.

**Objective:** To assess the impact of a SIM-based educational intervention on patient safety-focused SA; we hypothesized that intervention participants would perform better on self-reported and objective measures of SA.

**Methods:** A cross-sectional observational study was conducted over 6 months at 2 university-affiliated 3-year EM programs. A convenience sample of residents participated in 0, 1, or 2 SA-focused SIMs incorporating common safety hazards. After reviewing a mock handoff and chart, participants spent

10 minutes in a room documenting hazards and solutions. Interruptions and tasks were introduced to replicate the ED environment. Hazards, solutions, and SA concepts were discussed during debriefing. After participation in the session(s), participants completed the self-reported Situational Awareness Rating Technique (SART), a survey assessing comfort with identifying hazards in the ED and participated in an objective Situational Awareness Global Assessment Tool (SAGAT) SIM. A 2-sample t-test assessed the difference in post-intervention SART and SAGAT scores. A one-way ANOVA assessed the difference in post-intervention attitudes.

**Results:** 34, 44, and 14 residents participated in 0, 1, and 2 intervention SIMs, respectively. Residents who participated in at least 1 intervention did not have higher self-reported SA (SART) ( $p=0.61$ ), objective SA (SAGAT) ( $p=1$ ) than residents who participated in none. Residents who participated in 2 intervention SIMs had higher levels of comfort with identifying hazards than those who participated in none ( $p=0.03$ ).

**Conclusions:** A SIM-based patient safety educational intervention targeting SA did not impact self-reported or objective SA in EM residents, but did improve comfort in identifying hazards.

## 30 Impact of Specific Resident-Driven Virtual Recruitment Sessions on Residency Applications and Match Preferences

*Ridhima Ghei, Emily Cen, Joseph Liu, Michael Danta, Jeanette Kurbedin*

**Background:** An exploratory study at Maimonides Medical Center's (MMC) EM residency program in 2021 found that the virtual webinar series positively influenced respondents' ranking of the program. This model was continued into the 2022 recruitment cycle with modifications. We hosted 10 virtual events including focused panels (visiting clerkship; program director, faculty, & resident panel; diversity & inclusion committee panel), resident-run interview socials, and an open house. This study differed from the previous one as it surveyed all interviewees (as opposed to only the ones who matched at MMC's EM program) and specific virtual sessions were evaluated.

**Objective:** Does attending specific virtual sessions positively influence applicants' decision to apply to and rank a residency program? We predict it does.

**Methods:** This is a retrospective, single-site study of applicants to MMC's EM residency program. An anonymous survey asked applicants how each virtual session affected their application to or ranking of the program. Responses were recorded on a 5-point Likert scale and descriptive statistics were applied to assess application and rank preferences. Further data analysis using non-parametric Mann-Whitney U tests compared applicants who were going to apply regardless

with applicants who were undecided prior to attending a focused panel.

**Results:** 69 of 264 applicants participated (26%). Applicants were more likely to apply to MMC’s EM program after attending one of the focused panels. There was no statistically significant difference between applicants who were going to apply to MMC regardless compared to undecided applicants. Applicants were more likely to rank the program higher after attending interview socials and the open house.

**Conclusions:** Applicants were more likely to apply to and rank MMC’s EM program higher after attending virtual panels, socials, and open house. We conclude that each virtual session we held was a valuable recruitment tool.

### 31 Implementation of Text-message Reminders (Nudges) to Increase Emergency Medicine Resident Feedback

Wendy Sun, Katja Goldflam, Ryan Coughlin, Arjun Venkatesh, Rohit Sangal, David Della-Giustina, Ryan Koski-Vacirca, Robert Teresi, Lucy He, Alina Tsyrlunik

**Background:** Feedback to resident physicians is instrumental to their development into proficient physicians. However, inadequate or insufficient feedback is common in Emergency Medicine (EM). Barriers include asynchronous shift schedules, patient care time pressures, and simply remembering to pause for feedback. Thus, EM residents and programs are frequently seeking tools to improve the quantity and quality of feedback.

**Objectives:** The study objective was to evaluate the effectiveness of text-message reminders to increase feedback for EM residents.

**Methods:** A non-randomized historically controlled experimental study was conducted at the quaternary care medical center of a four-year residency. We developed an intervention using Python to automatically send text-message reminders with a link to an existing web-based feedback form to attendings and residents 15 minutes before the end of their shifts. Residents in phase one (Mar-Jun 2021) and attendings in phase two (Sept-Oct 2021 and Jan-Feb 2022) received texts. The intervention was paused from Nov-Dec 2021 as an update of the scheduling portal necessitated an update of the program’s code. Means of the number of feedback forms per day were calculated for the historical controls and intervention groups. Welch’s t-test was performed to assess statistical significance.

**Results:** 62 residents and 59 attendings received a combined total of 1083 and 757 texts respectively. During phase one, the number of feedback forms increased from 155 to 282 (81.9% increase, p=0.0002, 95%CI 0.74 to 2.36) and phase two, 265 to 286 (7.9% increase, p=0.62, 95%CI -0.76 to 1.27).

**Conclusion:** Text-message reminders are a simple and effective way to increase resident feedback. The effect of reminders was substantially greater when directed at EM residents than attendings. Future studies should explore barriers to attending initiated feedback as well as frequency and timing of the reminders to increase yield and quality of feedback.

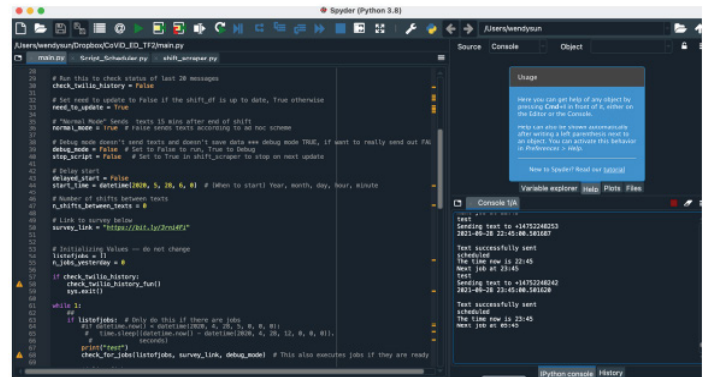


Figure 1. Screenshot of Python Code.

Table 1. Quantity of resident feedback forms by training year during intervention phases compared to their historical controls.

	Phase One Historical Control	Phase One: Resident Intervention (% increase from historical control)	Phase Two Historical Control	Phase Two: Attending Intervention (% increase from historical control)
PGY-1	57	110 (93.0%)	94	99 (5.3%)
PGY-2	38	74 (94.7%)	70	59 (-15.7%)
PGY-3	36	66 (83.3%)	52	73 (40.4%)
PGY-4	24	32 (33.3%)	49	55 (12.2%)
Total	155	282 (81.9%)	265	286 (7.9%)

### 32 Implications of a Drastic Increase in ACGME Ultrasound Scan Requirements: One Program’s Perspective

James Chan, David Toro, Derek Oswald, Danielle Doyle, Gregory Griffin, Alex Bobrov, Samuel Cory, Crystal Nock, Ahmad Mohammadieh, Derek Davis

**Background:** ACGME’s core competency for emergency medicine ultrasound (EUS) mandates a minimum of 150 scans for graduation. There have been recent calls to increase this number. Most residencies rely on resident self-reporting of clinical scans both during and outside EUS blocks. However, programs that perform quality assurance (QA) to track resident scans likely capture a more accurate representation of true ability.

**Objectives:** This study aims to elucidate the current characteristics and time trends of one program’s QA data. The hypothesis is that a sizeable portion of trainees will not meet

an expanded threshold number.

**Methods:** We performed a retrospective review of the ultrasound portfolio of a 3-year emergency medicine (EM) program between July 2020 and Oct 2022, encompassing 24 resident-years of data. Averages and chi-square analysis of all scan categories are compared across classes.

**Results:** Out of 3,207 total studies performed, 90.4 % underwent QA, versus 9.6 % without. Across the three years, the top 6 most performed studies are: FAST (24.4 ± 4.9 %), cardiac (23.2 ± 1.9 %), renal (10.3 ± 0.9 %), thoracic (9.8 ± 1.4 %), soft tissue (6.6 ± 1.6 %) and biliary (5.7 ± 0.8 %). Using FAST as the standard modality, residents across the three classes attain similar proportions of scans in renal (p = 0.29) and biliary (p = 0.28) scans, but diverged for cardiac, thoracic and soft tissue studies (p < 0.001 for all). Data extrapolation to end-of-training showed that 77.7 %, 44.4 % and 11.1 % of our residents will fail to meet a theoretical threshold increase to 300, 250 and 200 scans, respectively.

**Conclusions:** Based on data from a single EM residency, if ACGME were to increase the ultrasound scan minimum from 150 to 300, we anticipate a significant percentage of our residents will not meet graduation requirements. Assuming EUS remains four weeks long, equally valuable education in research, image interpretation, QA and billing may have to be sacrificed.

### 33 Blood, Sweat, and Beers – Improving the Wellness of Emergency Medicine Physicians via Exercise Competition

Megan Anderson, Sam Corbo, Loice Swisher

**Background:** Emergency Medicine has a high rate of physician burnout. Studies have shown that exercise and social activities have positive impacts on physician wellness. Many residency programs have implemented initiatives aimed to positively impact the emotional, physical, intellectual, and social aspects of wellness.

**Objectives:** The purpose was to improve EM physician wellness by implementing a voluntary team exercise competition into an EM residency program wellness curriculum over 3 months.

**Methods:** This study utilized a voluntary survey to compare wellness pre- and post-competition. The population studied included 33 EM residents and 28 EM attending participants. Residents were grouped based on pre-established residency “Houses” and attendings assigned to one of these Houses at random. Participants earned 1 point for every 30 minutes of exercise with the winning team earning a residency funded “House Party” at the end of the 3-month period. Data from the survey was analyzed using a 2 Sample T-Test to assess for significance. The mean values of the pre/post data were compared to determine if an aim of 25% improvement in wellness was met.

**Results:** Resident survey results showed that 100% exercised more during this competition and 100% would participate again. There was improvement in wellbeing (p = 0.026), energy (p = 0.014), and sleep (p = 0.025); these areas all also met the aim of improving by more than 25% after this 3-month competition (25%, 36%, 33% respectively). 80% of residents felt that their increased exercise positively impacted their wellness at work.

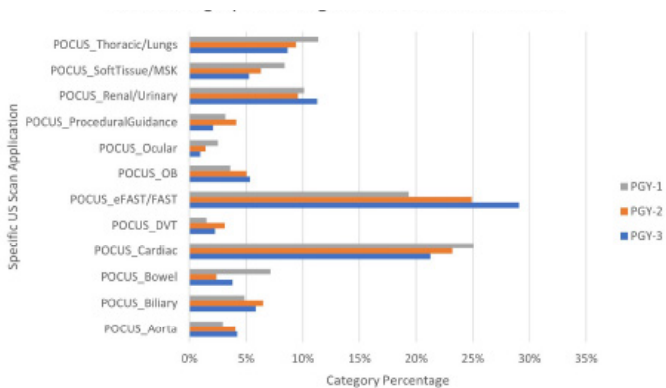


Figure 1. POCUS category percentage breakdown across classes.

Table 1.

Cumulative	Total			Percent		
	PGY-3	PGY-2	PGY-1	PGY-3	PGY-2	PGY-1
POCUS_Aorta	58	55	14	4.22%	4.07%	2.95%
POCUS_Biliary	80	88	23	5.83%	6.52%	4.84%
POCUS_Bowel	52	32	34	3.79%	2.37%	7.16%
POCUS_Cardiac	292	313	119	21.27%	23.19%	25.05%
POCUS_DVT	31	42	7	2.26%	3.11%	1.47%
POCUS_eFAST/FAST	399	336	92	29.06%	24.89%	19.37%
POCUS_OB	73	68	17	5.32%	5.04%	3.58%
POCUS_Ocular	13	19	12	0.95%	1.41%	2.53%
POCUS_ProceduralGuidance	29	56	15	2.11%	4.15%	3.16%
POCUS_Renal/Urinary	155	129	48	11.29%	9.56%	10.11%
POCUS_SoftTissue/MSK	72	85	40	5.24%	6.30%	8.42%
POCUS_Thoracic/Lungs	119	127	54	8.67%	9.41%	11.37%
<b>Subtotal</b>	<b>1373</b>	<b>1350</b>	<b>475</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

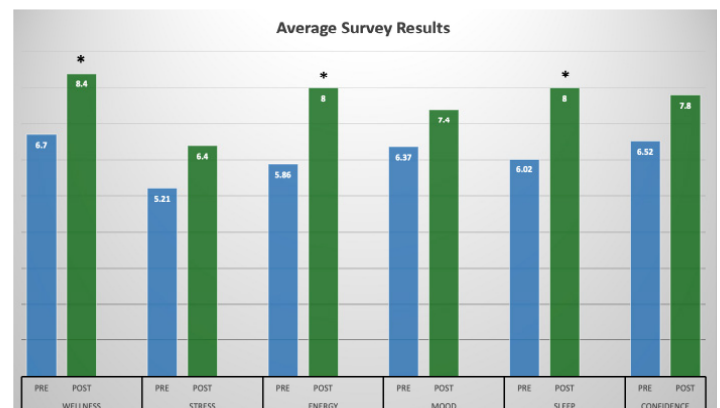


Figure.

**Conclusions:** EM residents had improvement in wellness, energy, and sleep after implementing a team exercise competition. A majority of participants felt this competition encouraged an increase in their exercise and stated they would participate again. Limitations include confounding variables impacting wellness such as changing weather or rotations, low survey response rate, and survey type.

	P-Value	Percentage Change
Wellbeing	0.026*	+ 25%*
Stress	0.231	+ 23%
Energy	0.014*	+ 36%*
Mood	0.251	+ 16%
Sleep	0.025*	+ 33%*
Confidence	0.143	+ 20%

Figure 2.

## 34 Intern Orientation Rotations in US Emergency Medicine Residency Programs: Statistics and Trends

Brian Jennett, Maxwell Harlan, Conner M. Willson, Hayden Smith, Johnathan Hurdelbrink, Nick Kluesner, Nash Whitaker, Patrick Meloy

**Background:** A dedicated orientation rotation in emergency medicine residency programs (EMRPs) appears to be common and unique to the specialty. The Accreditation Council for Graduate Medical Education (ACGME) does not require a dedicated rotation, though they are commonplace and have similar structures - consisting of dedicated time to complete hospital required competency courses, procedural competency and clinical educational sessions with faculty, and an initial assigned rotation in the resident’s specialty of choice.

**Objective:** To quantify the prevalence of a dedicated orientation rotation in US EMRPs and evaluate associated program characteristics.

**Methods:** A list of all ACGME accredited EMRPs in the 2022-2023 match was obtained and reviewed by two independent reviewers. These individuals documented per program website: orientation rotation status, program location, years with ACGME accreditation, number of residents per year, length of program, and academic affiliation. A third reviewer was utilized when reviewers did not agree or data was limited.

**Results:** Of the 276 reviewed EMRPs, 58% had an orientation rotation. Program characteristics by orientation rotation status are presented in Table. Analyses revealed

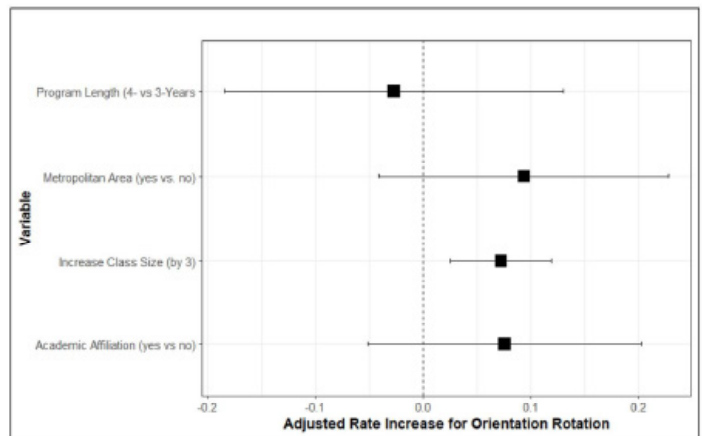
programs with more residents per class had a higher rate of having an orientation rotation (Figure). Model failed to show an association between an orientation rotation and program length, location in a metropolitan area (i.e., > 1 million), and academic affiliation.

**Conclusions:** In this study we examine several program characteristics and their association with the presence of a dedicated orientation rotation for new residents. It was found more than half of programs nationally had the rotation. Programs that had more residents per class were more likely to have a dedicated orientation rotation. There was no association between a program having the rotation and length of the program, academic affiliation, or population base.

**Table.** Program characteristics for accredited emergency medicine residency program located in the United States stratified by dedicated orientation rotation, n=276.

Program Characteristic	Orientation Rotation <sup>3</sup>	
	Required (n=158)	Not Required (n=115)
Length of Program <sup>1</sup>		
3 years	127 (80%)	94(82%)
4 years	31 (20%)	21 (18%)
Median number of residents per class <sup>2</sup>	12 (IQR: 8, 14)	9 (IQR: 7, 12)
Years Accredited with ACGME		
<=5	37 (23%)	50 (44%)
6 – 10	17 (11%)	15 (13%)
11-15	13 (8%)	7 (6%)
> 15	91 (58%)	43 (37%)
Academic Affiliation <sup>1</sup>	91(67%)	62(54%)
Metropolitan area		
> 1 million people	121 (85%)	74 (57%)
> 2 million people	101 (64%)	61 (53%)

Superscripts represent number of programs with this data element not documented on webpage. IQR: interquartile range.



**Figure.** Adjusted rate increase for having dedicated orientation rotation (58%) in accredited emergency medicine residency programs in the United States. Modeling included 266 of the 276 eligible programs-given completeness of available information on respective webpages. The number of residents estimate was based on increasing class size by an increment of three-model excluded variable of years accredited due to it only serving as a proxy to age of program.

### 35 Kudos – A Brief Implementable Intervention to Promote Wellness Among Emergency Medicine Residents

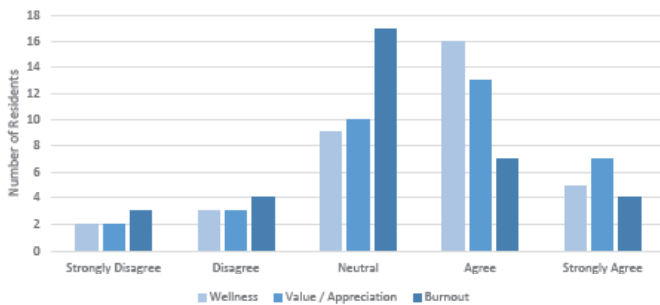
Sarah Kilborn, Ryan Bodkin, Andrew Grock, Tara Overbeeke

**Background:** 60% of emergency medicine (EM) physicians are burned out according to the 2022 Medscape National Physician Burnout & Suicide Report. Optimizing meaning in work increases physician’s engagement while the opposite can lead to physician burnout.

**Objectives:** We seek to evaluate the effect a weekly, 5-minute, resident-led, “kudos” session has on emergency medicine residents’ wellness and burnout.

**Methods:** This study included all 38 EM residents at Vanderbilt University Medical Center in Nashville, TN. We implemented a senior-resident led “kudos” session at our weekly conference in which residents openly praised other residents. After 3 months, residents were surveyed to assess the effect the intervention had on wellness and burnout. Additionally, residents’ feelings of being valued and appreciated at work was assessed.

**Results:** 35 out of 38 (92.1%) of residents responded to the survey. 77% of survey respondents wanted to see the kudos sessions continued. Overall, there was a trend towards residents



**Figure 1.** The extent to which kudos contribute to wellness, value/appreciation, and reduce burnout.

reporting kudos sessions positively contributed to wellness and helped them feel more valued; however, most residents remained neutral on whether the intervention reduced levels of burnout. Residents reported to enjoy the great things their colleagues are doing; however, residents disliked the inequities between how many kudos certain residents received.

**Conclusion:** Implementing a brief, weekly, resident-led, wellness intervention was well received by residents. The kudos sessions promoted wellness and contributed towards people feeling valued at work but remained neutral on reducing burnout.

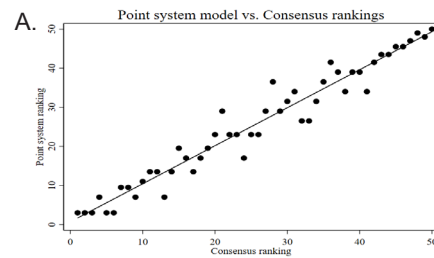
### 36 Measuring and predicting faculty consensus rankings of Standardized Letters of Evaluation

Morgan Sehdev, Benjamin Schnapp, Nicole Dubosh, Al’ai Alvarez, Alexis Pelletier-Bui, Sharon Bord, Caitlin Schrepel, Yoon Soo Park, Eric Shappell

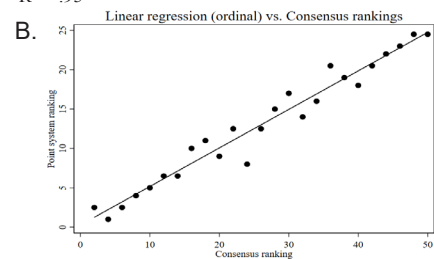
**Background:** Standardized letters of evaluation (SLOE) are cited as one of the most valuable application components for determining interview offers and location on the program’s rank list. However, we do not know if faculty reviewing SLOEs share consensus regarding their competitiveness.

**Objectives:** To measure the level of agreement regarding applicant competitiveness as determined by SLOEs and to quantify the ability of two models to accurately predict faculty consensus rankings.

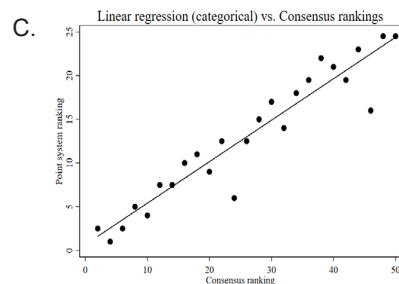
**Methods:** Using data from the 2021-2022 match cycle CORD EM SLOE Database as a blueprint, we created 50 fictional SLOEs representative of the national data distribution. Seven faculty from varied geographic regions



R<sup>2</sup> = .95



R<sup>2</sup> = .94



R<sup>2</sup> = .96

**Figure 1.** Predicted versus consensus SLOE rankings. **A.** Point system model; **B.** Linear regression model (ordinal); **C.** Linear regression model (categorical).



ranked these SLOEs in order of competitiveness based on the SLOE information alone. Consensus was evaluated using cutoffs established a priori, and two prediction models, a point-based system and linear regression model, were tested to determine their ability to predict faculty consensus rankings.

**Results:** We found strong faculty consensus regarding the competitiveness of SLOEs. Within narrow windows of agreement, the majority of faculty demonstrated similar ranking patterns with 83% and 93% agreement for “close” and “loose” agreement, respectively. Predictive models yielded strong correlation with the consensus ranking (point-based system  $r=0.97$ , linear regression  $r=0.97$ ).

**Conclusions:** Faculty displayed strong consensus regarding competitiveness of SLOEs, adding validity evidence to the use of SLOEs for selection and advising. Additionally, two models predicted consensus competitiveness rankings with a high degree of accuracy. These models could potentially be used to inform applicant competitiveness at scale in an effort to curb over-application and aid future mentorship practices.

**Table 1.** Agreement definitions and outcomes.

	Consensus: Faculty Ratings	Prediction: Point System	Prediction: Regression (Ordinal)	Prediction: Regression (Categorical)
n	350 rankings (7 raters x 50 SLOEs)	50 rankings	25 training rankings / 25 validation rankings	25 training rankings / 25 validation rankings
Exact Definition	Percent of rankings where faculty assign same rank as consensus rank	Percent of rankings with same assigned rank as consensus rank	Percent of rankings in validation set with same assigned rank as consensus rank	Percent of rankings in validation set with same assigned rank as consensus rank
Exact Agreement	21%	12%	20%	0%
Tight Definition	Percent of rankings where faculty rank is within 2 ( $\pm 4\%$ ) of consensus rank	Percent of rankings with assigned rank within 2 ( $\pm 4\%$ ) of consensus rank	Percent of rankings with assigned rank within 1 ( $\pm 4\%$ ) of consensus rank	Percent of rankings with assigned rank within 1 ( $\pm 4\%$ ) of consensus rank
Tight Agreement	67%	62%	64%	52%
Close Definition	Percent of rankings where faculty rank is within 4 ( $\pm 8\%$ ) of consensus rank	Percent of rankings with assigned rank within 4 ( $\pm 8\%$ ) of consensus rank	Percent of rankings with assigned rank within 2 ( $\pm 8\%$ ) of consensus rank	Percent of rankings with assigned rank within 2 ( $\pm 8\%$ ) of consensus rank
Close Agreement	83%	82%	92%	88%
Loose Definition	Percent of rankings where faculty rank is within 6 ( $\pm 12\%$ ) of consensus rank	Percent of rankings with assigned rank within 6 ( $\pm 12\%$ ) of consensus rank	Percent of rankings with assigned rank within 3 ( $\pm 12\%$ ) of consensus rank	Percent of rankings with assigned rank within 3 ( $\pm 12\%$ ) of consensus rank
Loose Agreement	93%	90%	96%	92%
Correlation with consensus ratings	N/A	0.97	0.97	0.98

## 37 Medical Education & The Pursuit of Fellowship

*Shivani Mody, Julie Cueva, Nicholas Jobeun*

**Background:** There has been a rise in the prevalence of Medical Education Fellowship (MEF) programs in the United

States (US) since the early-2000s. The variance in program curricula and vast range of career opportunities after completion makes each participant’s path unique to their experience. Thus, determining if there is a commonality amongst participants’ motives is complex and unknown. With the creation of new MEFs each cycle, the question remains who is drawn to this subspecialty training. The decision to complete a one- or two-year MEF is likely multifactorial. While there is literature regarding the increasing trend of fellowship and motivation for fellowship in other specialties, there is a lack of data regarding the participants in the Emergency Medicine (EM) MEFs and why they are choosing to do so. This study aims to assess individuals’ motivations for completing a MEF. By understanding the factors that motivate EM physicians to complete a MEF we hope to improve preparedness for our own residents interested in the specialty as well as improve our recruitment strategies.

**Objectives:** To identify the motivating factors of past, current and incoming Medical Education Fellows to complete a MEF.

**Methods:** This is a cross-sectional study utilizing an anonymous REDcap based survey of EM trained physicians who have completed or are currently participating in a MEF from multiple institutions across the US. Data Analyses include a thematic analysis of factors affecting the decision to complete a MEF.

**Results:** 18 Medical Education Fellows (55%) completed the electronic survey. See Table.

**Conclusions:** When identifying motivating factors, the factors that were most extremely impactful in making this decision were career trajectory and job availability. The least motivating factors being demographics, length of training, and finances.

## 38 Medical Education Fellowship: Who’s Doing It and Why?

*Julie Cueva, Nicholas Jobeun, Shivani Mody*

**Background:** With the projected surplus of emergency medicine (EM) trained physicians by 2030, there has been a shift in the mindsets of trainees with an increase in the number of fellowship-bound emergency medicine residents. The 2020 National Study of the Emergency Physician Workforce released demographic information of EM physicians in the United States. This data shows that 28% of the workforce were women, 9% are URMs3 and data from 2019 AAMC report show that only 11.6% are Doctors of Osteopathic Medicine. There is no data looking at the demographics of those choosing to complete fellowships including a medical education fellowship (MEF). We look to evaluate if these numbers are reflected in those who choose to complete MEFs.

**Objectives:** To compare the demographic breakdown

	Finance	Concern for promotion	Career trajectory	Job availability	Geography	Gender	Sexual orientation	Race	Burnout	Family responsibilities*	Protected time	Advanced degree	Length of residency training	Length of fellowship training	Desire for additional expertise	Intellectual appeal of their field	Clinical opportunities in that field	Mentor in the field*	Understood as a prerequisite for certain jobs
Not at all	50.00%	11.11%	0.00%	0.00%	27.78%	94.44%	100.00%	100.00%	38.89%	16.67%	27.78%	55.56%	55.56%	0.00%	0.00%	16.67%	11.11%	11.11%	
Slightly	27.78%	11.11%	5.56%	27.78%	22.22%	5.56%	0.00%	0.00%	5.56%	16.67%	27.78%	22.22%	22.22%	11.11%	16.67%	22.22%	33.33%	22.22%	
Moderately	16.67%	33.33%	27.78%	16.67%	22.22%	0.00%	0.00%	0.00%	27.78%	11.11%	16.67%	22.22%	11.11%	5.56%	38.89%	38.89%	22.22%	16.67%	22.22%
Very	5.56%	33.33%	33.33%	22.22%	11.11%	0.00%	0.00%	0.00%	16.67%	16.67%	38.89%	16.67%	11.11%	16.67%	22.22%	27.78%	38.89%	16.67%	27.78%
Extremely	0.00%	11.11%	33.33%	33.33%	16.67%	0.00%	0.00%	0.00%	11.11%	11.11%	11.11%	5.56%	0.00%	0.00%	27.78%	16.67%	0.00%	16.67%	16.67%

\*One survey participant did not answer this question

Figure.

of past, current and incoming MEFs against the national Emergency Medicine workforce.

**Methods:** This is a cross-sectional study utilizing an anonymous REDcap based survey of Emergency Medicine trained physicians who have completed or are currently participating in a MEF from multiple institutions across the United States. Quantitative analysis of the demographic distribution of medical education fellows was performed.

**Results:** 18 MEFs (55%) completed the electronic survey. Of the respondents, 50% identified as male and 50% identified as female. 88.9% reported being less than 35 years old during fellowship. 33.3% are Doctors of Osteopathic Medicine. 77.8% of MEFs pursued fellowship after completing a three-year residency program. Majority of respondents are completing a 2-year fellowship (66.7%) while also receiving an advanced degree (77.8%).

**Conclusions:** Our results show that a higher percentage of women and DOs choose to complete a MEF when compared to the national work force. The majority of those who choose a MEF are from three-year programs with plans to complete a 2 year fellowship. This data helps to identify those who are more inclined to apply for a MEF.

### 39 Medical Toxicology Rotations in US Emergency Medicine Residency Programs: Trends and Requirements

Brian Jennett, Conner M. Willson, Maxwell Harlan, Hayden Smith, Johnathan Hurdelbrink, Nash Whitaker, Nick Kluesner

**Background:** Within United States (US) emergency medicine residency programs (EMRPs) there is heterogeneity in the requirement of medical toxicology rotations. There are no specific Accreditation Council for Graduate Medical Education (ACGME) guidelines for programs to have a required/dedicated rotation, though toxicology has a non-nominal representation on the emergency medicine board certification examination and annual patient presentations to US Emergency Departments.

**Objective:** To quantify the prevalence of a required/dedicated toxicology rotation in US EMRPs and evaluate

associated program characteristics.

**Methods:** A list of all ACGME accredited EMRPs in the 2022-2023 match was obtained and reviewed by two independent reviewers. These individuals documented per program website: toxicology rotation requirement status, program location, years with ACGME accreditation, number of residents per year, length of program, and academic affiliation. A third reviewer was utilized when reviewers did not agree or data was limited.

**Results:** Of the 276 reviewed EMRPs, 52% had a required/dedicated toxicology rotation. Program characteristics by toxicology rotation status are presented in Table. Analyses revealed that longer programs (i.e., 4-years) and those located in a large metropolitan area (i.e., > 1 million

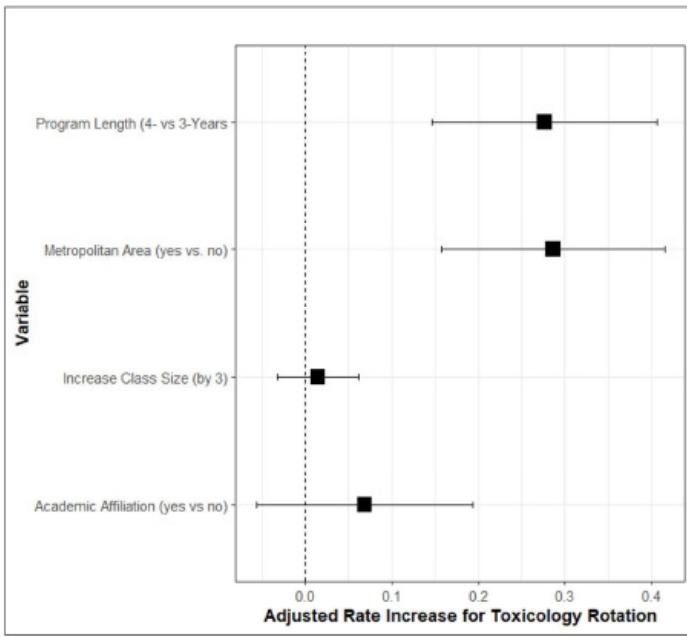
**Table.** Program characteristics for accredited emergency medicine residency programs located in the United States stratified by required/ dedicated toxicology rotation, n=276

Program Characteristic	Toxicology Rotation <sup>1</sup>	
	Required (n=143)	Not Required (n=130)
Length of Program <sup>1</sup>		
3 years	100 (70%)	121(93%)
4 years	43 (30%)	9 (7%)
Median number of residents per class <sup>2</sup>	12 (IQR: 8, 15)	10 (IQR: 8, 12)
Years Accredited with ACGME		
</=5	36 (25%)	51 (39%)
6 – 10	20 (14%)	12 (9%)
11-15	10 (7%)	10 (8%)
> 15	77 (54%)	57 (44%)
Academic Affiliation <sup>1</sup>	95(66%)	73(56%)
Metropolitan area		
> 1 million people	121 (85%)	74 (57%)
> 2 million people	99 (69%)	63 (48%)

Superscripts represent number of programs with this data element not documented on webpage. IQR: interquartile range.

people) had higher rate of having a dedicated toxicology experience (Figure). Model failed to show an association between a required/dedicated rotation and the number of residents per year and academic affiliation.

**Conclusions:** In this study it was found that approximately half of EMRPs had a required/dedicated toxicology rotation. Residents were more likely to have a toxicology experience if they were at a program that was longer in length and in a large metropolitan area. No associations with the number of residents or academic affiliation were discerned.



**Figure.** Adjusted rate increase for having dedicated toxicology rotation (52%) in accredited emergency medicine residency programs in the United States. Modeling included 266 of the 276 eligible programs-given completeness of available information on respective webpages. The number of residents estimate was based on increasing class size by an increment of three- model excluded variable of years accredited due to it only serving as a proxy to age program.

## 40 National Needs Assessment for Medical Resuscitation Leadership Education

Michael Sobin, Sazid Hasan, Nai-Wei Chen, Brett Todd, Danielle Turner-Lawrence

**Background:** Effective leadership of medical resuscitations remains one of the key tenets of emergency medicine graduate medical education. The first milestone of emergency medicine residency training states that a high achieving resident “prioritizes critical initial stabilization action and mobilizes hospital support services in the resuscitation of a critically ill or injured patient.” Yet the prevalence and methods of resuscitation leadership training amongst emergency medicine residencies is unknown.

**Objectives:** To identify the current state of medical resuscitation education in emergency medicine residencies and the need for curriculum development.

**Methods:** A needs assessment survey was adapted from a previously published and validated medical leadership training evaluation and disseminated to program directors from emergency medicine residency programs in the United States through REDCap in the fall of 2021. The survey queried the presence of a medical resuscitation leadership

curriculum, participation, delivery, and focus.

**Results:** 80 (30.7%) emergency medicine programs completed the survey. 63 (78.8%) were three-year residency programs. 42 (52.5%) identified as an academic program, 30 (37.5%) as a community program, and 8 (10.0%) as a county program. 19 (23.8%) programs stated they offered a formal medical resuscitation leadership curriculum to their residents, with notable intuitional variability in curriculum focus (Table 1) and delivery methods (Table 2). 54 (67.5%)

**Table 1.** Program leadership curriculum focuses.

Curriculum Focus	Frequency
Clinical Resuscitation Leadership skills	18/19 (94.7%)
Trauma Resuscitation Leadership skills	17/19 (89.5%)
Administrative Leadership skills	1/19 (5.3%)
Communication & Interpersonal skills	17/19 (89.5%)
Cultural sensitivity	3/19 (15.8%)
Teaching/education	5/19 (26.3%)
Health policy and managed care	0/19 (0%)
Leadership theory	6/19 (31.6%)
Team building	13/19 (68.4%)
Management skills	7/19 (36.8%)
Conflict resolution	8/19 (42.1%)
Other	0/19 (0%)

**Table 2.** Leadership education delivery method.

Education Delivery Method	Frequency
Lectures	10/19 (52.6%)
Small Group Discussions	12/19 (63.2%)
Seminars/Workshops	1/19 (5.3%)
Simulation	16/19 (84.2%)
Case studies	5/19 (26.3%)
Self-directed learning	2/19 (10.5%)
On-shift teaching	10/19 (52.6%)
Mentorship	7/19 (36.8%)
Journal Club	1/19 (5.3%)
Other	0/19 (0%)

programs had additional leadership training opportunities through hospital, university, community, or research sponsored programs.

**Conclusions:** Though resuscitation leadership is regarded as one of core competencies of emergency medicine residency training, a minority of U.S. residency programs provide a specific curriculum. The impact on resident leadership performance, optimal delivery methods, and content focus of resuscitation leadership curricula needs to be further characterized.

## 41 Non-NCAT-EM Evaluations Positively Skew eSLOE Entrustability Scores

Erin Karl, Sharon Bord, Doug Franzen, Cullen Hegarty, Katherine Hiller

**Background:** The National Clinical Assessment Tool in EM (NCAT-EM) was created to standardize the assessment of EM-bound medical students. The eSLOE was updated for the 2022-23 residency application season, of which ‘Part A’ was created using the NCAT-EM domains and entrustability anchors. Objectives: We hypothesized eSLOEs completed with non-NCAT-EM evaluations would have a positive skew of entrustability, as compared to those using the NCAT-EM.

**Methods:** This observational, retrospective study used cluster sampling. Residency program leaders were required to answer a five-question survey when filling out eSLOEs for the 2022-23 residency application season. For blinding, a randomly assigned user lookup key linked the survey data to eSLOE data for each program. eSLOEs from programs who used the NCAT-EM without modification (N=748) were separated from those who used an institution-specific or locally made shift card (N=3,179). Programs who used a modified NCAT-EM or a combination of more than one assessment tool were excluded. Entrustability for domains in ‘Part A’ of the eSLOE was compared between the two groups. Confidence intervals and t-tests were calculated to compare entrustability between the groups.

**Results:** Figure 1 compares entrustability anchors for the domains between the two groups. Non-NCAT-EM eSLOEs had a statistically significant positive skew for the percentage of evaluations placing students as fully entrustable, as compared to those completed using the NCAT-EM, for the history/physical exam (CI 71.5-74.6% vs 65.1-71.8%, p=0.011), plan (CI 44.6-48.0% vs 37.9-44.9%, p=0.016), and emergent situations (CI 58.8-62.2% vs 47.9-55.1%, p=0.000) domains. There was no significant difference for the differential diagnosis domain.

**Conclusions:** When a non-NCAT-EM evaluation tool was used, entrustability within the domains of history/physical

exam, plan, and emergent situations showed a positive skew, as compared to eSLOEs completed using the NCAT-EM.

## 42 Nursing Feedback for Emergency Medicine Residents: A Mixed Methods Survey Analysis of National Practices

Alex Fleming-Nouri, Alina Tsyrlunik, Ryan Coughlin, Jessica Bod, Ryan Barnicle, Katja Goldflam, David Della-Giustina

**Background:** “Feedback, formative evaluation, and summative evaluation” are critical facilitators of resident development. Accurately evaluating clinical progress against established benchmarks remains a challenge. Nurses interact with trainees of all levels in the ED, but there is a dearth of research describing the logistics and utility of nursing feedback for assessing EM residents.

**Objectives:** We aimed to evaluate current national patterns in the collection and use of nursing feedback for assessing EM residents.

**Methods:** We used a novel descriptive mixed methods survey tool to investigate practices in nursing feedback among EM residency programs in the US.

**Results:** Among respondents, most solicited nursing feedback at varying frequencies, generally using electronic survey-based methods. Feedback response rate was generally <50%. Most used novel feedback tools of their own devising. Few utilized ACGME milestones wording. About half conveyed assessments verbally to residents, and less than half distributed unaltered written feedback. The vast majority felt nursing feedback was useful for assessing professionalism and interpersonal skills, but in most cases negative feedback did not result in negative ramifications for residents. Barriers included logistics and concerns around quality. Retributional and gender-disparate feedback was reported.

**Conclusions:** Nursing feedback was advantageous for assessing interpersonal and communication skills, but not

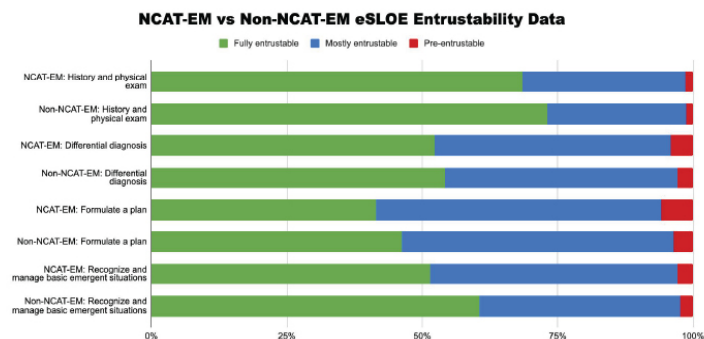


Figure 1. MCAT-EM versus non-MCAT-EM eSLOE entrustability data.

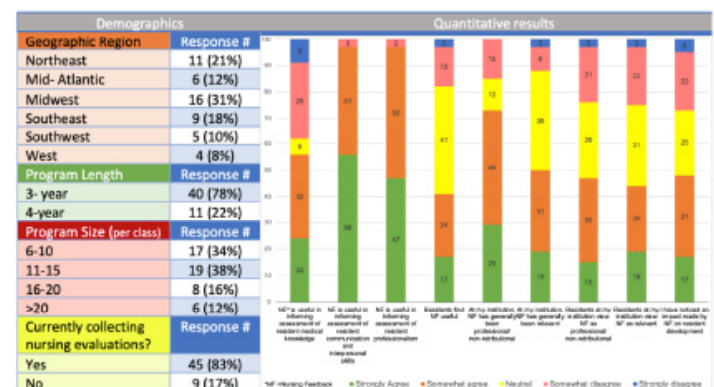


Figure.

medical knowledge. Variable response rates and feedback fatigue are limitations. The discordance between perceived utility and lack of impact of nursing evaluations on resident standing may reflect quality or significance of feedback. Nursing staff may benefit from education on feedback delivery and avoiding retribitional and gender-disparate feedback. Collaborative efforts are needed to create, validate, and standardize tools for collecting and utilizing nursing feedback.

### 43 Podcasting in Emergency Medicine Residents' Education: Information Retention Comparison vs. Lecture

Michael Overbeck, Jeremy Voros, Paul Pelletier, Rachel Johnson, Jeffrey Druck

**Background:** Podcasts as a source of information in Emergency Medicine resident education is gaining in popularity. However, the degree of knowledge retention compared to traditional learning modalities (i.e., Lecture) is unknown.

**Methods:** A convenience sample of residents at a 4-year academic emergency medicine residency were provided an in-person (synchronous) 30-minute lecture (Radiation Safety in the Emergency Department) and access to an (asynchronous) 30-minute podcast (Neonatal Endocrine Emergencies) to listen to at their convenience. Residents were asked to complete a pre-, post-, and after 10-14 days, retention test for both learning modalities. This longitudinal data set was modeled as a linear mixed model with a continuous outcome of test score. Time, type of learning technique, and interaction between time and type of learning were adjusted for by including them in the model as fixed effects. The correlation of both time and type of learning technique were accounted for by including them as nested random effects with AR(1) and unstructured covariance structures, respectively.

**Results:** Thirty-seven residents participated in the study, with 22 residents completing all pre-, post-, and retention tests for each learning modality. Podcast scores were significantly

higher at the post-test by 1.97 points ( $p < 0.0001$ ) and higher at the retention test by 1.47 points ( $p = 0.0107$ ). However, the decrease in scores from post-test to retention tests was not significantly different between the two modalities ( $p = 0.443$ ).

**Conclusion:** Retention of content by emergency medicine residents is similar when delivered by lecture (synchronous) or podcast (asynchronous) modalities.

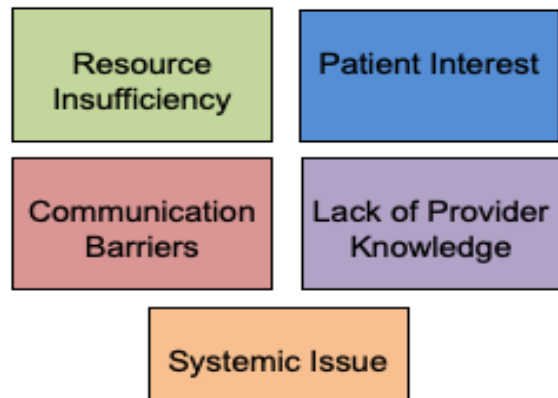
### 44 Provider Perspectives on Trauma Recovery & Violence Prevention Resource Allocation for Assault Injured Adolescents in an Urban Level 1 Trauma Center

Symphony Fletcher, Princy George, Alisa McQueen

**Background:** Nationally, firearm homicide is the leading cause of mortality for adolescents 1 to 19 years of age. Though rates of violence have decreased over the years, violent injury among adolescents remains an important public health issue, particularly in areas impacted by disproportionate rates of poverty and violence (Purtle et al., 2016).

**Objectives:** This study sought to assess provider reported knowledge and usage of trauma recovery and violence

#### Provider reported barriers to TRVP resources



#### Provider reported improvements needed for TRVP resource allocation

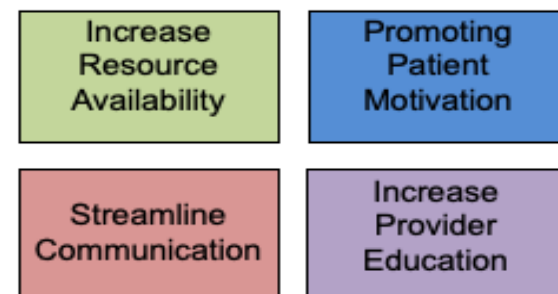
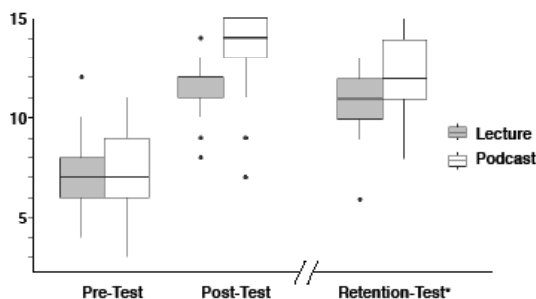


Figure.



**Figure.** Participants' scores for the pre-test, and retention tests. Gray boxes: Lecture, white boxes: Podcast scores. \*The slope of the drop in scores from post-test to retention tests was not significantly different between the two modalities ( $p=0.4430$ ).

prevention (TRVP) interventions at an urban Level 1 Pediatric Trauma Center and Emergency Department.

**Methods:** We surveyed 70 health providers working in a Level 1 pediatric emergency department over a 6-month period. All participants completed a 12-item survey to assess knowledge, usage, importance, and efficacy of TRVP resources (N=70). A psychometric 5-point scale was used to assess knowledge, usage, importance, and efficacy while free responses captured data on “existing resources, resource barriers, and TRVP areas of improvement”.

**Results:** The 70 participants consisted of 53 physicians, 12 nurses, 2 ED technicians, and 3 other staff. Of physicians, 74% were residents with 47% in EM residency and 47% in pediatrics. Participant awareness of existing TRVP resources was low, 80% scored a  $\leq 3$  (of 5). Overall, 67% of participants indicated a moderate to frequent use of TRVP resources. However, nearly 41% of participants reported feeling slightly to not at all confident in activating existing resources. Most participants (90%) agreed that providers should incorporate TRVP into standard youth medical care. Over 88% of participants identified resources as minimally effective at preventing reinjury.

**Conclusion:** Providers agree that TRVP use should be standard care of for assault injured youth. However, they have limited awareness of resources, low confidence in utilizing resources, and low efficacy rating for existing resources. Further work is needed to train providers on TRVP resources to improve provider utilization.

## 45 Rapid Cycle Deliberate Practice in Resuscitation: Time to Completion of Critical Actions

Jaron Raper, Katherine Griesmer, Andrew Bloom, Anderson Marshall, Ryan Kraemer, Zachary Pacheco, Stephanie Berger, Andres Viles, Charles Khoury

**Background:** Simulation training is often used in graduate and undergraduate medical education programs to teach procedural and clinical skills. Rapid cycle deliberate practice (RCDP) is a simulation strategy that utilizes iterative practice and immediate feedback to achieve skill mastery. The impact of RCDP training on adult resuscitation education has yet to be studied.

**Objective:** Compare the time to completion of advanced cardiovascular life support (ACLS) actions between trainees who have completed immersive sim vs. RCDP sim for ACLS.

**Methods:** This study was a prospective, randomized, controlled, curriculum evaluation in which 55 ACLS certified Internal Medicine and Emergency Medicine interns were randomized to either RCDP sim or immersive sim. Time to initiating critical ACLS actions was compared between groups. Metrics included time to first pulse check, first chest compression, backboard placement, first rhythm analysis,

first defibrillation, first epinephrine, pause duration, and amiodarone administration. Performance was evaluated and timestamps recorded during an additional immersive sim.

**Results:** Residents were randomized to instruction by RCDP sim (28) and immersive sim (27). Immersive vs. RCDP groups demonstrated seconds to first pulse check 5.6, 4 (p=0.09), first chest compression 15.2, 12.4 (p=.18), backboard placement 193.4, 40.4 (p=.14), pad placement 74.8, 66.4 (p=.46), initial rhythm analysis 111.2, 73.6 (p=.09), first defibrillation 150.6, 93 (p=.11), first epinephrine 158.2, 131.6 (p=.36), pause duration 14.2, 6.2 (p < 0.05), and amiodarone 376.6, 438.8 (p=.34), respectively.

**Conclusions:** RCDP learners trended towards earlier completion of ACLS actions compared to their immersive peers in all categories (Chart 1, 2), with a statistically significant reduction in pause duration. Results are limited by the sample size, but given the overall trend, RCDP-trained residents appear to complete ACLS actions more quickly than immersive trained peers.

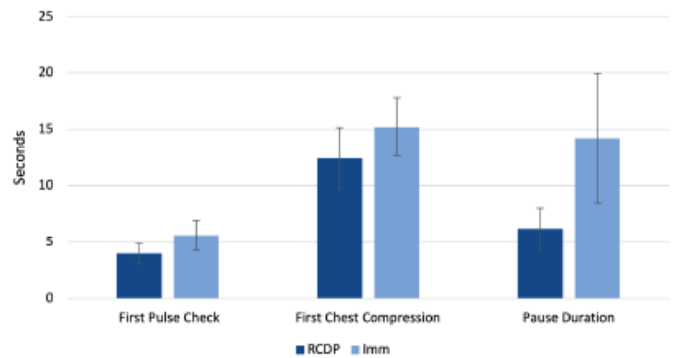


Figure 1. Chart 1: RCDP versus immersive time differences.

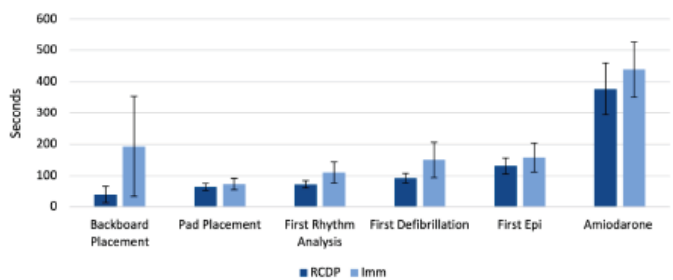


Figure 2. Chart 2: RCDP versus immersive time differences.

## 46 Rapid Cycle Deliberate Practice vs Traditional Simulation Methods in Trauma Team Resuscitations

Jessica Parsons, Richard Tumminello, Deborah Pierce, Anthony Sielicki, Jacqueline Dash, Chad Siewers

**Background:** Rapid cycle deliberate practice (RCDP)

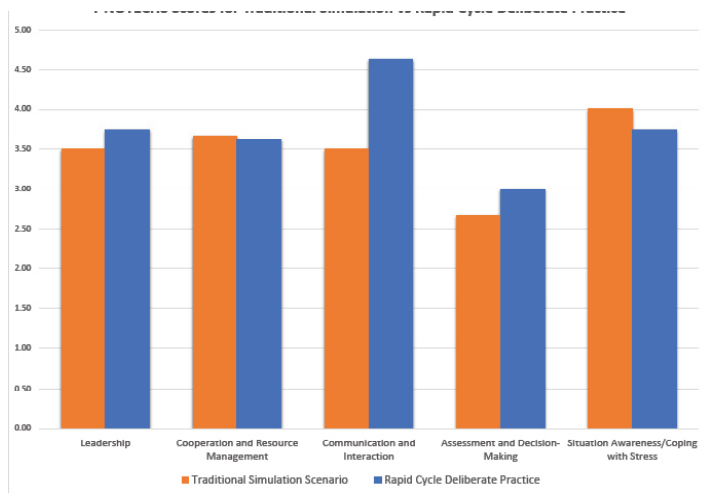
is a method in SIM that pauses a scenario for immediate feedback and then rewinds to allow for repetitive practice. It has been shown to improve technical and non-technical skills (NTS), but direct comparisons of RCDP with traditional SIM techniques are lacking.

**Objectives:** The purpose of this investigation is to compare the efficacy of RCDP versus traditional SIM methods in team trauma resuscitations. We hypothesize that teams who participate in RCDP will display stronger NTS than teams who participate in a traditional SIM session.

**Methods:** The participants were convenience cohorts of PGY1-4 EM residents who were divided into twelve teams of five. During December 2021 and January 2022, six teams had a trauma scenario followed by a traditional post-scenario debrief and six teams had RCDP of a similar trauma scenario. Participants were surveyed on their perceptions of the SIM experience. Four days later, all teams participated in a video-recorded trauma scenario. NTS displayed by the teams were measured by two independent blinded raters using the non-technical skills scale for trauma (T-NOTECHS).

**Results:** Sixty residents participated in the SIM sessions and 57 completed the survey. The performance of only four of the RCDP teams and three of the traditional SIM teams were analyzed due to video technical errors. Interrater reliability was good with an intraclass correlation coefficient of 0.69 (95%CI 0.39-0.84). The T-NOTECHS scores had no statistically significant difference between the two types of SIM ( $p < 0.18$ ), however the resident survey responses did favor RCDP over traditional SIM.

**Conclusions:** There was no significant difference in NTS displayed by teams who underwent RCDP versus traditional SIM. An underpowered sample size likely contributed to these results. Based on resident perceptions, the RCDP had more positive feedback than the traditional SIM approach.



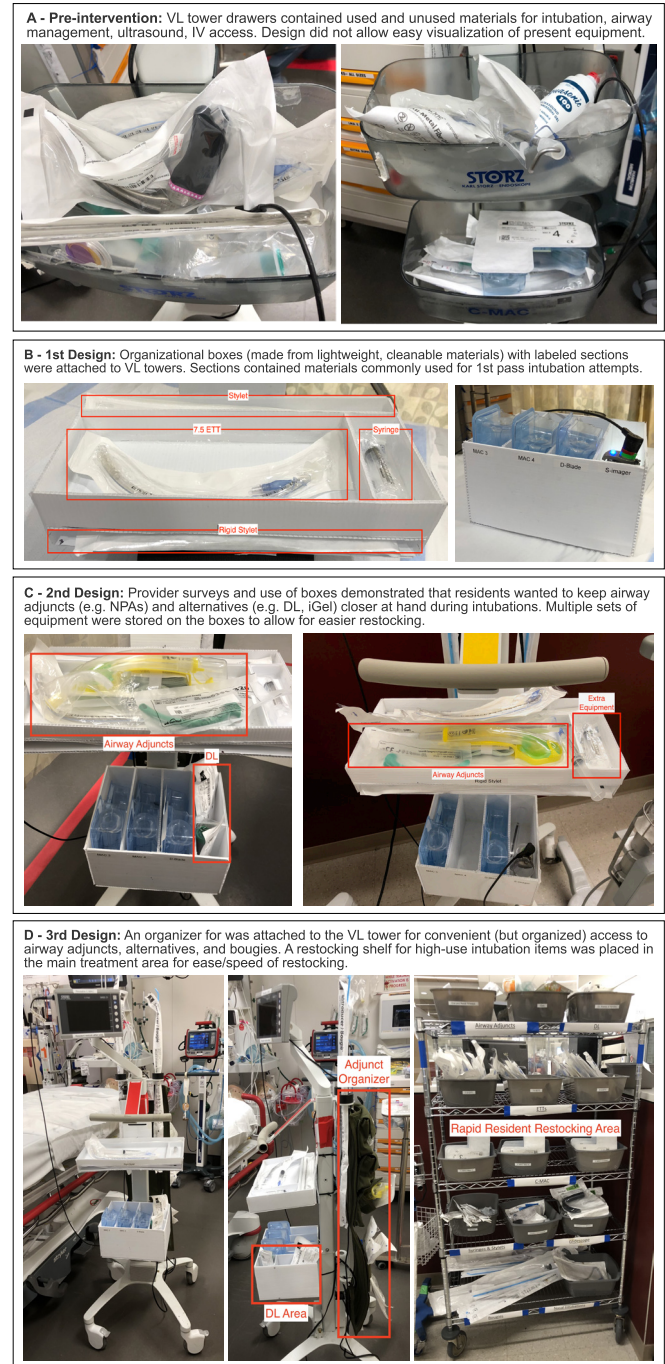
**Figure.** T-NOTECHS scores for traditional simulation versus rapid cycle deliberate practice.

## 47 Redesigning Video Laryngoscope Equipment to Improve Preparedness for 1st Pass Intubation Attempts

Marika Kachman, Nathan Olson

**Background:** Intubation remains a common and critical procedure practiced by EM providers (Stevenson et al. 2007). Several studies have examined how human

**Figure 1.** Stages of VL tower airway box design.



factors affect clinical performance in airway emergencies and how thoughtful organization of airway carts can mitigate such factors (Chrimes et al. 2018, Bjurström et al. 2019). However, most of this research has focused on anesthesiologists intubating in ORs (Jones et al. 2018, Schnittker et al. 2018), a scenario that differs substantially from the emergent, unplanned intubations occurring in ERs (Stevenson et al. 2007).

**Objectives:** We aimed to develop a novel point-of-care airway organizational tool that integrates onto existing Video Laryngoscopy (VL) towers and improves resident readiness for first-pass intubation attempts.

**Methods:** This study was conducted at a Level 1 trauma center and university tertiary referral center. Prior to the study, VL towers were used as the principle intubating solution at our facility, but there was a large variety and disorganization of tools available on these towers (Figure 1A). Using principles of choice architecture (Redelmeier et al. 2021) we designed a compact, standardized solution that fits comfortably at the head of the bed and can be moved easily from room to room as intubation needs arise (Figure 1B). EM residents were surveyed throughout the process via convenience sampling. In response, the design then went through multiple revisions so that the solution would meet the needs of multiple situations and user preferences (Figure 1C, 1D).

**Results:** Residents reported an increased feeling of preparedness for first pass intubation attempts (pre = 2.94 (1.43), post = 4.33 (0.97),  $p = 0.0024$ ).

**Conclusions:** Our VL airway tower solution combines established best practices for airway equipment design with the needs and preferences of EM providers in a high-intubation volume ER. Further work is needed to determine if a similar solution is generalizable to other settings.

## 48 Self-Assessment of Preparedness: A Two Year Evaluation of Incoming Emergency Medicine Interns in the Era of Covid-19

*Lorie Piccoli, Ryan Briskie, Kathleen Williams, Amber Billet, Brent Becker, Barbie Stahlman, Katelyn Mann*

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

**Objective:** The purpose of this study was to compare the preparedness of incoming emergency medicine interns (EM-1) from the classes of 2021 and 2022 in light of changes to clinical rotations incurred by COVID-19.

**Methods:** We conducted a prospective, survey assessment of MS4 from 2021 and 2022 matriculating into 7 distinct EM residency programs. The anonymous survey collected data on demographics, rotations, procedures, and subjective comfort levels for specific clinical scenarios. Each respondent was

assigned a procedural index score (PS) and a clinical comfort index score (CCS), defined as the sums of procedure counts and quantitative Likert values for clinical scenarios, respectively. PS, CCS, number of rotations and COVID-19-related limitations were compared between 2021 and 2022 using the Mann-Whitney U test ( $p=0.05$ ).

**Results:** Completed surveys were returned by 63 and 56 respondents from 2021 and 2022, respectively. The class of 2022 reported significantly more EM rotations (median 3 [IQR 2-3] vs 2 [IQR 2-2],  $p<0.001$ ) and fewer virtual rotations (0 [IQR 0-2] vs 3 [IQR 1-4],  $p<0.001$ ). Based on Likert scale responses, the class of 2022 reported significantly less suspension of rotations (2 [IQR 1-2] vs 2 [IQR 2-3],  $p<0.001$ ) and less clinical limitations due to COVID-19 (2 [IQR 1-2.75] vs 2 [IQR 2-3],  $p<0.001$ ). Despite an improved, in-person clinical experience there was no significant change in 2022 PS (36.5 [IQR 32-41.75] vs 35 [IQR 30-39],  $p=0.283$ ) or CCS (31 [IQR 28-34] vs 30 [IQR 27-32]  $p=0.581$ ).

**Conclusion:** Based on self-reported data, the MS4 class of 2022 participated in more EM rotations, fewer virtual rotations and clinical rotations less impacted by COVID-19; however, this did not result in greater procedural exposure or clinical comfort levels entering their EM-1 residency year.

## 49 Shuffling the Deck - Factors at Play in Applicant Program Ranking

*Joshua Timpe, Kathleen Williams, Alisa Hayes, Sam Corbo, Tom Yang, Ephy Love, Jason Reminick*

**Background:** Geography significantly affects a medical student's choice when selecting a residency program. Other factors and sources of information are used. Nearly half of applicants alter their program applications as a result of Doximity rankings (DR). Alternatively, the AAAEM Benchmarking Survey & Acuity Index (AI), compare academic institutions objectively. Given EM trainees' desires to care for the sickest patients, we theorize that AI rankings should correlate with applicant competitiveness. Previous work has utilized subjective assessment of these factors, there are no studies utilizing objective data to determine how these influence applicants.

**Objectives:** We aimed to determine which factors correlate best with residency application preference: Geography, DR or AI. First, we hypothesize that geography continues to play a major role in application to residency. Second, we hypothesize the AI will correlate with applicant competitiveness.

**Methods:** We analyzed 2021 EM match outcome data from Thalamus ( $n=3158$  applicants, 63 programs) using GLM regression of applicant-program pairs to study the relative contribution of variables including standardized USMLE scores, AOA status, US News and World Report medical school ranking and geographic relation. Correlations of applicant competitiveness with DR and AI are compared.

**Results:** As hypothesized, geography plays a significant



role in applicant choice. Conversely, we did not find support for the hypothesis that acuity and competitiveness are correlated (fig1). We still see a strong correlation between competitiveness and DR (fig2).

**Conclusions:** Despite EM leadership repeatedly criticizing the use of DR, they continue to correlate with competitive EM applicants' preferences. This will continue until we provide our applicants compelling data on the clinical environment of programs. We should therefore consider making an objective score, such as the AAAEM methodology and rankings available to applicants.

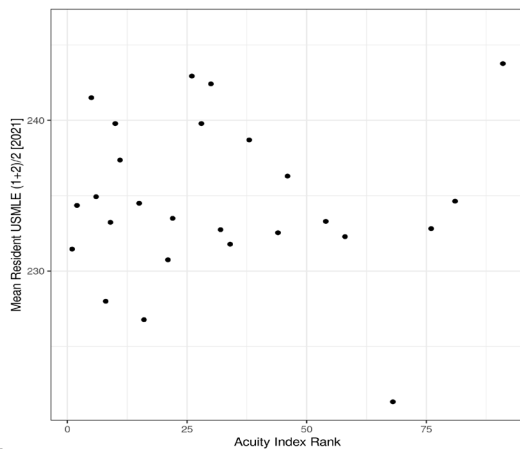


Figure 1.

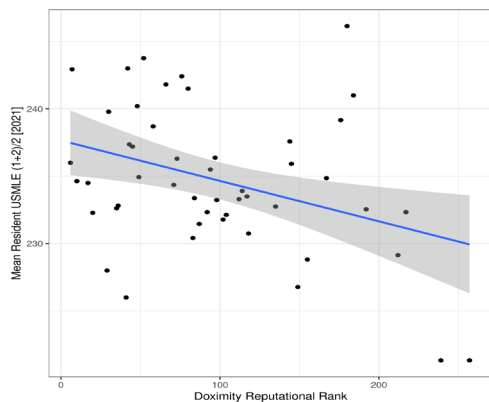


Figure 2.

## 50 Simulation in Emergency Medicine Residency Training Programs: A National Survey

Andrew Bloom, Briana Miller, Jaron Raper, Charles Khoury

**Background:** The use of simulation-based medical education (SBME) has been proven to be an effective instructional strategy both procedurally and clinically.

Emergency Medicine (EM) residency programs utilize SBME in a variety of ways and settings. Simulation (sim) in EM has not been recently evaluated in light of the expansion of residency programs and fellowships. The current state of SBME utilization in EM is unknown.

**Objectives:** To assess the current state and utilization of sim in ACGME-approved EM residencies given the growth of the field of sim and expansion of EM training.

**Methods:** This was a national survey study performed from July through September 2022. The survey was sent to the residency program directors of all 277 ACGME-accredited EM residency programs in the United States. A literature search identified existing publications discussing the state of SBME in EM. From this, a 17-question survey was developed and focused on technology, types of sim (procedural vs. case-based), barriers to growth, and overall sentiments of sim in EM.

**Results:** Of the 277 EM programs at the time of this abstract, 244 programs were successfully contacted, with a total of responses. Nearly all programs reported access to a dedicated sim center (98%), with available high-fidelity mannequin simulators (94%) and task trainers (91%). Most programs engage in sim didactics monthly (54%), followed by more than monthly (24%) and quarterly (21%). Few programs reported barriers in sim implementation (15%). Of those, funding (35%), sim lab availability (24%), and equipment (21%) were identified most frequently. Programs frequently used sim (82%) to perform the majority of rare but required procedures. Finally, half (50%) of the programs have simulation fellowship-trained faculty on staff.

**Conclusions:** SBME is an important aspect of EM residency and training. A majority of residency programs report dedication and resources to developing and integrating sim into their curriculum.

## 51 Strong Correlation Between Depression/ Stress and Self-Reported Microaggressions in Emergency Medicine Residents

Brian Walsh, Claire Delong, Frederick Fiessler, Nicole Riley

**Background:** Residents' well-being and their perceptions of microaggression may be correlated.

**Objective:** We sought to measure resident wellness objectively and determine if it is correlated with a resident's perception of how frequently they are victimized by microaggressions.

**Methods:** All the residents at a three-year EM program were surveyed using an anonymous questionnaire in Google Forms. Resident wellness was assessed using the Depression, Anxiety and Stress Scale (DASS), a validated psychometric scale that is used across multiple industries. Using a 5-point Likert scale, residents were also asked how often they feel like

they are the victim of microaggressions: 1: never or almost never to 5: very frequently. The term “microaggressions” was not defined, allowing residents to determine what they feel it to be. Pearson product moment correlation between the two variables was calculated and statistical significance to  $p < 0.05$  was determined.

**Results:** 20 out of 27 residents responded to the questionnaire. Seven residents scored for at least mild depression (three severe), nine residents scored for at least mild anxiety (five severe), and 11 residents scored for at least mild stress (one severe). The average rating on the frequency of being the victim of microaggressions was 2.2 (95%CI: 1.6, 2.7), suggesting residents infrequently felt victimized by microaggressions. The Pearson correlation between Depression and the frequency of microaggressions is  $r = 0.56$  ( $p = 0.01$ ), between Anxiety and microaggressions is  $r = 0.41$  ( $p = 0.07$ , NS), and between Stress and microaggressions is  $r = 0.63$  ( $p = 0.004$ )

**Conclusion:** This study suggests there is a correlation between depression/stress and a residents’ perception of being victimized by microaggressions. It is unclear whether being the victim of microaggression leads to more depression/stress or if residents with more depression/stress view comments as being more insulting. Certainly, this subject merits further study.

## 52 Take-Home Naloxone in the Emergency Department: Assessing Residents’ Attitudes and Practices

*Aaron Dora-Laskey, Brittany Ladson, Brett Gerstner*

**Background:** Take-home naloxone may mitigate opioid overdose risk in emergency department (ED) patients who use drugs, yet little is known about emergency medicine (EM) resident dispensing practices.

**Objective:** To identify factors associated with resident take-home naloxone dispensing.

**Methods:** We analyzed ED take-home naloxone kit data retrospectively from a single Michigan community ED (100k/yr) convenience sample between 3/11/2020 and 10/30/2021, comparing dispensing rates to resident shift type (morning, midday, night) and training year (PGY-1 to 3) using the Kruskal Wallis test. Current residents’ attitudes regarding naloxone were assessed using a validated tool, the Naloxone-Related Risk Compensation Belief survey.

**Results:** Of 274 kits, 76 could be linked with one of 2,409 resident shifts, yielding a dispensing rate of 3.15 kits/100 shifts. Of 34 residents scheduled, 12 (35.3%) ordered no kits, 7 (20.6%) ordered 1 kit, and 15 (44.1%) ordered  $\geq 2$  kits. Dispensing rates were highest among PGY-3 (4.35 kits/100 shifts) compared to PGY-2 (2.20) and PGY-1 (1.06) residents ( $p = 0.006$ ). Kit dispensing was more frequent during night (3.82 kits/100 shifts) compared to midday (3.23) and day

(2.20) shifts; this was not statistically significant ( $p = 0.09$ ). Of 25 EM residents surveyed, 21 responded (84%). Fewer than 10% believed dispensing naloxone to people who used opioids would result in greater drug use or decreased treatment-seeking, and only 1 resident agreed that there should be a limit to the number of times a person receives naloxone. None reported that naloxone was enabling for people who used drugs, or that dispensing naloxone sends the message that residents condone risky opioid use.

**Conclusions:** EM resident take-home naloxone dispensing was associated with more senior year of training, suggesting a need to better educate junior residents. Few residents expressed concern that naloxone would increase risky drug use or decrease treatment-seeking.

## 53 Targeted Procedure Lab to Improve Self-Identified Deficiencies Among Graduating Emergency Medicine Residents

*Andrew Bobbett, Stephanie Cohen, Andrew Bobbett, Jeffrey Thompson, Robert Pell, Latha Ganti*

**Background:** Simulation is the artificial recreation of an experience for the purpose of education. This study focuses on the usefulness of targeted procedural labs in correcting self-identified deficiencies and increasing procedural confidence in emergency medicine (EM) resident procedural skills.

**Objectives:** To determine whether a procedure lab targeting procedures that EM residents do not feel proficient in can increase feelings of confidence prior to residency graduation.

**Methods:** A survey was performed comparing EM residents that participated in a targeted procedure lab versus residents that did not. The sample included 31 EM residents delineated by program year at onset of study— Group A: Class of 2021 (15 residents, year 2), Group B: Class of 2020 (16 residents, year 3). In June 2020, groups A and B filled out a survey indicating procedural confidence. A procedure lab was made based on the top 12 procedures group A felt they needed practice in. Group A participated in the procedure lab in March 2021. Group B did not receive the targeted treatment lab. Group A completed the post intervention survey in May 2021.

**Results:** Group A self-reported a decreased need for more procedural support training and increased confidence in procedural skills compared to Group B in nine out of twelve procedures. Results from an inference for two proportions indicate a statistically significant difference between the percent of Group A compared to Group B participants wanting more experience performing Subclavian Line (TS = -2.102,  $p < .05$ ; 95%CI (-0.68, -0.02) and Thoracotomy (TS = -2.01,  $p < .05$ ; 95%CI (-0.603, -0.007) procedures, indicating Group A reported significantly increased confidence in the Subclavian Line and Thoracotomy procedures.

**Conclusions:** Use of targeted procedure labs improved overall procedural confidence in Group A residents compared to Group B residents who did not receive targeted simulations.

**Table 1.** Percent of participants who want more experience performing procedures compared between Group A, post simulation, and Group B.

Procedure	Group B (PGY-3 c/o 2020)	Group A (PGY-3 c/o 2021)	Test Statistic (TS)	p-value
Compartment Pressure	50%	46.7%	-0.181	p > .05
Cricothyrotomy	56.3%	46.7%	-0.534	p > .05
Lateral Canthotomy	56.3%	40%	-0.93	p > .05
Subclavian	75%	40%	-2.102	p < .05*
Tube Thoracostomy	43.8%	40%	-0.022	p > .05
Pigtail	12.5%	20%	0.5	p > .05
Pericardiocentesis	50%	50%	0.5	p > .05
Thoracentesis	31.3%	53.3%	0.89	p > .05
Blakemore Tube	68.8%	60%	-0.512	p > .05
Aspiration PTA	62.5%	60%	-0.14	p > .05
Thoracotomy	43.8%	13.3%	-2.0	p < .05*
Cardiac Pacing (Intravenous)	68.8%	46.7%	-1.2	p > .05

\*p < 0.05

## 54 The Effect of Medical Students on Patient Perception of Care in the Emergency Department

*Julia Ma, Emily Grimes, Benjamin Krouse, Alden Mileto, Bobby Rinaldi, Gina Rossi, Victoria Garcia, David Lisbon, Keith Willner*

**Background:** Medical students must go through hospital training as part of their education. Studies have explored the effects of new residents on healthcare delivery termed the “July effect,” but few have looked at the effect of medical students.

**Objective:** This study aims to determine if perception of medical students on their emergency department (ED) care team affects how patients perceive the care they received with a pre-study hypothesis that students had no impact.

**Methods:** We surveyed a convenience sample of adult patients seen by a physician and discharged from a single ED from June to October 2022 in a survey study. Patients who were seen by an advanced practice provider, had behavioral health or substance diagnosis, or arrived as a trauma alert were excluded. Study data were collected and managed using REDCap electronic data capture. Preliminary analysis indicated that many patients erroneously perceived a student on their team so results were analyzed by no student perceived/present, student perceived/present or student perceived/no student present. Major outcomes were satisfaction with care team and whether patients felt heard or informed.

**Results:** 625 patients were approached for enrollment. 311 patients (response rate 49.8%) completed the survey, but 46 were further excluded due to no response for questions of interest. Power calculations indicated 300 patients were necessary to find an administratively meaningful difference. There were no significant differences between groups with regards to satisfaction (p=0.23), if they felt informed (p=0.24) or heard (p=0.80).

**Conclusion:** Perception and/or presence of medical students had no impact on how patients felt about their care with regards to satisfaction, communication, and information. There was confusion about who was on their care team with some thinking the scribe was a student. Non-response bias was evident since patients declined for reasons of unhappiness/anger or had already left.

## 55 The Impact of Self Scheduling on Intern Wellness

*John Marshall, David Jones*

**Background:** Resident wellness is a concern across the country. ACGME surveys and a 2006 study by Rosen et al indicate residents possess lower wellness scores than the general population and that wellness declines during intern year. Tools such as the Copenhagen burnout score indicate an increase in physician wellness of 5% can be significant.

**Objectives:** This project shifted scheduling privileges to the EM R1 class, providing more control over their personal schedules and measured changes in wellness scores.

**Methods:** This was an experimental study at a university, tertiary, level 1 trauma center, running from 2021 to 2022. Subjects were a convenience sample of EM R1s. A historical group of EM R1s provided the control for baseline EM R1 wellness. The study group scheduled their own shifts in the emergency department. In the past, these shifts were scheduled by administrative staff. R1s had guidelines, including number, distribution, and work hour restrictions. Participants were surveyed anonymously for wellness on a continuous scale, ease of aligning home life with work, ability to prioritize personal wellness and satisfaction, and preference of scheduling methods. Absolute percentages of outcomes were compared pre and post intervention.

**Results:** Among 13 R1s in the Intervention group, wellness rose from a baseline of 69% to 88%. Based on previous literature, this increase of nearly 20% is likely significant. 100% of respondents favored the system. 53% of the study group felt that their schedule aligned almost perfectly with their personal life compared to 0% from the control. 46% felt that they had a great deal of input into their schedule compared to 0% from the control group. Limitations: Limitations include the non-randomized nature of the study and small sample size. Some of the increase in wellness may

be attributable to other causes.

**Conclusions:** Allowing RIs to self-schedule ED shifts led to marked increases in wellness in this pilot study.

## 56 The Role of the Medical Student in the Emergency Department

*Grant Gauthier, Haley Krachman, Cameron Whitacre, Lan Segura, Jessica Sauve-Syed, E. Page Bridges*

**Background:** Currently, more than half of medical schools require an EM clerkship, and this number continues to grow. The wide variety of patients and disease presentations provides an excellent learning environment and students the opportunity to function as part of the medical care team. Despite this, there is scarce literature on the role of the student.

**Objectives:** The goal of this study is to document the utilization of medical students in a typical ED shift. As this study was conducted following the 2018 change by CMS allowing student documentation in the official medical record, we anticipate a significant portion of time will be spent in the EMR.

**Methods:** The study was conducted using an observational prospective design. In total, 6 students on their third-year core clerkship and 13 students on their acting internship (AI) were observed at an urban level 1 trauma center. Observers classified medical student activities as shown in table 1 and table 2. Analysis was performed using basic inferential statistics.

**Results:** Overall, nearly 40% of time was spent on computer-based activities including non-bedside clinical work and documentation, while less than 30% of time was spent on direct patient care. Compared to AIs, M3 students spent a significantly larger amount of time waiting and shadowing (p-values 0.04 and <0.01, respectively). AIs spent a significantly larger amount of time on non-bedside clinical care and documentation (p-values <0.01 and 0.03, respectively).

Table 1.

Category	Total Minutes Spent (percent)
Awaiting patient	808 (9.00)
Clinical (bedside)	1793 (19.98)
Clinical (non-bedside)	1952 (21.75)
Documentation	1531 (17.06)
Education	678 (7.55)
Personal	557 (6.21)
Procedures	401 (4.47)
Shadowing/Observing	964 (10.74)
Other Patient Care	228 (2.54)
Other	64 (0.71)

**Conclusions:** Similar to physicians, students spend the largest portion of time on computer-based activities. This may reflect the 2018 change by CMS allowing student documentation in the medical record. The amount of time spent by third year medical students in activities such as waiting and shadowing likely reflects the decreased level of experience and perceived ability by the attending physician. Future studies will analyze activities deemed most useful by students and faculty.

Table 2.

Category	Average minutes (percent) per shift		Difference (P value)
	M3	Acting Intern	
Awaiting patient	75 (15.91)	27.5 (5.82)	47.5 (0.04)
Clinical (bedside)	79.2 (16.80)	101.4 (21.44)	22.21 (0.12)
Clinical (non-bedside)	70.5 (14.96)	117.6 (24.87)	47.11 (<0.01)
Documentation	50.3 (10.68)	94.5 (19.99)	44.20 (0.03)
Education	37.7 (7.99)	34.8 (7.35)	2.90 (0.41)
Personal	28.3 (6.01)	29.8 (6.29)	1.43 (0.50)
Procedures	37.5 (7.96)	13.5 (2.86)	23.96 (0.12)
Shadowing/Observing	81 (17.19)	36.8 (7.77)	44.23 (<0.01)
Other Patient Care	9.3 (1.98)	13.2 (2.80)	3.90 (0.20)
Other	2.5 (0.53)	3.77 (0.80)	1.27 (0.26)

## 57 The Status of Pediatric Critical Care (PCC) Experience in Emergency Medicine (EM) Residency Training Programs

*Elaine Josephson, Muhammad Waseem, Hina Asad, Masood Shariff*

**Background:** PCC experience is an Accreditation Council for Graduate Medical Education (ACGME) requirement for EM programs.

**Objective:** With limited number of PCC centers, most tertiary care-based, EM programs, especially in Affiliated (AFF) or Community (COM) settings would experience challenges to obtain PCC experience. We explored accessibility of acquiring PCC rotations for EM Residents in United States (US) and Puerto Rico (PR).

**Methods:** Web link utilizing SurveyMonkey platform for data capture was emailed to ACGME accredited EM programs (n=264) in US and PR. We stratified program type (practice setting, length of training, institution type) and access to PCC rotation for EM residents (Pediatric (PED) ICU (PICU), Neonatal ICU (NICU), PED Surgical ICU (PSICU), PED Neurosurgical ICU (PNeuroICU)). Comparison made by the regions, Northeast (NE), South, Midwest (MW), and West, as well as institution (Urban/Suburban/Rural) and practice (Academic (ACA)/COM) setting.

**Results:** 153 EM programs completed survey with 75% reporting a 3-year curriculum. The majority were urban (61%); ACA practice comprised 53% and COM 39%. Overall, programs answered “very easy” (39%)

and “moderately easy” (20%) to arrange PCC rotations. Regions finding it “moderately difficult” were NE (26%) and MW (24%). ACA and COM programs had no difference in obtaining PCC rotations, however, COM programs scheduled PICU rotations at AFF and non-AFF centers (73%) compared to ACA with PICU at their primary institute. (61%) ( $p < 0.001$ ). Rotations in NICU (21%), PSICU (13%) and PNeuroICU (1%) were less common. Accessibility noted if ICU was outside the primary institute, 42% COM programs reported difficult and 35% by ACA programs ( $p=NS$ ).

**Conclusion:** A PCC unit in the Primary or AFF hospital is the most achievable option. Overall, EM programs reported no deficit in fulfilling the PCC rotation. Reexamination is needed as more hospitals consolidate with specific PED Tertiary centers available only to their own rotators.

## 58 Thriving in Emergency Medicine Residency

Kevin Hanley, Jillian Mongelluzzo

**Background:** It has been shown that the burnout rate for emergency medicine providers is among the highest seen in healthcare. While resilience and grit have been studied as protective against burnout, the ability to thrive may be a more useful target. Thriving has previously been defined as a combination of vitality—having energy available and feeling “alive”—and learning—acquiring and applying valuable knowledge. Thriving has been found to be dependent on several categories, one of which is unit contextual features (UCFs). UCFs are factors such as challenge or hindrance stressors, autonomy, and trust.

**Objectives:** This study is being done to determine if Emergency Medicine residents are thriving, and what UCFs are contributing to their ability or inability to thrive during residency.

**Methods:** We administered a mixed-methods survey developed from previously validated surveys regarding the UCFs and overall thriving to emergency medicine residents at one four-year emergency medicine residency training program in March of 2022.

**Results:** We received 38 responses (out of 58 residents) with 8-11 respondents per PGY level. Overall thriving score for all residents was 3.2/5. First-year residents had a score of 3.5/5 while 2nd-4th years each had a score of 3.1/5. Social support was the UCF that most contributed to thriving while hindrance stressors, challenge stressors, and autonomy negatively affected the residents’ thriving.

**Conclusions:** We found ideal targets for interventions from the survey, with qualitative responses that can help guide those interventions to increase thriving. Other residencies could similarly use this survey to identify targets

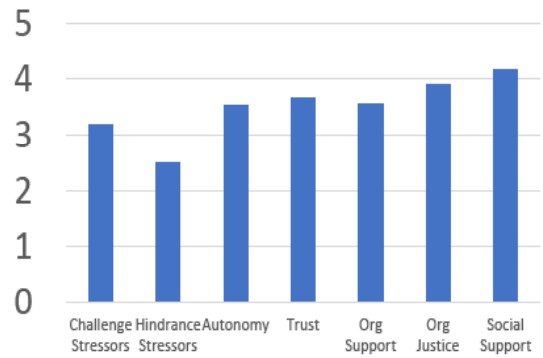


Figure. Unit contextual features.

Table.

Unit Contextual Feature	Sample of Responses		
Hindrance Stressors	Feeling like I'm working in a broken system, feeling like patients are rotating through without making much of a difference for any of them	Boarding, difficulties in connecting people to follow up, decrease in number of available social services (particularly shelter beds) during COVID	Lack of care or support for unhoused patients and people suffering from addiction because this represents a huge portion of our patients that I feel like I can barely help
Autonomy	I have had fantastic Attendings that let me make all of my decisions, which allows me to learn the most. I have had other Attendings that have basically treated me like a scribe; they have seen my very stable patients before me and ordered their own labs/imaging before I can even present them.	Attendings (and trauma surgeons) sometimes immediately take over (sometimes rightfully so), but often we learn best by having to talk through the decisions instead of having someone run the code behind your back	
Social Support (positive effect on thriving)	attendings that advocate for your learning, but also sympathize with the amount of shifts you work per month (ie empathy towards your situation)	The times when I can truly feel that I have learned and grown, times when I have brought people joy or made their day better	community, being able to share with others that I'm not thriving or that I am, hearing about the experiences of others, the idea that One day I'll be working less and will be able to have a more balanced life.

for intervention. Responses highlighted hindrance stressors present in the ED that would be ideal targets for intervention, while targeting social support may not have as much of an impact. The study was limited due to administration once during the year as time during the academic year may affect the level of thriving.

## 59 Traditional Bedside Versus Digital Point-of-Care Ultrasound Education

Michael Sobin, Steven Johnson, Amit Bahl

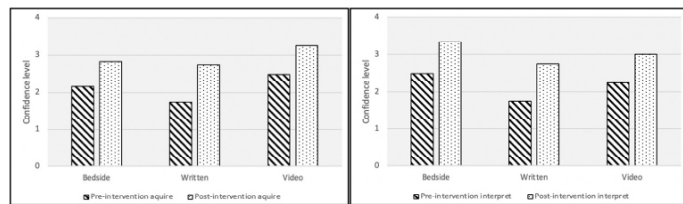
**Background:** While standard point-of-care ultrasound

(POCUS) instruction heavily relies on resource intense bedside teaching, it is unknown whether a more flexible digital curriculum may be a viable alternative.

**Objective:** We aim to assess differences in trainee confidence performing less frequently encountered POCUS applications after reviewing an onsite traditional bedside instruction, remote lecture slides with written narrative or video narration.

**Methods:** This was an anonymous, close ended, 15 question survey study completed by emergency medicine residents and faculty at a single tertiary care teaching hospital. The survey was adapted from a validated ultrasound education study. Educational material focused on uncommon POCUS exams (scrotal, bowel, ocular). Participants were randomized to one of three training methods: onsite traditional bedside teaching, remote lecture slides with written narrative or video narration. All slides and scripts were identical. Participants rated their confidence performing and interpreting each exam type on a five-point Likert scale before and six months after the education intervention.

**Results:** 14 participants (five post-graduate year (PGY)1s, three PGY2s, three PGY3s and three faculty members) responded to the survey. All three education



**Figure 1.** Level of improved confidence acquiring and interpreting POCUS scans after education intervention.

groups expressed improved confidence when acquiring and interpreting scrotal, ocular and bowel POCUS images (Figure 1). Over 75% of participants per module were likely or very likely to recommend the curriculum, with 100% being satisfied or very satisfied with their assigned module.

**Conclusions:** Participants had increased confidence acquiring and interpreting uncommon POCUS images after participating in bedside and distance-based education modules. Future objective assessments of traditional bedside vs remote digital POCUS curricula will need to be completed to identify if similar learning outcomes can be achieved through less resource intensive virtual methods.

## 60 Trends in Point-of-Care Ultrasound Use among Emergency Medicine Residency Programs Over a 10-Year Period

Michael Gottlieb, Robert Cooney, Andrew King, Alexandra Mannix, Sara Krzyzaniak, Jaime Jordan, Eric Shappell, Megan Fix

**Background:** Point-of-care ultrasound (POCUS) is increasingly utilized in emergency medicine (EM). While residents are required by ACGME to complete a minimum of 150 exams before graduation, the distribution of exam types is not well-described. Moreover, as the field of POCUS has advanced, the impact on resident exams performed has not been reported.

**Objectives:** This study sought to assess the number of POCUS exams completed during EM residency training and evaluate trends over time.

**Methods:** This was a retrospective review of POCUS exams across 5 ACGME accredited residency programs over the last 10 years (2013-2022). Sites were selected to ensure diversity of program length, program type, and geography. Data from EM residents graduating in 2013-2022 were eligible for inclusion. Data from residents from combined training programs, those who did not complete their full training at that institution (i.e., transferred in/out), or did not have data available were excluded. We determined the list of exam types via the ACEP guidelines for POCUS. Each site obtained POCUS exam totals for each resident upon graduation. We calculated the mean and 95% CI for each procedure.

**Results:** We collected data from a total of 535 residents, with 524 (97.9%) meeting inclusion criteria. The mean number of POCUS exams increased from 277 in 2013 to 407 in 2022 (Table). Focused assessment with sonography in trauma (FAST), cardiac, obstetric/gynecologic, and renal/bladder were performed most frequently. Ocular, skin/soft tissue, and thoracic POCUS had the largest increase in

**Table.** Distribution of ultrasound numbers by graduation year.

Year of Graduation	Acute Care EM CP	Emergency Medicine CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	EM CP	TOTAL
2013	28 (0-37)	8 (0-5)	25 (12-39)	38 (28-49)	9 (3-15)	67 (37-95)	7 (4-10)	41 (28-53)	4 (0-4)	25 (20-30)	11 (7-14)	0 (0-0)	12 (7-18)	277 (228-326)					
2014	19 (12-28)	8 (0-5)	22 (17-27)	31 (24-37)	11 (7-14)	69 (53-79)	9 (3-12)	39 (27-49)	7 (4-9)	28 (23-33)	11 (7-14)	0 (0-0)	11 (7-14)	282 (231-333)					
2015	28 (20-37)	2 (0-0)	26 (20-32)	47 (38-55)	15 (10-20)	88 (68-102)	10 (7-14)	39 (28-49)	7 (0-7)	31 (24-37)	13 (8-18)	0 (0-0)	22 (17-27)	352 (298-406)					
2016	28 (20-38)	1 (0-1)	23 (18-28)	38 (30-46)	13 (9-18)	77 (61-92)	10 (7-14)	38 (27-49)	18 (12-24)	29 (23-35)	14 (8-20)	1 (0-1)	24 (18-30)	353 (299-407)					
2017	19 (12-28)	1 (0-1)	21 (16-27)	40 (32-48)	11 (8-14)	54 (41-68)	9 (3-12)	38 (28-48)	7 (0-7)	27 (20-33)	12 (8-16)	0 (0-0)	13 (8-18)	277 (228-326)					
2018	11 (7-14)	2 (0-2)	24 (18-30)	32 (25-39)	22 (15-29)	70 (57-83)	9 (3-12)	39 (28-49)	11 (7-14)	28 (22-33)	26 (17-34)	1 (0-1)	27 (20-34)	341 (282-400)					
2019	28 (21-36)	1 (0-1)	25 (20-30)	128 (104-150)	19 (13-25)	128 (104-150)	25 (17-33)	38 (28-48)	11 (7-14)	41 (34-48)	21 (15-27)	1 (0-1)	22 (16-28)	493 (399-587)					
2020	29 (21-38)	2 (0-2)	28 (22-34)	31 (25-38)	18 (12-24)	77 (61-92)	11 (7-14)	38 (27-48)	22 (16-28)	32 (26-38)	26 (18-34)	0 (0-0)	36 (28-44)	376 (322-430)					
2021	29 (21-38)	2 (0-2)	29 (23-35)	77 (69-87)	19 (14-24)	81 (68-92)	12 (9-15)	38 (28-48)	11 (7-14)	38 (31-45)	22 (15-29)	0 (0-0)	38 (30-45)	385 (328-442)					
2022	28 (20-36)	2 (0-2)	29 (22-36)	19 (15-24)	28 (17-38)	79 (62-94)	17 (10-24)	41 (32-49)	12 (8-16)	31 (24-38)	22 (15-29)	0 (0-0)	38 (30-45)	407 (354-460)					
TOTAL	39 (30-48)	1 (0-1)	27 (20-34)	47 (40-55)	18 (14-21)	74 (59-88)	13 (9-17)	77 (64-89)	11 (8-14)	24 (19-29)	23 (16-30)	0 (0-0)	38 (30-45)	349 (294-404)					

CI, confidence interval; CP, deep venous thrombosis; FAST, focused assessment with sonography in trauma; GYN, obstetric or gynecologic ultrasound; EM, emergency medicine; Data not available for 47 residents.

numbers over the 10-year period, while bowel and testicular POCUS remained rare.

**Conclusions:** We highlighted the number of specific POCUS exams performed by EM residents overall and identified trends over a 10-year period. Data were limited by the retrospective nature and inability to capture non-saved exams unless reported by residents. This information can inform POCUS training in residency and accreditation.

## 61 Unhewn Student Experience: Considering Heuristics in Emergency Clinical Knowledge – A Preliminary Report

Andrew Monick, Xiao Chi Zhang

**Background:** Diagnostic error continues to detract from patient safety and incur high costs. Cognitive bias is a key source of diagnostic failure. The framing effect poses a particular challenge to emergency physicians (EPs) since quality and sequence of information varies profoundly between cases. The extent to which individual factors augment or reduce susceptibility to the framing bias is unclear, and the role of professional expertise in particular is contested and varies across literature.

**Objectives:** This study aimed to investigate the effects of the framing bias on diagnostic reasoning given varying levels of clinical knowledge and experience. We anticipated that effects attributable to frame would be mediated by years of medical education completed.

**Methods:** This was a single-blind experimental study conducted at an academic medical center. 183 medical students were recruited in 2022. Our inclusion criterion was current enrollment at Thomas Jefferson University as a second to fourth year medical student. Students were randomly assigned to review one of two versions of a case vignette consistent with pulmonary embolism (PE). The two versions contained objectively identical clinical data but varied in frame; where one emphasized features consistent with PE, the other did not. Subjects provided their top three differential diagnoses.

**Results:** Likelihood of identifying of PE differed based upon the frame to which participants were exposed ( $p = 0.000$ ,  $df = 1$ ,  $\phi = 0.392$ ). This effect held upon subgroup analysis of each class year. As academic standing advanced, a greater proportion of respondents within the frame-toward condition identified PE as a diagnosis of interest ( $p = 0.001$ ,  $df = 2$ ,  $\phi = 0.344$ ).

**Conclusions:** Our results suggest that cognitive frame may influence diagnostic reasoning, and the extent to which it does is mediated by clinical experience. These findings can inform future medical education initiatives, particularly within EM.

## 62 Longitudinal Cricothyrotomy Competency Among Residents

Andrew Hybarger, Joseph Turner, Lauren Stewart, Dylan Cooper

**Background:** Cricothyrotomy is a high-stakes emergency procedure. Because the procedure is rare, simulation is often used to train residents. The ACGME requires performance of three cricothyrotomies, during residency, but the optimal number of training repetitions is unknown. Additional repetitions beyond three could increase proficiency, though it is unknown whether there is a threshold beyond which there is no benefit to additional repetition.

**Objective:** The objective of this study was to establish a minimum number of cricothyrotomy attempts beyond which additional attempts did not increase proficiency.

**Methods:** This was a prospective, observational study conducted at the simulation center of an academic emergency medicine residency program. Participants were first- and second-year residents participating in a longitudinal airway curriculum during consecutive years. The primary outcome was time to successful completion of the procedure. In 2020, R1-residents were timed by a trained study investigator during sequential cricothyrotomy attempts. In 2021, first- and second-year residents were similarly timed. Procedure times were plotted as a function of attempt number. Data was analyzed using T-tests, correlation analysis, and repeated measures ANOVA. Pre-procedure surveys collected further data regarding procedure experience and comfort.

**Results:** Forty-one first-year residents participated in the study. Steady improvement in time to completion was seen through the first five attempts with leveling off following the fifth attempt. Results can be seen in Image 1 and Image 2.

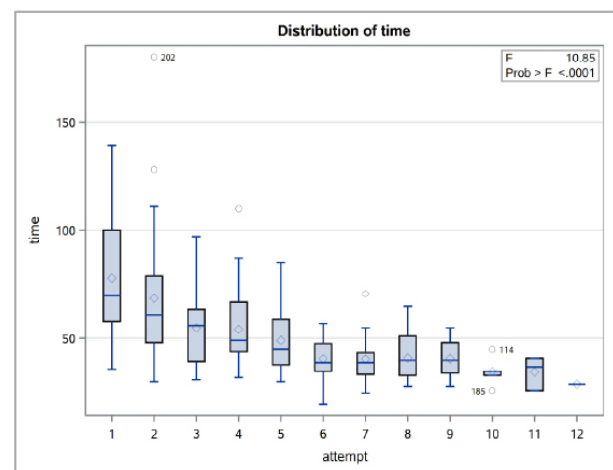


Image 1.

Least Squares Means for effect attempt Pr >  t  for H0: LSMean(i)-LSMean(j) Dependent Variable: time												
ij	1	2	3	4	5	6	7	8	9	10	11	12
1		0.6685	0.0002	0.0003	<.0001	<.0001	<.0001	<.0001	<.0001	0.0005	0.0175	0.3909
2	0.6685		0.2195	0.2022	0.0149	<.0001	<.0001	0.0003	0.0009	0.0229	0.1722	0.7181
3	0.0002	0.2195		1.0000	0.9961	0.3936	0.3768	0.5158	0.5776	0.6401	0.8797	0.9813
4	0.0003	0.2022	1.0000		0.9989	0.5093	0.4914	0.6256	0.6763	0.6988	0.9047	0.9849
5	<.0001	0.0149	0.9961	0.9989		0.9711	0.9670	0.9856	0.9874	0.9539	0.9907	0.9980
6	<.0001	<.0001	0.3936	0.5093	0.9711		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	<.0001	<.0001	0.3768	0.4914	0.9670	1.0000		1.0000	1.0000	1.0000	1.0000	1.0000
8	<.0001	0.0003	0.5158	0.6256	0.9856	1.0000	1.0000		1.0000	1.0000	1.0000	1.0000
9	<.0001	0.0009	0.5776	0.6763	0.9874	1.0000	1.0000	1.0000		1.0000	1.0000	1.0000
10	0.0005	0.0229	0.6401	0.6988	0.9539	1.0000	1.0000	1.0000	1.0000		1.0000	1.0000
11	0.0175	0.1722	0.8797	0.9047	0.9907	1.0000	1.0000	1.0000	1.0000	1.0000		1.0000
12	0.3909	0.7181	0.9813	0.9849	0.9980	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

Image 2.

The 2020 first-year resident group had a faster mean time to completion on first attempt than the 2021 second-year resident group, but the rate of improvement was significantly fast for the second-year group (p=0.24).

**Conclusion:** Additional repetition beyond the ACGME-endorsed three cricothyrotomy attempts may help increase proficiency. Periodic retraining may be important to maintain skills.

**Innovation Abstracts**

**1 A Novel Pediatric Resuscitation Simulation and Procedures Curriculum for Emergency Medicine Residents**

Catherine Yu, April Choi, Kei U. Wong

**Introduction:** Pediatric resuscitation is a vital skill in emergency medicine (EM). However, EM residents have varied exposure to pediatric critical care, and not all graduating residents reach competence in pediatric resuscitation and procedures. A limited number of curricula on these topics have been described in literature, and more are needed to accommodate the diverse characteristics of resident learners. We present a new pediatric airway and resuscitation curriculum for EM residents. Educational

**Objectives:** By the end of the curriculum, learners will be able to perform pediatric intubation, jet ventilation, and neonatal warmer set-up on a simulated model. There will be an increase in perceived preparedness and comfort in managing neonatal shock and pediatric respiratory distress.

**Curricular Design:** Based on an internal needs assessment which identified gaps in pediatric critical care education, we developed a four-hour resident workshop using flipped classroom and simulation instructional methods. Flipped classrooms paired with case-based discussions promote active higher-order learning ideal for complex subjects. Simulation allows for experiential

learning of high stakes topics in a safe environment. We began with two pediatric case-based small group discussions. Residents then rotated through two resuscitation simulations and skill stations for pediatric jet ventilation, intubation, and neonatal warmer set-up. We surveyed the residents to evaluate the impact of the curriculum on preparedness and comfort in resuscitation and procedural skills.

**Impact:** Among 18 residents, there was significant improvement in perceived preparedness and comfort in managing pediatric resuscitations and performing airway procedures (p<0.0005). We continue to improve this program based on resident feedback. With varied training and exposure to pediatric critical care in EM, this curriculum offers residency educators a new resource to teach resuscitation and procedural skills.



Pediatric Resuscitation Simulation and Procedure Workshop		
Time	Activity	Description
8-9:30am	Case Discussion	Two case-based small group discussions using a flipped classroom instructional method. First and second year residents discussed neonatal jaundice and brief resolved unexplained events. Third and fourth year residents discussed status epilepticus and congenital heart disease. Each class discussion was led by pediatric emergency medicine faculty.
<b>9:35-9:40am</b> Review educational objectives and logistics		
9:40-10:20am	Simulation A	A case of neonatal shock led by pediatric emergency medicine faculty. Learners were expected to recognize, assess, and stabilize a 7-day old neonate who presents lethargic, hypoxic, and hypotensive. Learners were expected to utilize and apply crisis resource management as well as teamwork and communication skills.
15min case 25min debrief		
10:25-11:05am	Simulation B	A case of pediatric respiratory distress due to bronchiolitis led by emergency medicine faculty. Learners were expected to recognize, assess, and stabilize a 6 month old patient who presents in respiratory distress. Learners were expected to utilize and apply crisis resource management as well as teamwork and communication skills.
15min case 25min debrief		
11:10-11:55am	Mini Stations	Each station led by pediatric emergency medicine faculty.
15min per station		Station 1) Newborn warmer set-up Learners reviewed the components and logistics of a newborn warmer. Learners reviewed the "Golden Minute" of neonatal resuscitation. Learners practiced the first steps of neonatal resuscitation on a simulated model with the newborn warmer.  Station 2) Pediatric intubation Learners reviewed the anatomic and physiologic challenges in managing the pediatric airway. Learners reviewed laryngoscope types/sizes and endotracheal tube sizes. Learners practiced endotracheal intubation with direct laryngoscopy on simulated models.  Station 3) Percutaneous transtracheal jet ventilation Learners reviewed indications and contraindications. Learners reviewed the technique and set-up for performing the procedure. Learners practiced the procedure on simulated models.
11:55-12pm		Wrap-Up

Figure.

**2 Mission-Driven Individual Learning Plans: A Recipe for Resident Growth**

Matthew Stull, Zeinab Shafie-Khorassani, Marie Hoyle

**Background:** In working towards competency-based education, the ACGME now expects residency programs to utilize individualized learning plans (ILP) for all residents. While used in remediation, best practices when using ILP's more broadly has not been defined. In addition, the ACGME expects residencies to have mission statements that articulate the unique value it brings to learners. There is an opportunity to align a program's mission with the ILP. Our program developed an ILP and coaching program with prompts that anchor the residents' reflections on their progress through residency to the program's unique mission.

**Objectives:** The innovation's objectives include: 1) Develop residents' reflection on their clinical abilities with a growth orientation. 2) Align residents' growth and progression



through residency with the clearly articulated program mission. 3. Increase the number of realistic and achievable clinical goals set by residents as they approach independent practice.

**Curricular Design:** Our residency leadership team developed an ILP tool that prompts residents to reflect on their opportunities for growth in context of our program’s mission statement. Our program organized a novel ILP around our three pillars of EM: expert diagnostician, master resuscitator, and skilled advocate. This creates a scaffold on which the residents can build goals beyond longer-term career goals. To further support self-reflection and goal setting we paired the ILP with a clinical coaching program. Faculty-resident pairs reviewed and refined resident ILP’s in advance of their semi-annual residency leadership meeting.

**Impact:** Early feedback from faculty coaches and learners has been uniformly positive as the tool seems to better guide self-reflection in context of the program’s values. In addition, the tool and coaching program have enhanced residents’ abilities to set meaningful goals to move their clinical skills forward that are more specific and attainable.

### 3 A Design-Thinking Framework to Develop a Successful-Student Led Academic Conference

David Gordon, Parth Jain, Robert Pugliese, Bon Ku, Morgan Hutchinson

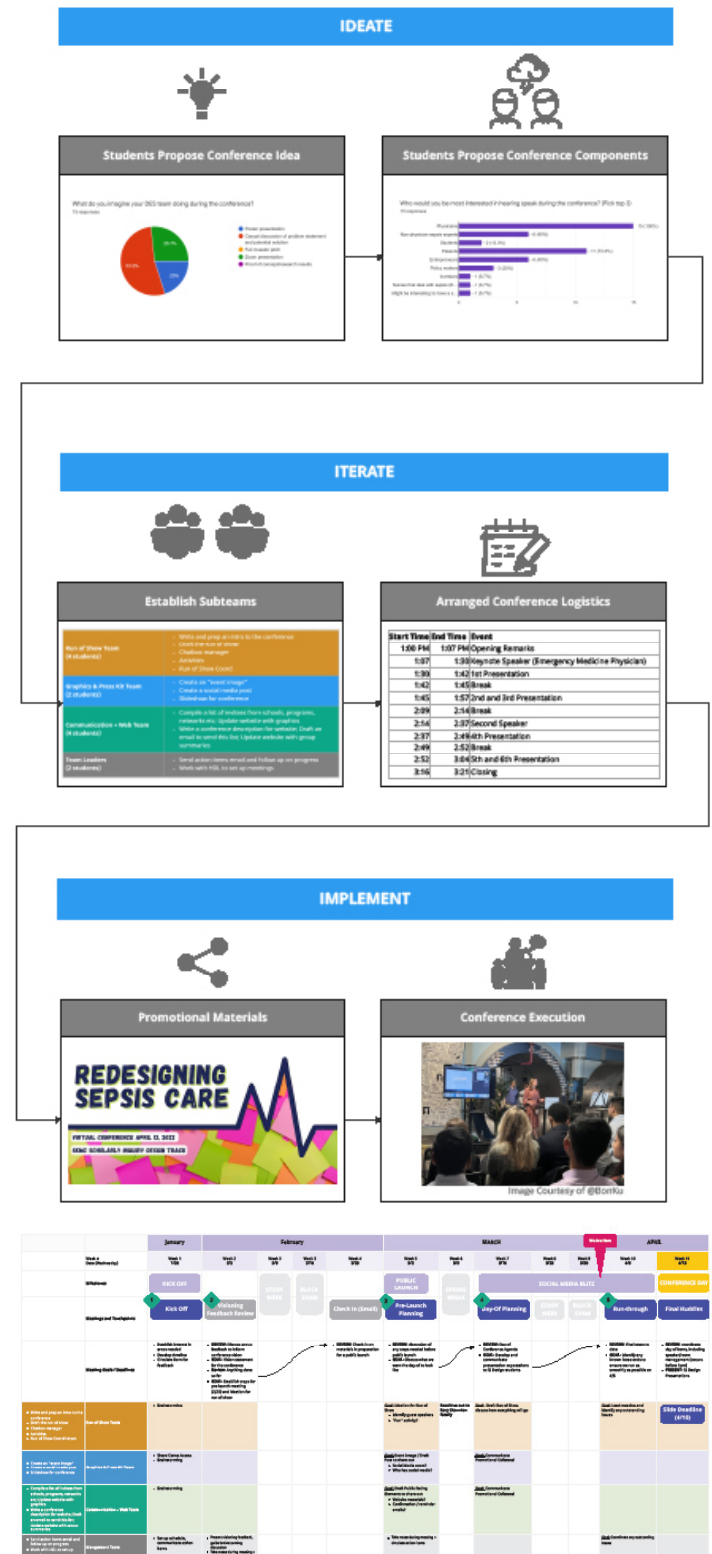
**Introduction/ Background:** Within a pre-clinical design-thinking course, medical students created a student-led academic medical conference. Throughout the course, students researched and developed ideas to improve acute sepsis diagnosis and care, mentored by emergency medicine physicians. Using the “design-thinking” methodology practiced through their course, students organized and executed all facets of an academic conference to pilot a new venue for capstone presentations and demonstrate the design process.

**Educational Objectives:** This conference planning process supported LCME educational performance objectives related to presenting research. The stepwise process discussed here may be used as a model for others wishing to mentor students to create an academic conference complementary to their programs and create leadership opportunities for students.

**Curricular Design:** Students self-organized into teams and ideated on components of a successful conference. Design thinking cycles of ideation, iteration, and implementation served as a basis for planning. In addition to serving as a vehicle for students to present their capstone research, the conference was a formative learning experience for students in academic event management and leadership. Students reflected on teamwork following the experience via a debrief.

**Impact/effectiveness:** Planning efforts culminated with the hybrid “Redesigning Sepsis Care” academic conference.

Students coordinated all logistical aspects of planning, including invitations, graphic collateral, promotion, speaker management, run-of-show, and project management. Student



organizers and faculty were satisfied with the quality of the conference and would participate again. This suggests that the design-thinking process effectively enabled students to organize and manage the event. With the success of this conference-planning trial, a similar student-initiated conference will be included within the course curriculum.

## 4 A Novel Sustainable QI Residency Elective

*Madison Miracle, Katharine Weber, Bhargavi Checkuri*

**Introduction/ Background:** While the climate crisis remains a serious public health emergency, the US healthcare sector produces >10% of its greenhouse gas emissions. Harm from these emissions is on par with harm from medical errors and thus a safety and quality of care issue. Currently no standardized GME interventions exist that address the relationship between climate change, sustainability, and quality improvement (QI)—nor the vital role of physicians in this space.

**Objectives:** Describe the healthcare sector’s climate impact Apply sustainable clinical practice principles Measure ‘sustainable value’ using a multi-dimensional approach.

**Curricular Design:** The University of Colorado launched a novel climate medicine residency elective in 2021. Competencies and learning objectives were outlined by faculty experts. Accepted residents meet virtually with the elective director to narrow scope, goals, and objectives. This method allows for flexibility, meeting residents at their level of expertise and accommodating residents’ clinical duties. This resident’s elective was focused on sustainable QI (SUSQI). Didactics, literature, conferences, networking, modules, and weekly meetings were used to teach, identify and define a capstone QI project. Collaborating with staff, the resident independently

**Table 1.** Resident-specific learning objective defined at beginning of elective with associated core competencies in climate change and health education published by the Global Consortium of Climate and Health Education.

Core Competency	Learning Objectives
Fundamentals of climate and health	Describe the climate impact of the health care sector and identify opportunities to create climate-smart health care tailored to local emergency department needs.
Sustainable quality improvement	Define a quality improvement problem and set a sustainability goal. Study the system using principles of quality improvement as set forth by the Institute for Health Care Improvement and assess resource use locally.
Climate change and clinical practice	Apply the principles of sustainable clinical practice (e.g. circular healthcare, sustainable waste management, low carbon pharmaceuticals, sustainable food in healthcare, health system effectiveness, energy supply in health systems, buildings and infrastructure, financing sustainable healthcare). Measure ‘sustainable value’ using a multi-dimensional approach of environmental, social, financial, and patient outcomes at the micro- and population-level.

**Table 2.** Resident learning resources: Example resources utilized by resident during elective to meet learning objectives and guide sustainable quality improvement project development.

<b>READ</b>	<ul style="list-style-type: none"> <li>Global Climate Change and Human Health: From Science to Practice, 2nd Edition</li> <li>Health Care Without Harm Road Map for Health Care Decarbonization</li> <li>PubMed literature: articles on sustainable healthcare and climate medicine topics</li> </ul>
<b>WATCH</b>	<ul style="list-style-type: none"> <li>U.S. Department of Health &amp; Human Services Webinar Series: Accelerating Healthcare Sector Action on Climate Change and Health Equity</li> <li>University of Colorado School of Medicine EMED 8010 Lectures</li> </ul>
<b>MEET</b>	<ul style="list-style-type: none"> <li>University of Colorado School of Medicine Climate &amp; Health Science and Policy Fellowship weekly synchronous virtual didactics</li> <li>Weekly virtual meetings with elective director and Climate Health Fellow mentors</li> <li>NorCal Symposium on Climate, Health, and Equity 2022</li> </ul>
<b>DO</b>	<ul style="list-style-type: none"> <li>Institute for Healthcare Improvement QI Essentials Toolkit</li> <li>Practice Greenhealth Cost Of Ownership Toolkit</li> <li>M+WasteCare Calculator</li> </ul>

designed and implemented an insulin waste reduction project in her ED with pre/post-intervention data.

**Impact/Effectiveness:** Despite the substantial contribution the healthcare sector makes to global emissions, hospital SUSQI measures are lacking. This curriculum provides innovative tools to support resident-driven healthcare sustainability while fulfilling ACGME requirements and can be utilized by other medical educators to increase awareness and support hospital sustainability initiatives of impact. The potential for SUSQI initiatives to drive institutional cost saving interventions while improving community health solidifies the importance of our innovative approach to climate medicine and applicability to GME.

## 5 A Simulation-Based Randomized Controlled Trial on Teaching Best Practices in Firearm Safety

*Jake Hoyne, Andrew Ketterer*

**Introduction/ Background:** Americans’ high rate of gun carriage correlates to the burden of firearm injury in the USA. Previous studies show that emergency providers (EPs) are at risk of encountering firearms in or around the emergency department (ED). Only a minority of EPs report familiarity with firearms, creating a safety risk if an EP is required to remove a firearm from the clinical care space. There is a clear need for firearm safety curricula directed at EPs.

**Objectives:** To train EPs in the principles of safely handling firearms with the goal of removing a firearm from the clinical care space.

**Curricular Design:** Using Kern’s 6-step approach, a critical action checklist was developed by emergency medicine faculty in collaboration with local police, validated in a pilot study, and an instructional video was created to teach these key concepts. Simulation was chosen to allow for hands-on training and skills assessment. The scenario was a patient with undifferentiated altered mental status. During their evaluation, participants discovered a firearm that they

had to remove from the bedside. Participants were scored on their performance of the critical actions on the checklist. Each resident's performance was compared to residents who had not yet received the training module.

**Impact:** This intervention is easily integrable into pre-existing simulation curricula. Preliminary data show 60% of participants have no prior firearms training. On a 5-point Likert scale, participants without prior firearms training reported low confidence in safely removing a firearm from the clinical care space (median 1, IQR 0), while those with prior training reported high confidence (median 5, IQR 0.75). Data collection is ongoing, so definitive conclusions on this intervention's effectiveness cannot yet be made, but participants receiving the intervention prior to simulation performed all 8 action items correctly, while control participants performed a median of 5 items correctly.

## 6 An Educational Curriculum for Healthcare Costs and Price Transparency. Is Training In Cost-Effectiveness Possible?

*Keel Coleman, Daniel Lareaux, Timothy Fortuna*

**Introduction/ Background:** Cost-effectiveness in healthcare has been stymied by lack of real-time costing data. The Cost Transparency Act has provided a platform from which educators may describe the expenses our patients incur as they utilize our healthcare system. This is new training and has an unfortunate dearth of formal study or literature.

**Educational Objectives:** Provide a framework of cost awareness for resident education learners in Emergency Medicine via the following aims: 1. Appreciate the variability of costing across payor groups 2. Understand how clinical decisions affect the financial health of patients seeking care in the ED 3. Perceive the underlying dysfunction of 'market-based' healthcare.

**Curricular Design:** Nine 30 min lectures, occurring once a month, were provided to a population of 36 Emergency Medicine Residents during their dedicated conference time. Following the ninth lecture, learners completed a survey with the following questions: Overall, how would you rate the course and was the course material useful? How clearly did your instructors explain the course material? Name one thing you learned in the course.

**Impact/Effectiveness:** Greater than 80% of responses to all questions rated the course as Excellent or Very Good. The expository item included answers with themes around: The cost of American healthcare. The lack of standardized pricing. Coding level effects on price. The Healthcare Cost Transparency Act has provided a platform from which curricula may be assembled that are well received by Emergency Medicine Learners. Our patients recognize that financial health is part of their global health picture. Further advancement in how to teach the cost of care is possible. The

next area of study is evaluating how this curriculum changes practice patterns.

## 7 Scoring Tools in Emergency Medicine: A Novel Video Lecture Series

*Nao Yoneda, Patrick Monahan, Anita Lui, Jonathan Siegal, Timothy Khowong, Saumil Parikh, Ameer Hassoun, Michael Chary, David Simon, Sheetal Sheth*

**Introduction/ Background:** Scoring tools such as the HEART score play an integral part in Emergency Medicine (EM) and are used daily by providers to aid in clinical decision-making. Evidence-based tools aim to provide concrete guidance to secure the safest disposition and management. Despite their ubiquity, clinicians early in training lack adequate exposure to utilize these tools properly and there is no formal training in how to rigorously apply these scoring tools. By creating a voice-over lecture series to educate clinicians on how to properly utilize these tools, we hope to promote the appropriate use of these tools in the clinical setting.

**Educational Objectives:** The objective of this innovation was to create an easy to follow, voiced over, PowerPoint lecture aimed at educating medical students and residents about commonly used clinical scoring tools. This activity can be used asynchronously or shared as a free, open-access medical education resource.

**Curricular Design:** Our group of EM educators created a voiced-over lecture series on 22 commonly used clinical scoring tools. Each lecture covered a scoring tool's derivation, validation, indications for use, sensitivity/specificity, and limitations. A 30-question quiz including relevant clinical scenarios was given before and after the lecture to assess the amount of information retained.

**Impact/Effectiveness:** This lecture series provides EM educators with a user-friendly educational tool to educate future providers about the benefits and limitations of scoring tools. The effectiveness was measured by a quiz administered before and after the lecture which showed an improvement in resident performance before ( $M = 55.9$ ,  $SD = 9.2$ ) and after the intervention ( $M = 82.2$ ,  $SD = 5.8$ ),  $t(8) = 6.5$ ,  $p < .001$ . A benefit was also demonstrated amongst fourth year medical student performance before ( $M = 56.3$ ,  $SD = 8.6$ ) and after the intervention ( $M = 76.7$ ,  $SD = 10.7$ ),  $t(8) = 8.5$ ,  $p < .001$ .

## 8 Beyond the Basics: A Novel Approach to Integrating a Social Determinants of Health Curriculum into an Emergency Medicine Course

*Nikkole Turgeon, Katie Dolbec, Florence On, Erica Lash, Emily Reed, Kateline Wallace, Adam Fortune, Katie Wells*

**Introduction/ Background:** There is a paucity of

literature on incorporating social determinants of health (SDH) training into undergraduate medical education within Emergency Medicine (EM) courses. We designed a novel SDH curriculum to address gaps and limitations of teaching SDH that goes beyond an introductory approach and challenges students to assess SDH and how to address them in clinical practice.

**Educational Objectives:** 1. Assess SDH, risk factors, and barriers to health care facing patients from diverse backgrounds. 2. Examine how social work consult services operate in the ED and how to identify appropriate referrals, resources, and treatment plans. 3. Examine and interpret health disparities’ impact on patients and develop potential solutions to reduce these disparities to improve health outcomes. 4. Analyze the experiences and lessons learned and use them to inform future patient interactions.

**Curricular Design:** The curriculum was developed by a workgroup that considered the following: scope, target learners, overall structure, and instructional and delivery methods. The curriculum consists of four components over the 4-week course including a SDH shift, small group case discussion, solutions-focused presentation, and written reflection. Finally, students complete an end-of-course survey that is quantitatively and qualitatively analyzed.

**Impact/Effectiveness:** Of all respondents, 92% indicated they would apply lessons learned from the curriculum. We posit that the lessons learned through the SDH curriculum can translate to improved patient care and health outcomes. We implemented changes such as reducing components of the curriculum and integrating social medicine concepts into existing sessions. Overall, social medicine integration into a core EM course is a replicable approach to experiential and collaborative exposure to the SDH that can improve the way future generations of physicians identify and address the social needs that affect their patients.

**Table 1.** Quantitative results for end-of-rotations social determinants of health survey questions.

Question/Statement	Yes	No			
Will you apply lessons learned from your Health Equity Experience to your future practice?	68 (82%)	6 (8%)			
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
This course helped increase my understanding of how diversity, equity, and inclusion relate to the practice of medicine.	2 (3%)	-	12 (16%)	34 (46%)	28 (35%)
I had an opportunity to participate in the care of a variety of different patients in this course. Examples of variety include: different medical conditions, diverse cultures, ethnicities, socioeconomic backgrounds, sexual orientations, and belief systems.	-	-	4 (5%)	27 (36%)	43 (55%)
	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Rate the overall quality of the Health Equity Experience during your course (social determinants of health shift, small group experience, and large group discussion).	5 (7%)	15 (20%)	25 (34%)	18 (22%)	13 (16%)

**Table 2.** Thematic analysis of end-of-rotation social determinants of health narrative responses with additional exemplar quotes.

How can we improve the Health Equity Component of the Clerkship?		
Theme	Sub-theme	Exemplar Quotes
General Comments	Positive	I thought this part was great. Much more than I've had in any other rotation (clinical or non-clinical) thus far in med school. I was surprised by that, but very pleasantly surprised by how much I got out of it even in a short time.
		It was the best health equity clerkship course so far
	Negative	Remove it (SDH curriculum), we do this during family med rotation, so it is repetitive.
	Neutral	I really thought it was great and can't think of any improvements to be made at this time.
Course Design	Structure of patient interviews	Encourage asking the SDH questions to patients the student has already been building a relationship with. It's so awkward going up to a random patient or asking the attending on if there are any patients with SDH barriers.
		The questionnaire can be improved - it is very objective and the whole concept of SDH is subjective that extends beyond simple questions like "do you have housing/food"
	Structure of SDH shift	Work with social work when they are consulted when it is a patient that we saw during a normal shift so that we can better understand when social work is needed and how it is incorporated into better health care for our patient. It would make integrating the medicine and the social pieces more powerful and tangible.
	Reduce components	The SDH curriculum is great and a fundamental aspect of what we should be learning as EM students. That being said, it was more work than expected, and tough during a stressful time of the year to have several added requirements. A panel where peers can talk thoughtfully about their experiences (vs a project and essay) would have been less stressful and more fulfilling.
	Variability of SDH shift	I think shadowing the social workers is a little challenging. Often they are on the phone calling consults or are in meetings and there is little engagement for us. I think it was helpful to see all that they do and how they are integrated into patient care in the ED.
	Remove SDH shift	I don't think there needs to be an extra SDH shift. I think it would be sufficient to provide students with the questionnaire and seek patients out during their shifts.

## 9 Can Simulation be Used as a Tool to Assess Senior Resident Competence in Supervising Junior Residents Placing Central Lines

Jessica Parsons, Deborah Pierce

**Introduction/ Background:** ACGME program requirements state that senior residents should supervise junior residents. Historically, once residents are deemed competent in a skill, they are permitted to supervise that skill. However, the ability to supervise may not be the same as the ability to perform a skill.

**Educational Objective:** Our goal was to develop a tool to assess a senior resident’s competence to supervise a junior resident placing a central line.

**Curricular Design:** Sixty residents were assigned to teams consisting of each PGY level. The SIM scenario involved managing a post-cardiac arrest patient who required a central line. During the procedure, the patient developed hypoxia due to an iatrogenic pneumothorax.

The scenario and debrief were videotaped and analyzed by two faculty to assess if the supervising resident gauged the junior resident's knowledge of the procedure, ensured that critical actions were followed, and could manage the complication. The time elapsed before the complication was identified was recorded. Evaluation also included anonymous surveys before and after the SIM to obtain resident perceptions of their ability to supervise.

**Impact:** The SIM effectively assessed if the supervising resident evaluated the junior's procedural knowledge, if they provided appropriate education, and if they ensured critical actions were performed. However, we could not assess if the senior recognized the complication as other team members often spoke out first. Team-based SIM is likely not an effective tool to thoroughly evaluate an individual resident. The time it took for each team to identify the pneumothorax ranged from 12 seconds to 185 seconds. Debriefing this delay in diagnosis provided education to expedite recognition of this complication in the future, illustrating the educational benefit of the SIM. Resident surveys also support this value as 69% of the residents felt that after this SIM they felt more prepared to supervise.

## 10 Code SIM: Cardiac Arrest Simulations for Graduating Medical Students

*Carrie Foster, Casey Morrone, Nicholas Hartman*

**Introduction/ Background:** There are clinical scenarios graduating medical students encounter early in residency for which they feel unprepared, such as cardiac arrest management. While many students observe resuscitations, few will actively participate in leading one. Lack of familiarity with the Advanced Cardiac Life Support (ACLS) algorithm and the team dynamics required to run a code may lead to delayed care and inadequate resource utilization. There is a need to minimize this knowledge gap via experiential learning in order to improve preparedness.

**Educational Objectives:** Our innovative curriculum focused on preparing graduating medical students to simultaneously assign roles to team members, communicate clearly and effectively, use the ACLS algorithm, and develop a differential diagnosis during a critical patient care scenario. We placed a heavy emphasis on team dynamics and communication skills.

**Curricular Design:** We developed a one-hour simulation course to augment the Transition to Residency course offered to graduating medical students. Our course included two novel cases centered on cardiac arrest management. To maximize experiential learning, we utilized high-fidelity SIM to mimic an in-situ code as realistically as possible. Prior to beginning the cases, students were split into groups and a team leader was selected. Leaders were required to recognize the patient

in cardiac arrest, assign roles, follow the ACLS algorithm, and prepare a differential diagnosis for the cardiac arrest. After each case critical actions, key differential diagnoses, and areas for improvement were reviewed. Students were surveyed after completion of the session.

**Impact/Effectiveness:** Of the 64 students who participated in the course, 57 (89%) completed the survey; 100% of students agreed or strongly agreed that the session achieved its objectives and enhanced their preparation for internship. Also, students preferred the resident-led nature of the session and wished it were longer.

## 11 Creation and Implementation of a Novel Asynchronous ECG Curriculum for PGY1 Emergency Medicine Residents

*Spenser Lang, Jessica Baez*

**Introduction/ Background:** Electrocardiogram (ECG) interpretation remains a fundamental and essential skill for Emergency Medicine (EM) physicians. In our institution, ECG interpretation teaching occurred mainly during clinical shifts, or indirectly through other established curricula. We recognized an opportunity for a more standardized curriculum within our residency program while avoiding increased mandatory in-person activities or removing another aspect of resident education. In addition, we wanted to maintain an adult learner-centric focus that residents can complete on their own schedule, but with the ability to interact with a faculty member for improved quality. With that in mind, we created a curriculum designed for asynchronous delivery over the Slack platform, with faculty member moderation.

**Objectives:** Standardize ECG interpretation for PGY1 residents, with focus on identification/management of 4 clinical categories: ischemia, tachydysrhythmias, bradydysrhythmias, & syncope.

**Curricular Design:** All resident learners were enrolled on Slack, and divided into groups, each with a separate faculty instructor. The curriculum spans 1 academic year, with a weekly recurring segment. Each week, the instructor sends a clinical prompt, vitals, and an ECG via Slack to the group. Residents review the ECG within the next 4 days, form an interpretation, then send their answer back to the instructor via private message. After ~5 days, the instructor reveals the correct interpretation via group chat, and opens the conversation within the group for questions and discussion of clinical management.

**Impact:** The resident learners provided generally positive feedback. Weekly participation was overall quite high, with some small decrease near the end of the academic year. To assess effectiveness, we used a pre-post intervention survey to measure resident learners' self-reported comfort with the various categories of ECG interpretation and management (see Figure 1).

<b>Figure 1</b>		<b>Control Arm</b>	<b>Intervention Arm</b>
<b>Age</b>	<b>Mean (SD)</b>	<b>28.54 (2.15)</b>	<b>28.77 (3.54)</b>
<b>Gender</b>	<b>Male</b>	<b>5 (38.4%)</b>	<b>5 (38.4%)</b>
	<b>Female</b>	<b>8 (61.5%)</b>	<b>8 (61.5%)</b>
<b>How prepared do you feel to interpret ECG's on your own?</b>	<b>Very Unprepared</b>	<b>0</b>	<b>0</b>
	<b>Somewhat Unprepared</b>	<b>3 (23.1%)</b>	<b>1 (7.7%)</b>
	<b>Neutral</b>	<b>2 (15.4%)</b>	<b>1 (7.7%)</b>
	<b>Somewhat Prepared</b>	<b>8 (61.5%)</b>	<b>8 (61.5%)</b>
	<b>Very Prepared</b>	<b>0</b>	<b>3 (23.1%)</b>
<b>How prepared do you feel to manage patients with abnormal ECG's?</b>	<b>Very Unprepared</b>	<b>0</b>	<b>1 (7.7%)</b>
	<b>Somewhat Unprepared</b>	<b>2 (15.4%)</b>	<b>0</b>
	<b>Neutral</b>	<b>2 (15.4%)</b>	<b>1 (7.7%)</b>
	<b>Somewhat Prepared</b>	<b>9 (69.2%)</b>	<b>10 (76.9%)</b>
	<b>Very Prepared</b>	<b>0</b>	<b>1 (7.7%)</b>
<b>How comfortable are you with identification of ischemia on ECG's?</b>	<b>Very Uncomfortable</b>	<b>0</b>	<b>0</b>
	<b>Somewhat Uncomfortable</b>	<b>2 (15.4%)</b>	<b>0</b>
	<b>Neutral</b>	<b>2 (15.4%)</b>	<b>0</b>
	<b>Somewhat Comfortable</b>	<b>9 (69.2%)</b>	<b>8 (61.5%)</b>
	<b>Very Comfortable</b>	<b>0</b>	<b>5 (38.4%)</b>

and there is no documentation of longitudinal initiatives with residents as specialty-specific advisors to students throughout the four years of medical school.

**Educational objectives:** The goals of creating the RSEC were to strengthen the connection between students and EM residents, expand and improve the student educational experiences in EM, and foster resident career development through sustainable leadership and teaching opportunities.

**Curricular design:** Three divisions were created: (1) Preclinical Division aimed to increase student exposure to EM through didactics, skill sessions, simulation, and shadowing. (2) Clinical Division held teaching roles in simulation and skill sessions for rotating students and administrative roles to refine scheduling, create face sheets, and host socials. (3) Mentoring Division focused on advising students applying into EM through an informal series and 1-on-1 resident mentorship.

**Impact/effectiveness:** We successfully implemented sustained resident involvement into all four years of medical school. In the last year, there were 113 shadowing opportunities. Those that were rated were all 4-5 on a 5-point Likert scale. Didactics improved students' confidence in history and physical exam. 36 sub-internship students and 18 clerkship students participated in monthly ultrasound workshops, simulations, and socials. Nearly 30 students, both home and visiting, were assigned resident mentors and participated in 6 advising events. Looking ahead we hope to expand preclinical cases, build upon didactic and ultrasound sessions for clinical students and augment mentorship to include preclinical students.

## 13 Effective Implementation of Virtual Team-Based Learning

*Navdeep Sekhon, Adedoyin Adesina, Kathryn Fisher, Daniela Ortiz, Sarah Bezek*

**Introduction/ Background:** Team-based learning (TBL) is an active-learning didactic method. Multiple studies have shown that it helps learners retain medical knowledge and develop higher order decision-making. TBL has been shown to help students improve their teamwork and leadership skills. COVID-19 has shifted the educational climate to where students are more comfortable participating in learning activities virtually.

**Educational Objectives:** The objective of this innovation is to assess whether virtual TBL can be effectively implemented on the Emergency Medicine clerkship.

**Curricular Design:** A TBL session is composed of four components: the Individual Readiness Assurance Test (IRAT), the Team Readiness Assurance Test (TRAT), a group discussion of the IRAT and TRAT, and the clinical problem-solving activity. Using video-conferencing software, this was delivered virtually. The IRAT was a multiple-choice test that

## 12 Creation of a Residency-Based Medical Student Education Committee

*Danielle Kerrigan, Stephanie Hess, Anita Knopov, Christina Matulis, Eric Ebert, Kaitlin Lipner, Jeffrey Savarino, Brian Clyne, Jayram Pai*

**Introduction/ Background:** The Resident Student Education Committee (RSEC) is a novel approach to integrate and expand medical student education within an EM residency at a large academic center. Historically, little formal or sustained interaction existed between students and residents in the ED. There is a paucity of literature on such programs

was emailed to learners, and they were instructed to spend 10 minutes to complete it individually. After 10 minutes, the students were broken into breakout groups of 3-4 where they discussed the answers (TRAT). The students were then sent back to the large group where the questions were discussed by a facilitator. Next, the clinical problem-solving activity was conducted where learners were sent back to their breakout groups and worked through clinical cases. Each group was tasked to come up with three clinical questions based on the clinical cases that they would like to discuss in the large group and placed them in a shared Google doc. The students were then brought back to the large group where the facilitator led a discussion regarding the questions.

**Impact/Effectiveness:** We compared student perceptions of in-person and virtual TBLs assisting them to learn clinically applicable information. For in-person, the score was 4.53/5 (n=313) versus the virtual sessions score of 4.75/5 (n=103)(p=.008). This suggests that virtual TBLs can be effectively implemented.

## 14 Evolution of Medical Student Didactics: Using Simulation to Target High Acuity Clinical Topics Associated with Lower Examination Performance

*Damian Lai, Brent Becker, Nicole Peters*

**Introduction/ Background:** 4th year medical students planning on pursuing emergency medicine (EM) typically spend 4 weeks working in the emergency department (ED) during a rotation. Clinical exposure is paramount for these learners; however, students often assume a less active role in higher acuity and unstable patients. Consequently, it is difficult to assess their knowledge base and comfort level managing more critical patients. At our residency we emphasize simulation during didactics to provide students the opportunity to demonstrate their clinical knowledge, leadership and teamwork.

**Education objectives:** 1) Examine EM rotation examinations to identify topics on which medical students generally performed lower. 2) Design simulations to address these topics, increase knowledge retention and improve clinical comfort level.

**Curricular design:** Medical students complete a standardized multiple choice EM exam during their rotation that has remained largely constant over the past 5 years. We compiled the scoring data from a total of 121 students and identified 3 areas of lower performance related to high acuity patient care: Trauma, Seizures, and GI Bleed. Custom simulations focusing on these scenarios were added to existing simulations on respiratory distress and cardiac arrest. A standardized scoring rubric was used to assess medical student performance. Students reported their pre-

and post-simulation comfort level managing the 3 scenarios on 5-point Likert scales.

**Impact/effectiveness:** For applicants to residency in EM, the simulation scoring rubric provided an objective data point for the didactic scoring portion of their rotation grade. Comparison of paired pre- and post-simulation surveys via the McNemar's test (p=0.05) demonstrated a significant improvement in students' comfort level managing all 3 patient scenarios.

## 15 Expanding DEI Curricula in Emergency Medicine Graduate Medical Education: A Pilot Innovation Project

*Whiney Johnson, Leah Bauer, Xian Li, Patil Armenian, James McCue, Michelle Storkan, Stephen Haight, Sukhjit Dhillon, Lily Hitchner, Jessie Werner, Courtney Pettigrew, Rahul Rege, Camila Mateo*

**Introduction/ Background:** The ACGME has new requirements to address issues of diversity, equity, and inclusion. While it is unclear what the best method is for delivery of DEI education, this innovation aims to introduce a framework for a longitudinal curriculum that integrates directly into the EM residency weekly conference with the goal of educating physicians and prioritizing DEI in clinical practice.

**Educational Objectives:** This innovation is designed to: (1) recognize and discuss the impact of healthcare disparities in emergency medicine, (2) collaborate with members of the faculty and resident team to learn about and discuss the effects of health disparities, and (3) self-evaluate and reflect on their experiences and lessons learned.

**Curricular Design:** This longitudinal curriculum was designed the decision to create modules that integrate directly into weekly educational conference with a goal to eliminate the common practice of optional DEI education. Implementation directly into conference demonstrates the importance of showing learners that DEI is a vital component of practicing holistic medicine. The program was structured as modules with 5 core themes followed by targeted topics within those categories. There were 6, 2-hour sessions throughout the academic year that included a 1-hour lecture followed by small groups that included follow up discussion questions, case-based simulations, and review articles to reinforce key concepts learned. Additional educational material was provided for asynchronous learning. The course was assessed utilizing a voluntary, anonymous retrospective pre/post survey.

**Impact/Effectiveness:** The framework we present provides a model for which other programs in GME may implement DEI education. We present pre- and post-survey results from our pilot group highlighting the areas of growth in knowledge and understanding, as well as some of the

suggested areas of improvement and desired expansion for the future curriculum.

**Table 1.** Retrospective pre-post-survey.

Q6 BEFORE DEI course: My knowledge of...						Q7 AFTER DEI course: My knowledge of...							
	NONE	A LITTLE	SOME	A LOT	TOTAL	WEIGHTED AVERAGE		NONE	A LITTLE	SOME	A LOT	TOTAL	WEIGHTED AVERAGE
Radiobiology historical impact	0.0%	15.0%	57.0%	28.0%	7	3.12	Radiobiology historical impact	3.00%	0.0%	26.0%	69.0%	20	3.62
Currently competent care of the LGBTQ+ community	3.0%	33.0%	42.0%	15.0%	7	2.81	Currently competent care of the LGBTQ+ community	3.00%	0.0%	42.2%	53.8%	20	3.46
DEI reusability/revision	0.0%	38.4%	48.0%	13.6%	26	2.77	DEI reusability/revision	3.00%	0.0%	38.4%	57.6%	20	3.50
DEI impact in academic medicine	7.0%	34.0%	48.0%	11.0%	26	2.62	DEI impact in academic medicine	3.00%	0.0%	42.2%	53.8%	20	3.46
Formation of an anti-racist professional identity	25.0%	28.0%	38.0%	9.0%	26	2.62	Formation of an anti-racist professional identity	3.00%	0.0%	34.2%	62.8%	20	3.54
Reflection/racism changes case discussions	7.0%	42.0%	38.0%	13.0%	26	2.34	Reflection/racism changes case discussions	4.00%	1.0%	30.0%	65.0%	25	3.44

**Table 2.** Participant impact.

Q9 Do you think this course impacted or changed your current practice? Why or why not?

ANSWER CHOICES	RESPONSES
Yes	73.00%
No	7.69%
I don't know	19.31%
Total Respondents: 26	

made me become aware of what terms I can use to be helpful	It has made me more aware of terminology associated with trying to make our environment more inclusive and has made me more aware of the struggle people face with getting care as well as other physicians may face in the professional environment. It has made me aware of my privilege in this sector and given me tools as to how to help others to create a more inclusive environment.
I'm better equipped to care and advocate for diverse patient populations	Yes. It has made me more mindful of potential biases I may have and given me strategies to combat them.
While I have spent a lot of time in the health equity space there is constant need for learning and improvement. I think this course allows us to slow down from our fast paced environment and reflect on mistakes and how we can do better. Similar to other M & M's.	These are concepts that are persistent in my everyday life, not just my practice in EM. Great course, please keep it for future years!
This course created a shared understanding and language to discuss these important issues in our emergency department. Since we took this course as a residency as a whole, we now can hold each other accountable to important changes and discuss errors in a more productive manner.	I think I just to be more aware in every patient interaction and also helped to help residents navigate these complex situations.
I think that it has allowed me to be ok with what I don't know and allow me to ask questions as a learner and physician that at first I was not comfortable asking. I enjoyed the safe space to have conversations around topics that have been challenging for me in the past. Thank you.	I will be more aware of these topics and how to deal with them in real time.
I now feel more confident addressing and interacting with patients who have many different racial/ethnic identities.	broadened some of my knowledge base
I think I am much more aware of the racism in the work place and can be a better advocate	

**Design:** During each CCC meeting scores for each sub-competency (e.g., Patient care, Medical Knowledge, etc.) within each of the six core competencies were summed for each postgraduate year (PGY). Median scores are calculated for each of the six core competencies based on gender and UIM status, as defined by the Association of American Medical Colleges (AAMC). A median difference of greater than or equal to 0.5 triggers a review of the scores in real-time and if sustained over 2 CCC meetings a root cause analysis is implemented.

**Impact/Effectiveness:** The equity dashboard was piloted for one 4-year EM residency program for 3 CCC meetings, from 2021-2022. Once the milestone scores were finalized during the meeting, any differences in medians were discussed and the data was reviewed by CCC members. Real-time changes were made to ACGME milestone scores to ensure internal consistency and interrater reliability. Over 3 CCC cycles, a root cause analysis has not been needed thus far.

## 17 Gamification through Low-Fidelity Simulation to Teach Early Clinical Application of Point-of-Care Ultrasound

Daniel Saadeh, Lauren McCafferty

**Introduction/ Background:** Point-of-care ultrasound (POCUS) has become an integral part of EM residency training, but pre-residency exposure is highly variable. Efficiently teaching the many core POCUS applications to new EM interns in a 1-day bootcamp in a way that is effective, engaging, and clinically relevant can be a challenge. Gamification and simulation have been demonstrated to be valuable mediums through which to teach POCUS to undergraduate and graduate learners. Especially early in training, the emphasis is often on image acquisition and interpretation skills rather than clinical application, which is learned more in clinical practice throughout residency.

**Educational Objectives:** We utilized gamification and simulation as engaging educational techniques to introduce interns to the clinical application and integration of POCUS from the beginning of residency.

**Curricular Design:** As part of a POCUS bootcamp for EM interns in July, we incorporated a gamified approach into the curriculum. After learning the basics of image acquisition and interpretation, the learners were placed into teams for a competition stage where they rotated through seven low-fidelity simulation stations, each composed of a clinical scenario in which POCUS is commonly incorporated. Progression through each scenario depended on the learner's ability to successfully apply bedside ultrasonography to clinical care.

**Impact/Effectiveness:** This educational symposium

## 16 Educational Continuous Process Improvement: Implementation of an Equity Dashboard for ACGME Milestone Score Assessment

Jillian Mongelluzzo, Esther Chen, Evelyn Porter, Christopher Fee

**Introduction/ Background:** Studies have shown inequities in assessment within Graduate Medical Education (GME) based on race/ethnicity and gender identities of residents. Accreditation Council for Graduate Medical Education (ACGME) milestone assessment scores can serve as a warning sign for deeper issues in methods of assessment, well-being, or opportunities for residents. To help mitigate bias in assessment, we piloted an equity dashboard to compare outliers in semi-annual milestone scores by gender and underrepresented in medicine (UIM) status from one emergency medicine (EM) residency program.

**Educational Objectives:** 1. Implement an educational continuous quality improvement (ECQI) process, the equity dashboard, to identify outliers in ACGME milestone scores by gender and UIM status 2. If persistent discrepancies are identified, utilize a root cause analysis framework to gain a deeper understanding of the causes and formulate potential solutions.



included over forty EM interns from five institutions. The vast majority completed post-event surveys which showed overwhelmingly positive feedback for the structure of the course. After a one-day session at the beginning of residency, interns gained the experience of applying POCUS to clinical practice. Future directions include additional evaluative feedback and continued minor curricular improvements.

## 18 High Risk, Low Frequency Emergency Medicine Resident Asynchronous Simulation Curriculum

*Taylor Petrushevski, Adriana Segura Olson, Nathan Olson*

**Introduction/ Background:** Integrating high risk, low frequency cases into EM resident education remains a challenge and are often integrated into SIM. There is an increasing focus on asynchronous curricula in medical training, but little on blending asynchronous and SIM.

**Educational Objectives:** We instituted a pilot asynchronous SIM curriculum for high risk, low frequency cases; our goal was to assess the effect of the curriculum on EM resident knowledge retention and confidence.

**Curricular Design:** A needs assessment showed that the majority of EM residents at a 3-year academic residency did not feel confident managing high risk, low frequency cases, but did feel that pre-existing SIM and asynchronous curricula were valuable for knowledge retention. We implemented an asynchronous SIM curriculum to address this need. A SIM for EM PGY 1-3s involved an inferior STEMI complicated by unstable complete heart block requiring pacing. Asynchronous FOAMed content was curated with different modalities. Residents were randomized to participate in SIM alone or in SIM and asynchronous curriculum. A survey assessing knowledge retention via quiz and resident confidence via Likert scale was administered to both groups directly after SIM and at 1 month.

**Impact/Effectiveness:** Directly after SIM, less than 50% of participants (n=22) were confident identifying complications of STEMIs and managing complete heart block, demonstrating the educational need that can be met by an asynchronous SIM curriculum. The asynchronous group had no change in average knowledge quiz score at 1 month while the non-asynchronous group had an average change in score of 1 at 1 month. These non-significant findings are likely secondary to a small sample size; data collection is ongoing as we are approximately 1-month post SIM. The theoretical value of blending debrief-focused SIM with different modalities of asynchronous material allows for spaced repetition with practical, balanced, and individualized education.

## 19 Implementing A Mutually Educational Measure for ACGME Residency Core Didactic Participation Tracking

*Kelly Roszcynialski, Ashley Rider, Yvonne Landeros, Sara Krzyzaniak*

**Introduction/ Background:** The COVID-19 pandemic necessitated moving core residency didactics to a virtual platform. The inability to use in-person sign-ins and physical evaluation forms posed challenges for tracking attendance as part of the ACGME conference participation including an evaluative component. (ACGME 2011) Objectives: To develop an attendance tool that is reliable and convenient for didactic participants in a hybrid setting, offers a reflection opportunity for learners, and provides specific and actionable feedback to educators.

**Design:** Program leadership designed a novel conference feedback form (CFF), consisting of two free text response assessments for each didactic activity. The first prompts a reflection on what the resident learned. The second asks for feedback from the resident to the lecturer. The CFF was built in Smartsheets and made accessible to residents through a physically posted QR code, hyperlink in Zoom chat, and on our program's secure webpage. Completion by the end of the day qualified as participation for attendance tracking.

**Impact:** The CFF was piloted May-June 2022. Pilot feedback to learners was that answers must be concrete, and an empty field or 'N/A' would not suffice. The CFF was formally implemented in July 2022. To date, we have gone from no formal qualitative feedback to presenters to 864 submissions. Residents reported they are more attentive to lecture content in anticipation of synthesizing a learning point to earn participation credit. This confirms the objective in alignment with a constructivism theory to increase learning by self-reflection. This simple CFF can be implemented in any residency program looking to both formalize attendance tracking and add a mutually educational tool for residents and presenters to align with ACGME core program requirements.

## 20 Improving Emergency Medicine Resident Ophthalmologic Management Skills via Simulation

*Jessica Pelletier, Alexander Croft, Michael Pajor, Matthew Santos, Ernesto Romo, Douglas Char, Marc Mendelsohn*

**Introduction/ Background:** Ophthalmology education in emergency medicine (EM) residencies is lacking, with the majority of EM physicians feeling they could benefit from additional training in this domain, and less than half of EM physicians comfortable performing a lateral canthotomy. To

address this need, the Departments of EM and Ophthalmology at our institution have designed an Ophthalmology Education Day (OED) designed to improve performance of ophthalmologic examination and procedural skills.

**Educational Objectives:** (1) By the end of the OED learners will demonstrate a systematic approach to the emergency ophthalmologic examination, developing a differential diagnosis of emergent causes of eye pain and vision loss. (2) Our OED will increase resident comfort and knowledge of the major components of the emergency ophthalmologic examination. (3) By the end of the session, our learners will demonstrate sustained proficiency in performing potentially vision-saving procedures within the scope of EM practice. (4) Learners will demonstrate ongoing knowledge retention after participation in the OED.

**Curricular Design:** Our OED will include systematic eye examination instruction, high-fidelity procedural stations, and three simulation cases. A single-center prospective pre- and post-interventional study involving PGY-1-4 EM residents evaluating change in checklist-based performance on a simulated case of orbital compartment syndrome requiring lateral canthotomy will be performed. Our checklist is being validated via modified Delphi methodology. Resident performance on the case will be assessed three months before the OED, after procedural training on OED, and three months after the OED.

**Impact:** There is an urgent need for improved ophthalmology education during EM residency, particularly for managing vision-threatening diagnoses. We hypothesize that resident performance of management of eye-saving interventions will statistically significantly improve after OED participation.

## 21 Improving Patient Care at the Bedside for Disadvantaged Populations through Medical Student Participation in a Shelter Outreach Clinic

*Laura Ortiz, Brian Felice, Stephen Fox, Michael Marchiori, Divyani Patel, Jason Adam Wasserman*

**Background:** Providing care at the bedside for disadvantaged patients can be difficult due to few interactions with these patients and unconscious biases that may exist in providers and lead to poorer patient encounters and care.

**Objectives:** A pilot study was performed to see if participation in a Street Medicine Program during medical school enhances a student's comfort at the bedside for both the general and a disadvantaged population.

**Methods:** This is a retrospective study. A survey was sent out to medical students in their clinical years who had participated in a shelter outreach encounter during their first two years of medical school. Students participate in a free clinic where they perform history and physicals, staff with the attending physician and develop a plan for treatment of the patient. The survey had 36 questions, asking students

their comfort levels in specific activities. These questions were asked for before and after participation in an outreach encounter. A modified Likert scale was used, with a range between 0-100, with 0 extremely uncomfortable and 100 extremely comfortable. Responses were anonymous and a paired t-test was used to analyze the mean change in comfort level of participants after their participation in the clinic. A p value of <0.05 was used as cutoff for statistical significance.

**Results:** 36 students were emailed the survey with 11 students responding (31% response rate). Statistically significant increases in comfort levels were found in 11 of the 14 categories, notably with comfort levels in all areas (history, physicals, assessment and plan, presenting to a physician) regarding treating disadvantaged populations.

**Conclusions:** Medical student comfort with disadvantaged populations increases with the opportunity to treat these patients. Limitations to this study include low response rate, and recall bias with before and after an intervention being asked on the same survey.

## 22 Interviewing the Neurodivergent Candidate

*Erin K. Gonzalez, Suchismita Datta, Danielle Stansky, Christopher Caspers, Meredith Ankerman*

**Background:** Understanding the complexity of autobiographical memories and developing interview techniques for autistic adults are areas of active research.

**Educational Objectives:** Pilot a training session for EM faculty for interviewing neurodivergent [ND] residency applicants to develop competent, equity-minded residency interviewers.

**Curricular Design:** A 1-hour, virtual session was scheduled within an existing faculty development time slot to facilitate faculty availability. Educational leadership supported this initiative as an informal needs assessment suggested interest and a knowledge gap. The ADDIE instructional design model was used. Self-reported effectiveness and enjoyment was measured via anonymous survey based on the validated Intrinsic Motivation Inventory tool. Direct instruction was used to present current understanding and terminology of autism and neurodiversity, including executive function, autobiographical memory, and theory of mind. Then, prerecorded videos were shown with actors representing a neurotypical and a ND candidate who received the same interview questions. Guided practice was used to demonstrate how to elicit relevant responses from a ND interviewee. Concluding the lecture was a review of recent studies showing positive effects of semantic prompting, visual-verbal prompting, and other question adaptations in employment interviews. The session ended with a group reflection around topics presented. Since participants were advanced adult learners but novices in this field, the

**Table 1.** Post session anonymous survey questions used for feedback from learners.

For each of the following statements, please indicate how true it is for you, using the following scale:  
 1 2 3 4 5 6 7

Note: True [1] Somewhat True[4] Very True [7]

**Regarding your interest/enjoyment around the session:**  
 I enjoyed doing this activity very much.  
 This activity was fun to do. I thought this was a boring activity.  
 This activity did not hold my attention at all.  
 I would describe this activity as very interesting.  
 I thought this activity was quite enjoyable.  
 While I was doing this activity, I was thinking about how much I enjoyed it.

**Regarding your perceived competence with this session:**  
 I think I am pretty good at this activity.  
 I think I did pretty well at this activity, compared to other students.  
 After working at this activity for a while, I felt pretty competent.  
 I am satisfied with my performance at this task.  
 I was pretty skilled at this activity.  
 This was an activity that I could not do very well.

**How did you feel about the value and usefulness of this activity?**  
 I believe this activity could be of some value to me.  
 I think that doing this activity is useful for \_\_\_\_\_ [Narrative feedback]  
 I think this is important to do because it can \_\_\_\_\_ [Narrative feedback]  
 I would be willing to do this again because it has some value to me.  
 I think doing this activity could help me to \_\_\_\_\_ [Narrative feedback]  
 I believe doing this activity could be beneficial to me.  
 I think this is an important activity.

Would you like to learn more about this topic? Select one answer.

1. Absolutely
2. Maybe
3. Not really
4. Definitely not

**Table 2.** Survey results.

Question	Minimum	Maximum	Mean	Std. Deviation	Variance	N
1 I enjoyed doing this activity very much.	1.00	7.00	6.3	0.81	0.63	10
2 This activity was fun to do.	1.00	7.00	6.28	0.87	0.76	10
3 I thought this was a boring activity.	1.00	4.00	1.30	0.90	0.81	10
4 This activity did not hold my attention at all.	1.00	7.00	1.90	1.52	2.68	10
5 I would describe this activity as very interesting.	4.00	7.00	6.70	0.90	0.81	10
6 I thought this activity was quite enjoyable.	4.00	7.00	6.40	0.90	0.84	10
7 While I was doing this activity, I was thinking about how much I enjoyed it.	4.00	7.00	6.00	1.18	1.40	10
<b>Question: perceived competence</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Variance</b>	<b>N</b>
1 I think I am pretty good at this activity.	4.00	7.00	3.20	1.17	1.36	10
2 I think I did pretty well at this activity, compared to other students.	4.00	7.00	3.00	1.18	1.40	10
3 After working at this activity for a while, I felt pretty competent.	4.00	7.00	3.40	1.00	1.04	10
4 I am satisfied with my performance at this task.	4.00	7.00	3.30	1.00	1.00	10
5 I was pretty skilled at this activity.	4.00	7.00	3.30	1.22	1.40	10
6 This was an activity that I could not do very well.	1.00	7.00	3.90	2.12	4.40	10
<b>Question: value</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Variance</b>	<b>N</b>
1 I believe this activity could be of some value to me.	4.00	7.00	6.40	1.00	1.04	10
2 I would be willing to do this again because it has some value to me.	4.00	7.00	6.40	1.00	1.04	10
3 I believe doing this activity could be beneficial to me.	4.00	7.00	6.40	1.00	1.04	10
4 I think this is an important activity.	4.00	7.00	6.40	1.00	1.04	10

session was based in a mix of both cognitive and social constructivist learning theories.

**Impact/Effectiveness:** Mean rating of the session was 6.4 out of 7 (95%CI 4.4-8.4) for value, and 6.7 out of 7 (95%CI 4.94-8.46) for participant interest. All respondents reported that they wanted more training. Education in

neurodiversity is an effective way to broaden awareness and promote diversity and inclusion in graduate medical education programs.

## 23 Learning Mass Casualty Triage via Role Play Simulation

*Martin Morales-Cruz, Ayanna Walker, Drake Dixon, Latha Ganti, Shayne Gue*

**Background:** The purpose of this educational intervention was to introduce trainees to the core competencies of disaster preparedness/ resource allocation/mass casualty incident (MCI) command, and event medicine. This innovative learning activity involving trainees from different programs teaches effective techniques of how to perform START (Simple Triage and Rapid Transport) in a mass casualty event.

**Educational Objectives:** 1. Differentiate between day-to-day triage and triage during MCI 2. Apply the components of START.

**Curricular Design:** The scenario is a Music Festival. A group of residents are granted backstage access to tour the concert grounds and medical tent. During the facility tour, the operations director (proctor #2) radios the tour guide (proctor #1) to let them know of an emergency crowd stampede due to unapproved pyrotechnics causing a fire; the medical tent is all of a sudden being flooded with patients. “Patients” are trainees who receive an index card labeled with vital signs and mental status and transported one at a time to the tent. Residents run over to the tent, perform triage then select two of the most critical patients for air transport. The station leader documents the accuracy of each team. Winners are selected based on time of completion and accuracy of correctly triaging patients. For every incorrect triage a 30 second penalty is added. Incorrectly triaged patient cards are debriefed in detail.

**Impact/Effectiveness:** This activity engages learners both physically and mentally, necessitating everyone to be active. Impact was measured by post-activity survey, accessed via QR at the station. 93% reported feeling better prepared to manage a real-life MCI. 98% reported that START triage better motivated them to learn. 96% reported this activity challenged them more than other learning activities. Verbal feedback included appreciation for the innovative activity design and being able to get some exercise.

## 24 Manual Uterine Aspiration (MUA) Simulation for Emergency Medicine (EM) Residents

*Katherine Wegman, Caroline Gorka, Judith Linden, Shannon Bell, Stephanie Stapleton, Virginia Tancioco, Laura Walsh*

**Background:** Early pregnancy loss (EPL) is a common

pregnancy complication and often results in vaginal bleeding. There is a paucity of evidence informing the ED management of hemodynamically unstable patients with EPL. EM residency training for this situation typically focuses on medical management. However, for unstable patients hemorrhaging as a result of EPL, the American College of Gynecology recommends prompt surgical evacuation of the uterus as definitive management. This procedure is called manual uterine aspiration. EM physicians do not routinely receive formal training in MUA despite its potential utility in the ED, particularly in settings without in-house gynecology consultants.

**Educational Objectives:** Our goal was to implement a curriculum to teach EM learners how to identify and procedurally manage hemorrhage from EPL using MUA.

**Curricular Design:** Rooted in the mastery learning model, this curriculum sought to use simulation to teach EM learners the indications, contraindications, and steps for performing MUA as an ED treatment for hemorrhage from EPL. A two-part simulation session was designed for a group of EM learners. Part one consisted of a lecture and video demonstration showing a competent instructor performing MUA. Part two consisted of hands-on deliberate practice with procedural simulation models at three different stations. Learners were supervised at each station by a trained gynecologist, who used checklists to ensure that all steps of the procedure were performed.

**Impact/Effectiveness:** The MUA curriculum was evaluated using a post-workshop survey. 100% of participants reported increased confidence in their ability to identify indications for ED MUA and cases that would be deemed higher risk for ED MUA. All reported increased comfort in performing steps necessary for ED MUA. To our knowledge, this was the first time MUA was taught to EM learners using simulation.

## 25 Medical Humanities: A Novel Residency Curriculum

Lauren Klingman, Luz Silverio, Alana Harp

**Background:** The medical humanities have a long-recognized role in strengthening resilience, empathy, communication, critical thinking, and observation while reducing burnout in physician training. However, few medical institutions incorporate humanities teaching into their residents' curricula, and the block structure of emergency medicine residency makes established curricula difficult to implement.

**Design:** Our humanities electives are designed for two-week blocks and focus on autonomy, relatedness, and competence. Elective offerings include Introduction to the Medical Humanities and subspecialized electives in literature, theatre, fine arts, climate and health, philosophy, and film. Through self-directed learning, residents read, listen to, watch, and observe a curated medical humanities selection. Residents follow and interpret prompts, submit a reflection journal, and produce an independent project at the completion of the elective. Participants then evaluate the electives on a 5-point Likert scale. Impact: Since the initial course offering in 2020, 23 of our residents have taken a medical humanities elective. Deliverables included narratives, poetry, visual art, a novel, videos, music, a cookbook, and the creation of further electives. On post-intervention survey, participants reported the electives met their professional needs (4.88/5), empowered them to change their practice (4.72/5), enhanced their practice (4.8/5), reduced burnout (4.93/5) and provided them with a clear plan for new skill implementation (4.64/5).

**Impact:** Our course has filled a significant gap related to enhancing the physician experience and building fundamental skills through the medical humanities. This curriculum is

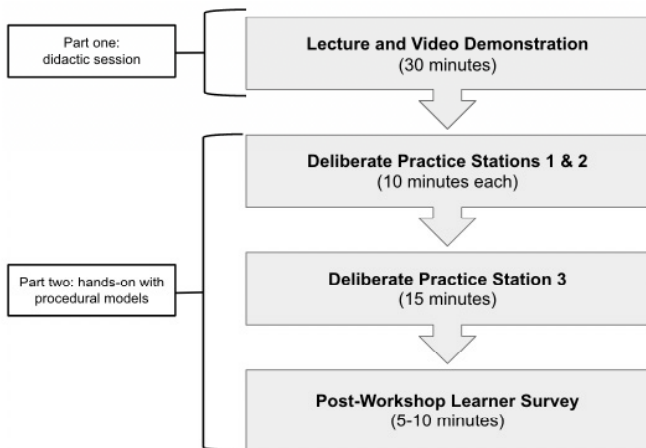


Figure.

Table 1. Postintervention survey item mean responses with 95% CI.

Question	M (95% CI)
This medical humanities elective met my current professional needs.	4.88 (4.71 to 5.05)
Upon completion of this elective, I feel empowered to implement specific changes or strategies that will enhance my professional practice and competence.	4.72 (4.51 to 4.93)
The content of this elective served to enhance my professional practice and competence.	4.8 (4.60 to 5.00)
It is clear to me how I would implement the desired learning outcomes (changes or new strategies) in my practice, if given the chance.	4.64 (4.39 to 4.89)
Reduced Burnout	4.93 (4.80 to 5.06)



**Image 1.** Deliverable examples from the Fine Arts and Medicine electives.

generalizable to other residency programs and the self-directed format is engaging and mobile. Emergency medicine residency programs should consider offering electives in the medical humanities to improve empathy, communication, observation, and decrease burnout in their residents.

## 26 Multimodal Rural Emergency Medicine Curriculum: Preparing Residents for Rural Practice

*Ashley Weisman, Richard Bounds, Skyler Lentz*

**Background:** Rural regions face EM physician shortages. Most training programs are located in cities and lack rural clinical experiences, didactics, and mentorship to excite and prepare residents for rural EM practice. There is limited data on optimal training methods to prepare residents for rural practice.

**Educational Objectives:** 1) Provide a multimodal rural EM curriculum that prepares trainees to work in rural EDs. 2) Evaluate our program quantitatively and qualitatively to assess the opportunities and limitations of rural training.

**Curricular Design:** Our rural EM faculty working group, with extensive experience in rural practice, developed this curriculum based on 2 years of weekly case review from 2 rural critical access hospitals (CAHs). This 3-year program features clinical rotations, lectures, and simulation training. Rotations take place at rural CAHs and remote indigenous hospitals. Lectures and simulation focus on skills required in resource-limited solo practice, such as ventilator management, critical medication mixing, obstetric emergencies, patient transfer logistics, leveraging telemedicine, and prolonged critical care when transport is unavailable.

**Impact:** During each resident's elective, quantitative data on patient volume, acuity, and procedures is collected; each rotation concludes with a qualitative evaluation of new skills,

unique experiences, and limitations. Our rural EM curriculum has proven successful over the first 2 years. Quantitatively, residents see patient acuity and procedures similar to academic center rotations but gain unique skills from the challenges of a rural environment. Qualitatively, 7 of 7 residents gained new skills and confidence, with 86% choosing a rural practice. We plan to expand our program, share didactic content with other residencies, and open additional rural clinical experiences to trainees nationwide, with the goal of bridging the gap between urban training programs and rural emergency care needs.

## 27 Multiple Casualty Simulation Scenario Secondary to Natural Disaster at a Music Festival

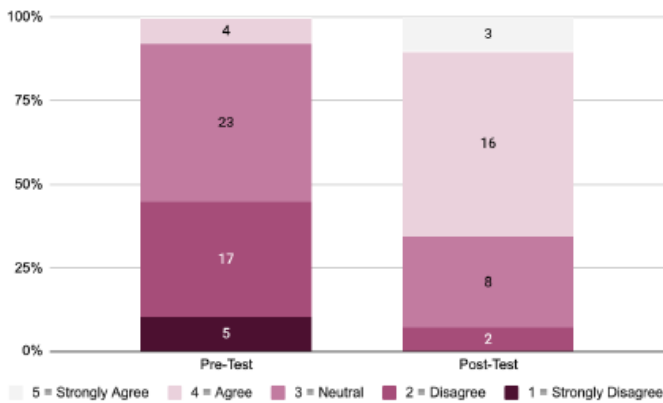
*Shayne Gue, Casey McGillicuddy, Robert Pell, Stephanie Cohen, Andrew Bobbett, Ariel Vera, Tracy MacIntosh, Latha Ganti*

**Introduction:** Communication plays a significant role in medicine, especially in the emergency department. Using simulation will teach learners how to actively listen, delegate roles, and effectively engage with the entire team despite the continuous distractions. This simulation adds innovative value as the elected team leader is blindfolded and therefore must rely solely on team member communication to effectively triage, manage, consult, and appropriately determine the patient's disposition.

**Objective:** To assess the effectiveness of team communication towards triage, assessment, and management of multiple trauma patients during a mass casualty simulation (MCI) and develop confidence for future real-life applications.

**Curricular Design:** Learners will begin in a group and should assign roles amongst themselves to manage a critical pediatric patient during a shift in the emergency department. During a simulated earthquake, the team leader is affected by dust and is blindfolded for the rest of the scenario. Three patients will arrive with various traumatic injuries from a nearby music festival. The team will need to quickly assess, stabilize, treat, and disposition these patients appropriately for immediate surgical intervention. During the debrief, the blindfolded team leader should be asked to explain their understanding of each patient's clinical course which can be compared to the non-blindfolded team members in order to determine the accuracy of communication between the team during the MCI. To assess the utility of this project, a pre and post questionnaire to evaluate their knowledge, confidence, and engagement was obtained.

**Effectiveness:** Table 1 shows the post-tests had significantly higher knowledge scores than the pre-test,  $t(48) = 4.64, p < 0.05$ . Image 1 demonstrates there was a significantly greater confidence in their ability to handle an MCI in the post than the pre-test, Mann-Whitney  $U = 227, p < 0.05$ .



**Image 1.** Frequency counts to the Likert-scale "I am confident in my ability to handle an incident such as this" before and after MCI simulation.

**Table 1.** Mean MCI knowledge scores for participants before and after their MCI simulation by education level.

	Pre-Test		Post-Test		p-value
	Mean (SD)	N	Mean (SD)	N	
Medical Students	31% (0.15)	19	60% (0.19)	10	<0.05*
PGY-1	54% (0.23)	12	68% (0.19)	9	0.07
PGY-2	60% (0.20)	10	80% (0.18)	7	<0.05*
PGY-3	57% (0.13)	8	81% (0.22)	3	<0.05*
Total	47% (0.22)	49	69% (0.20)	29	<0.05*

\*Statistical significance at p<0.05

## 28 Novel Approach to Quality Improvement and Patient Safety Education for Emergency Medicine Residents

*Nicole Vuong, Ayanna Walker, Shayne Gue, Stephanie Cohen, Latha Ganti*

**Introduction:** Patient safety has become a national topic since a 1999 Institute of Medicine report estimated that medical errors kill almost 100,000 people per year. Education of the emergency physician would not be complete without a robust curriculum dedicated to this topic.

**Learning Objective:** Our goal was to create a novel curriculum introducing EM residents to the importance of quality improvement and patient safety in today’s healthcare marketplace with a focus on experiential learning.

**Curricular Design:** We designed and delivered an 18-month Quality Improvement curriculum through multiple educational strategies. Emphasis was placed on experiential learning which included: 1) Project teams consisting of faculty and resident members who work collaboratively on projects using the PDSA methods. Projects are presented at Hospital Quality Council meetings and regional/national quality conferences. 2) DEMQC (Dept of Emergency Medicine Quality Committee), a monthly workgroup of PGY-3

residents, who identify and execute QI initiatives in our ED in a timely/efficient manner. 3) Participation in various hospital committees to recognize and appreciate the importance of ongoing QI and patient safety initiatives, as well as serving in a liaison role to keep ED staff informed.

**Impact/Effectiveness:** Since implementation, there have been 20 QI projects completed, with 3 ongoing, by 49 (100%) of our residents. These projects have been disseminated broadly through abstracts/presentations/publications on the local, regional, and national levels. Some lasting examples include: decreased CAUTIs after education on foley placement in the ED; utilization of airway checklists; and the impact of onboarding education for off-service rotators.

## 29 Population Health in the Emergency Department - Creation of an M4 Elective

*Madeline Kenzie, Sehr Khan, Taylor Sonnenberg, Ashley Pavlic*

**Introduction:** In July 2020, ACGME’s common program requirements were updated to include population health training and competency. Beginning training during medical school for students pursuing emergency medicine will allow future trainees a head start at gaining skills and awareness surrounding social determinants of health and community engagement. There is wide variety in undergraduate medical education pedagogy but a demonstrated growing interest nationally regarding population health training.

**Educational Objectives:** To create an interdisciplinary, multimodal course focused on addressing population health topics with an emphasis on community involvement. This curriculum will target M4s with varying specialty interests who elect to participate in the elective.

**Curricular Design:** EM residents and faculty were involved in curating a curriculum for M4s. A four week curriculum was divided into four main topics: introductory discussion, homelessness/poverty, victims of violence, and mental health. The course focused on incorporating non-traditional methods including site visits, shadowing experiences, and patient panels to supplement background reading and video material. Surveys were given to students at the end of the rotation for feedback.

**Impact/Effectiveness:** Students in their post-curriculum survey expressed appreciation. Notably, experiences with videos, book chapters and conversations with community stakeholders were rewarding for the students. Their reflections suggested that these experiences will impact their future interactions with vulnerable patient populations. The population health elective was continued on for the following year and is scheduled to occur again this upcoming year. Limitation of our evaluation is the bias of participant self-

selection, this would best be addressed by further expansion of the course to be required for all M4s.

### 30 Practical Training for Emergency Burr Hole Using Three-Dimensional Printed Task Trainer

*Andrew Crouch, Jessica Andrusaitis*

**Introduction:** There is limited space around the brain and if this area fills up with fluid, this can cause compression of brain tissue and be life-threatening. In order to relieve the pressure, a hole can be drilled through the skull. This is typically performed by a neurosurgeon but if a neurosurgeon is not available, the emergency medicine (EM) physician should be prepared to do it. This is a rare procedure and most EM physicians have not had exposure to it. A pilot trial with our model (Image 1; Image 2) was conducted in June 2022 with 5 EM residents and 2 neurosurgery residents. By the end of the session, all residents could accurately describe and perform the procedure without assistance.

**Educational Objectives:** To evaluate the efficacy of a Burr hole task trainer by using a survey to assess the comfort levels of participants before and after using the task trainer.

**Curricular Design:** This is a prospective study on an educational model to teach placement of a Burr hole. We will use a survey to assess pre- and post- skill lab comfort with this procedure by EM residents PGY1-3. The study will take place during a skills session at an ACGME-accredited EM residency at a Level 1 Trauma center scheduled for January 4, 2023.

The anticipated number of participants is 60. Participants will rank their overall comfort of performing Burr hole placement before and after the skills session.

**Impact/Effectiveness:** Since residents currently get little to no training in this procedure, we anticipate that our formal survey results will confirm that practice with this model increases physician comfort level. Since faster evacuation of fluid collection is associated with better outcomes, we hope that training with this task trainer will increase physician skill and confidence and translate to better patient outcomes.

### 31 REPS Shift Debrief

*Jennifer Bolton, Conor Dass, TJ Welniak, Aaron Barksdale*

**Introduction/ Background:** Burn-out has been found to be prevalent in emergency medicine residents while professional levels of fulfillment have been found to be low. Debriefs are common in emergency medicine and at many institutions have been implemented after difficult

cases such as codes or traumas. There has also been research on barriers to obtaining and giving feedback in the emergency department to facilitate learning in emergency medicine residency. Based on this review, in theory, if residents are given a formal, organized time to talk through positive moments on shift, their own growth, feedback from peers and attending physicians, and reflecting on what was learned during the shift and how to improve on future shifts, this could improve burnout and job satisfaction in emergency medicine residents.

**Educational Objective:** A debrief checklist was



Image 1.



Figure 2.

designed to address resident burn-out, implement positive psychology reflection after shifts, enhance the quality and quantity of feedback received by residents, to reflect on learning pearls, and to make goals moving forward into the next shift.

**Curricular Design:** The debrief checklist with the “REPS” mnemonic (Reflect, Evaluate, Pearl, next Steps) (see Figure 1) was designed and posted in the emergency department. Residents were educated on the process and invited to participate in the debrief after each shift. The debrief was performed after hand-off and with the team the resident was working on including a senior resident, intern, medical students, and their attending physician. Pearls were written on post-its and collected on a poster board to be shared with other

Emergency Medicine residency training is a requirement established by the Accreditation Council of Graduate Medical Education (ACGME). There is an ongoing debate regarding how to best promote productivity amongst trainees who are expected to participate in scholarship. Residents often express consternation and reluctance when it comes to scholarly activity which is often viewed as one of the most daunting obstacles in training.

**Educational Objectives:** We created a comprehensive points system to demystify the scholarly activity requirement. The ultimate objective was to make this process less intimidating while allowing residents to achieve and expand their goals. Applied game mechanics like points systems, badges, or rewards can be used to optimize motivation, engage learners, facilitate portfolio development, and promote

# Get your REPS in!

## Reflect

- What went well today?
  - What is something you did today that you couldn't do 6 months/1 year ago?
  - Did you have a patient encounter that made you smile today?
- Did you have any difficult cases?

## Evaluate

- Ask for feedback from your team and attending.
  - Did you meet your goals from your last shift or start of shift?
  - What is something you did well? What is something you could improve on?

## Pearl

- What is one learning point or pearl you learned today?
- Write this on a Post-it to share with other residents at conference!

## next Steps

- What is a gap in knowledge that was discovered today for you to improve on for your next shift?
- What areas do you need to work on?
- What is your goal for your next shift?

Figure 1.

residents at conference.

**Impact:** A study is ongoing to determine if this intervention will improve residents’ quality and quantity of feedback, job satisfaction, levels of burn-out, and perceived learning on shift.

# 32 Research and Scholarly Activity (RSA) Point System to Enhance Resident Productivity

Nao Tonedá, Saamil Parikh, Timothy Khowong, Anita Lui, David Simon, Jing Jing Gong

**Introduction/ Background:** Scholarly activity during

Table.

	Resident Name	Points
<b>Traditional Research or Well-Designed Quality Improvement Project - Must be at NYPQ or Inter-institutional</b>		
Preparation of research proposal/presentation with acceptance by the Research Committee at the research meeting		15
Preparation of research proposal/presentation with/OUT acceptance by the Research Committee at the research meeting - project does not progress		5
Completion of a Specific Aims page for a research project		10
Completion and submission of IRB proposal - clinical research or quality improvement project		15
Acceptance of IRB proposal - clinical research or quality improvement project		10
Acquisition of relevant background for research project / literature search - at faculty mentor's discretion		10
Data collection - must be actively tracked - at faculty mentor's discretion		10
Data analysis with minimal statistical analysis - at faculty mentor's discretion		10
Data analysis with significant statistical analysis - at faculty mentor's discretion		20
Completion of manuscript with submission to medical journal / website		50
Completion of abstract with submission to medical journal / website		25
Submission of a grant for intramural or extramural funding (with IRB approval)		120
<b>Publications</b>		
Publication of a research manuscript to a medical journal		60
Publication of a research abstract to a medical journal		30
Publication of a case report or case report series as a manuscript in a medical journal		30
Publication of a case report or case report series as an abstract in a medical journal		20
<b>Presentations</b>		
Oral presentation of your clinical research project or quality improvement project at a regional, national, or international conference		30
Oral presentation of another individual's clinical research project or quality improvement project at a regional, national, or international conference		10
Submission of oral presentation at a regional, national, or international conference - without acceptance		5
Oral presentation of CPC at CORD - Preliminary Rounds		20
Oral presentation of CPC at CORD - Final Round		20
Oral presentation of CPC at CORD - First Place Winner		30
Submission of CPC case without acceptance		5
<b>Posters</b>		
Poster presentation of your clinical research project or quality improvement project at a regional, national, or international conference - Moderated		25
Poster presentation of your clinical research project or quality improvement project at a regional, national, or international conference - Non-moderated		20
Poster presentation of another individual's clinical research project or quality improvement project at a regional, national, or international conference - Moderated		15
Poster presentation of your case report or case report series at regional, national, or international conference - Moderated		20
Poster presentation of your case report or case report series at regional, national, or international conference - Non-moderated		15
Poster presentation of another individual's case report or case report series at regional, national, or international conference - Moderated		10
Submission without acceptance of a presentation at a regional, national, or international medical conference		5
<b>Originals/Textbooks</b>		
Writing a chapter approved by the Program Director (Paper/Digital/Electronic)		25
Writing a textbook approved by the Program Director (Paper/Digital/Electronic) - Points assigned at PD/faculty mentor's discretion - 100 maximum		100
<b>Newsletters / Website Articles</b>		
Publications for the lay public, such as newspaper articles, on medical topics		10
<b>Sore Wars / Sim Wars</b>		
Participation on Sore Wars Team		5
Participation on Sore Wars Team - Winning Team		10
Participation on Sim Wars Team		5
Participation on Sim Wars Team - Winning Team		10
<b>Simulation</b>		
Design and write-up of an original simulation case		5
Design and write-up of an original simulation case with submission to journal, online portal, or website		10
Design and write-up of an original simulation case with submission to journal, online portal, or website with acceptance for publication		20
Design and implement task trainer/sim model		10
Design and implement task trainer/sim model (with associated poster, presentation, or publication - see above)		N/A
<b>Lectures / Labs / Sim Sessions - Medical Students or Interns Orientation</b>		
Lecture - virtual or live - at least 45 minutes		5
Procedure Lab - virtual or live - at least 45 minutes		5
Simulation Session - virtual or live - at least 45 minutes		5
<b>Blog Posts</b>		
RAMER blog post - must be officially posted on our NYPQ EM blog		5
Other NYPQ EM blog post - must be officially posted on our NYPQ EM blog		5
Sim/Workshop blog post - must be officially posted on our NYPQ EM blog		5
Sports Medicine / Ortho blog post - must be officially posted on our NYPQ EM blog		5
External blog post - at discretion of PD - minimum 35 points - Less reputable		10
External blog post - at discretion of PD - maximum 25 points - Reputable		20
<b>Social Media</b>		
Social media at their own board - must be an original submission - must regularly post - points per year		10
<b>International / Global Health / Community Outreach</b>		
International Elective - 4 weeks - Each rotation - approved by PD and/or Dr. Christine Chan - must involve delivery of medical care to underserved		25
International Elective - 2 weeks - Each rotation - approved by PD and/or Dr. Christine Chan - must involve delivery of medical care to underserved		15
International Elective - 4 weeks - Each rotation - approved by PD and/or Dr. Christine Chan - must involve teaching/educating international junior faculty or students		20
International Elective - 2 weeks - Each rotation - approved by PD and/or Dr. Christine Chan - must involve teaching/educating international junior faculty or students		10
Other Global Health Project - Points at discretion of PD and/or Dr. Chan		5
Community Outreach Project - Points at discretion of PD and/or Dr. Chan		5
Event Medicine - Points at discretion of PD and/or Dr. Huang - likely 5 points per event		5
<b>Representations and Volunteer</b>		
GME Representative - Per Year		5
HQSC Representative - Per Year		5
GME Subcommittee Representative - Per Year		5
CGRI Representative - Per Year		5
EMRA - Representative - Per Year		5
NYACP - Representative - Per Year		5
Program Evaluation Committee - Per Year		5
Other Representative/Volunteer Position - at the discretion of PD - likely 5 points		5
<b>Administration</b>		
Completion of well-executed quality assurance / process improvement project - at the discretion of admin faculty or program director		10



recognition of activities that previously may have gone unacknowledged.

**Curricular Design:** A catalog of 80 different ways to accrue Research and Scholarly (RSA) Points was created and distributed to trainees. Under faculty mentorship, residents collect RSA points continuously throughout their training with a graduation target of 100 points. Accrued activity and points are cataloged via a live online platform where residents propose RSA points for credit which are later approved by faculty after verification. The points system aims to convert a daunting task into a quest toward continuous self-improvement while introducing residents to basic principles of research and productivity in academia.

**Impact/ Effectiveness:** Since its implementation, the RSA Points System has created more awareness of creative ways in which to produce scholarly activity. The project has been met with enthusiasm and has been reported to promote confidence and new career satisfaction. It serves as a novel way for training programs to augment their academic productivity particularly if experiencing stagnation, while rewarding those most eager to produce, and motivating the underachiever to “level up.”

### 33 Resident and Population Centered Approach to Social Emergency Medicine Curriculum

*Rajitha Reddy, Benino Navarro*

**Introduction/ Background:** Social Determinants of Health (SDH) affect health outcomes more than clinical care. With the unique access Emergency Medicine (EM) has to all populations, there is a need to make SDH curriculum a standard component of EM education. Our residency developed a longitudinal curriculum centered on understanding local SDH and implementing these topics into clinical practice.

**Curricular Design:** Residents collaborated with program leadership to create a resident-run lecture series emphasizing SDH. Lectures are 30-minute sessions twice per quarter during weekly conferences. Residents are invited to opt-in to the track. Topics were selected using prior examples of curricula and topics that were considered most relevant to our patient population. Residents were able to select the topics they were most interested in and had independence to decide on the educational approach for each topic. Each session required providing actionable ways to apply the topic into clinical practice. For example, the topic of health literacy was presented in a small group format with sample cases in which miscommunication between a physician and patient resulted in poor outcomes. Presenters worked with each small group to develop solutions toward preventing similar scenarios, and new

system changes were proposed. Residents then received a list of local resources that promote health literacy.

**Impact/ Effectiveness:** A survey was administered to all participating residents and initial feedback has been overwhelmingly positive. Residents reported our curriculum has started to change their approach to the patient encounter. When asked to rate on a 1-10 scale how informed residents felt regarding SDH before and after curriculum implementation, 58.3% rated a 6 or higher before versus 100% rated 6+ after. Similarly, when asked how prepared residents feel in dealing with SDH-related challenges, 37.5% rated a 6 or higher before vs 83.4% after. We believe this approach to SDH can be replicated at other programs and help standardize curriculum.

### 34 Resident-Led Wellness: Fostering the Skills Emergency Medicine Residents Need to Thrive Using An Innovative Longitudinal Mentorship Model

*Erica Warkus, Steve Kamm, Phil Bonar, Joel Gerber*

**Introduction/ Background:** Incidence of burnout is high in emergency medicine (EM) residents. Residency programs can prevent burnout by providing residents with the tools to build resilience and mentorship/community support. Unfortunately, it is difficult for programs to provide these tools in a consistent manner to all their residents. Graduate medical education lacks solutions that facilitate individual resident wellness and academic success through longitudinal mentorship and resident-run initiatives and innovations. This abstract describes a resident-led wellness initiative in which “residency houses” were created to foster resident leadership, peer mentorship and professional fulfillment in a three-year Emergency Medicine residency program at a community hospital.

**Educational Objectives:** The resident class of 2023 collectively outlined the changes they would like to leave as a legacy within their program, namely: increase mentorship activities, promote clinical teaching, enable continuity of projects/progress made by residents, and improve communication channels.

**Curricular Design:** The creation of a longitudinal residency “houses” system was chosen to meet all four objectives. A points system (Figure 1) was implemented to provide positive feedback, public recognition and allow friendly competition. All residents and attendings were placed into one of three houses. Each house has an “identity” and an area of House “responsibility” (i.e., Administrators, Advocates and Ambassadors; Figure 2).

**Impact/Effectiveness:** The success was judged by resident participation in group activities, individual feedback and the overall number of earned points by residents and by

houses. A total of 267 activities have been logged. Residents expressed higher engagement and excitement at the chance to participate in the Residency House structure.

### 3. POINT VALUES

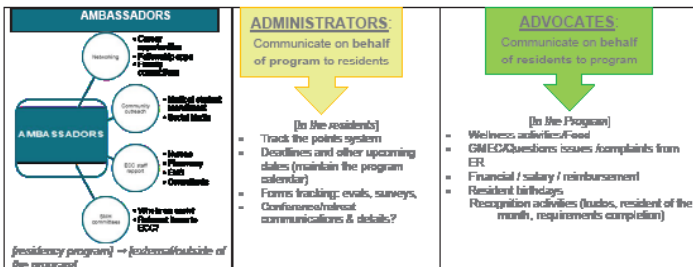
	Time = < 1 hour	Time = 1-2 hours	Time = 3-5 hours (or rare)	Time = 10-20 hours
	<b>10 points</b>	<b>25 points</b>	<b>50 points</b>	<b>100 points</b>
PROCEDURES	US IV	Nerve block	Lumbar puncture	ECC delivery
	Laceration repair (easy) (does not include staples)	Intubation incl. nasal/awake	Chest Tube/Thoracentesis	Cricothyrotomy
	Easy IJ	Central line/dialysis Cath	Transvenous pacer	Pericardiocentesis
	Paracentesis	Cardioversion	Lateral canthotomy	Resuscitative C section
	TVUS	Laceration repair (hard) - <10 y/o; > 8 cm; > 15 sutures		Trauma thoracotomy
	Arterial line	Joint aspiration/reduction		
KUDOS	Great job with clinical management **	Good catch (prevented bad outcome) **		
	Kudos from ECC staff/peers/attendings **	Per resident participating in recruitment /outreach		
	Great job teaching (faculty or resident) **	Patient writes nice letter about you		
TEAM ACTIVITIES	Points per resident who attended wellness events	Winning trivia in lecture	Winning larger team competition	Kickoff celebration at KPOK house
	Create a social media post	Resident mentorship meeting.	Hosts a group wellness event (for all residents)	
ACADEMICS	Every member passed monthly quiz	SMH committee involvement	Highest % passed quizzes for entire year	Present at national conference
	Submit case for positive QI	Submit case for case Presentation	Present at a regional conference	High score on ITE (each class)
		Lecture/EBM Presentation documented	Published case report in peer reviewed journal	Published peer reviewed research
FORMS	All members documented sim procedures	All forms for month turned in by all members.	First team to reach US goals for year	
	All sedation forms correct	All hours logged by all team members.	Highest new procedure totals per month	

**Overall objectives**  
 document procedures (complete forms)  
 demonstrate clinical proficiency  
 promote resident involvement/community  
 create a system to publicly acknowledge people  
 \*\* = (Must be approved)

**Figure 1.** A proposed points structure for the residency houses. Starred items (\*\*) require approval by leadership. The example given is based on the ACGME requirements for an emergency medicine resident. Colors indicate the objective that each item fulfills. The estimated cumulative annual points per house for required items in a three-year program with nine residents per class is greater than 5,000 points per year.

Incentivize the things that matter. Identify the things that make the program successful and make them fun. Facilitate engagement through public recognition. Reward any efforts that represent the program well (publications, committee involvement), competency, staff relations, community building. ECG, emergency care center; US, ultrasounds; IV, intravenous.

- Option A: Logistical / Systems based: Designed to clearly define structure of where to go for a desired action.



- **AMBASSADORS** – career/networking, outreach, community involvement, hospital committees, medical student recruitment, social media
- **ADMINISTRATORS** – forms/program business, residency interviews
- **ADVOCATES** – Resident advocates, wellness activities

**Figure 2.** Options for house divisions/responsibilities.

## 35 Simulation Relay Is an Effective Educational Modality to Engage Multiple Resident Learners

Lauren Cooke-Spring, Andrew Mastanduono, Daniel Frank, Debby Yanes

**Introduction/ Background:** Simulation is an effective educational tool that allows learners to practice medicine in a container that is psychologically and physically safe. One disadvantage of simulation is the limited number of learners that can participate. A solution is to have a few learners participate while others observe. However, the pressure of peer observation may negatively impact some learners. To overcome this issue, we developed a novel educational modality, Simulation Relay.

**Objectives:** Simulation relay aims to improve resident engagement, knowledge retention, and comfort in managing critically ill patients. Our goal was to maximize resident involvement and psychological safety by allowing residents to manage a simulated patient encounter in teams. At specific checkpoints, the residents “passed the baton” to the next team who assumed care of the patient.

**Curriculum:** A pilot case, “peripartum cardiomyopathy,” was designed based on learning objectives of resident conference. 4 teams of 2 residents were asked to participate in the simulation relay, while the remainder observed. A manikin was utilized as the patient, and a resident was embedded into the case as a standardized family member. Labs and imaging were projected via Microsoft Powerpoint. Vital signs were projected by virtual monitor. Upon completion of specific checkpoints, care was transitioned to the next resident team until all critical actions were met. Participants and observers were debriefed after the case by simulation-trained faculty.

**Impact:** A post-intervention survey revealed all residents felt improved comfort in managing pathology encountered in the case after the simulation. 100% of residents prefer simulation relay to traditional lecture. Learners stated the relay was engaging and provided a safe learning container as both participants and observers. 100% of residents would like to continue with simulation relay. Simulation relay is a fun and engaging way to involve multiple resident learners.

## 36 Social Determinants of Health Curriculum for Fourth-Year Medical Students Rotating in an Urban, Safety-Net Emergency Department

Rashimi Koul, Kelly Mayo, Andy Kim

**Introduction/ Background:** Social determinants of health (SDOH) have a profound impact on patients in the emergency department (ED). Interviewing patients on SDOH and working with ED teams to provide holistic care is an

important skill for medical students to learn, as emergency medicine (EM) requires proficiency in this field.

**Educational Objective:** The objective of this study is to determine effective methods of teaching SDOH to students pursuing EM.

**Curricular Design:** In this study, 4th-year medical students rotating in the ED identify and interview patients with chronic illness regarding SDOH. They focus on social and other aspects of healthcare (whether they have a primary doctor, insurance, home). They follow the patient's journey through the ED shift i.e., chart time of arrival to bed, tests administered, and if the patient gets admitted. They then discuss a proposed plan of follow-up transition care with the ED Case Manager/Social Worker. Throughout the 4-week rotation, the students check on the patient to see if they followed up with their primary doctor/specialist or returned to the ED. Students then complete a REDCap post-exercise survey. It will include written reflections, where they outline how they will apply this knowledge to future patient interactions. A thematic analysis of the reflections will be completed, with the goal of evaluating the effectiveness of this instructional method.

**Impact:** SDOH impacts patients' health, and EDs serve as the front line for medical care in underserved communities. A method of incorporating SDOH is by highlighting these issues in students' EM sub-internship curriculum and assessing how they apply this knowledge in the future. Thus far, the students have responded enthusiastically - their reflections expand on their experiences interviewing patients about SDOH and working closely with Social Work/Case Management to arrange follow-up care. They collectively are grateful for the opportunity to take part in this exercise.

## 37 Stop, Think, Plan, Reflect

*Taylor Ingram, Yuliya Pecheny, Lisa Lincoln, Ryan Bodkin, Julie Paternack, Lindsay Picard, Michael Lu, Jason Rotoli, Flavia Nobay, Linda Spillane*

**Introduction/ Background:** As residents progress in training, many develop a framework for managing uncertainty in caring for critically ill patients. Formal strategies to manage uncertainties are not always formally taught to novices. Developing such skills may aid the novice when they become "stuck" due to gaps in knowledge, skills, or experience.

**Educational Objectives:** 1) Implement "Stop, Think, Plan" as a cognitive and behavioral intervention during simulation workshops as a structured tool to approach uncertainty in the care of critically ill patients. 2) Reflect on scenarios through group discussion to understand individual and team thought process during the simulation.

**Curricular Design:** The "STOP, THINK, PLAN" technique was implemented during a PGY1 simulation workshop to teach

a strategy that anticipates and plans for adverse outcomes when caring for critically ill patients. Residents working in teams of 3-4 were presented with 3 unstable patient scenarios (septic infant, complete heart block, and status epilepticus). Scenarios were paused at critical junctures and teams were asked to "STOP." Each resident was asked to "THINK" of 3 potential adverse events, and what they would do if these events occurred. Teams were given time to discuss concerns and "PLAN" next steps together. Simulation was resumed. Post-exercise debrief focused on resident reflections in the "STOP" and "THINK" portions of the simulation identifying knowledge deficits. Post-case reflection was added to encourage self-study and improvement in identified areas.

**Impact:** The "STOP, THINK, PLAN" technique encouraged anticipation and planning for complications, as well as reflection and active learning. Subjectively, PGY1 participants felt that this approach was a helpful educational technique and potentially useful in the clinical setting. This technique will be instituted in upcoming workshops for all PGY levels. We did not track resident self-directed learning but will do so in the future.

## 38 TacMed1: An Innovative Education Program in Tactical Medicine Education

*Lindsay Wencel, Linh Nguyen, Reshma Sharma, Delaney Rahl, Cesar Hernandez, William Jimenez, Robert Woodyard, Jesus Roa, Chadwick Smith, Jay Ladde*

**Background:** Sandy Hooks, Boston Marathon, Pulse Night Club, Parkland, Las Vegas, Uvalde. These tragedies also brought to the forefront a growing need in our communities. With mass shootings and other MCIs happening almost every day, we as emergency physicians have to equip ourselves to respond. Goal: To prepare EM residents for real-life scenarios involving law enforcement tactics and associated unique injuries.

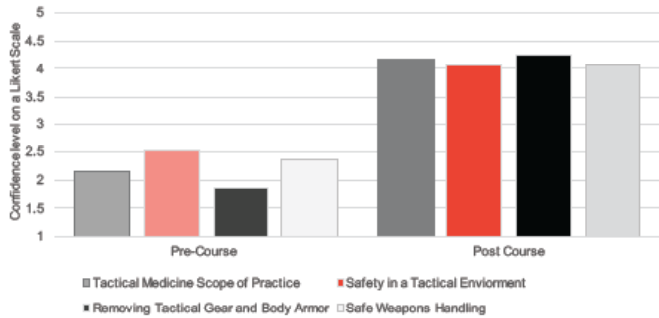
**Objectives:** 1. Teach effective hemorrhage control in austere environments 2. Display proper safe weapons handling 3. Demonstrate proper tactical equipment use and removal for medical assessment 4. Demonstrate tactical medical care and handoffs.

**Curriculum:** Deficit: Although there is faculty and resident interest in tactical medicine, our program had no formal residency experience related to this topic. Design: The course began with a brief introductory lecture by medical staff and SWAT operators covering topics including tactical zones of care, the THREAT approach, MARCH care, and casualty evacuation. The session was then broken into 3 stations covering bleeding control and tourniquet use, safe weapons handling, and tactical officer equipment use and removal. The final portion of the course included live-action high-fidelity case scenarios of providing care in the Hot, Warm, and Cold zones.

**Impact: Result:** Of the course participants, 83.9% had

no prior experience with tactical medicine. They completed pre- and post-course surveys and the results can be seen in Figure 1. There was a statistically significant improvement in participant self-efficacy in all areas assessed. At the conclusion of the course, participants ranked the experience’s usefulness a 4.79 out of 5 on a Likert scale.

**Conclusion:** The initial implementation of this curriculum was highly successful. We plan to make feedback-based adjustments to this curriculum as well as develop a second phase of training with more advanced topics.



**Figure 1.** TacMed1: An innovative education program in tactical medicine education. Comparing pre- and post- course confidence of participants in tactical medicine topics.

## 39 Teaching Primary Palliative Care Skills to EM Residents

Matthew Mason, Frances Rudolf

**Background:** Having goals of care (GOC) conversations tactfully and efficiently in critically ill patients is an important skill in EM but can be difficult to teach. Using a virtual simulation model, residents can practice these skills a low risk setting.

**Objectives:** 1. Create virtual simulation curriculum in palliative EM topics. 2. Provide EM residents with case-based practice in GOC conversations and breaking bad news. 3. Give individualized feedback to residents highlighting best-practices.

**Curricular Design:** We developed three cases that were administered in small group ZOOM breakout rooms. In each cases, a patient arrives to the emergency department critically ill and, during the initial resuscitation, a member of the patient’s family arrives. The resident is instructed to broach GOC or break bad news. Cases were administered by our faculty in the style of oral-boards. Each case included a debrief on a codified approach to broaching GOC, individualized feedback, and discussion time for participants to share their observations.

**Impact/Effectiveness:** Virtual simulation allows for a low-pressure setting in which to practice the challenging GOC

conversations necessary in critically ill patients in the ED. Residents were introduced to a flexible but formatted approach to these conversations. Our format also allowed residents to build camaraderie seeing peers learn a difficult skill and borrow effective phrases and approaches. The digital format of the intervention allowed for easy implementation and distribution of educational material, as well as greater comfort for residents.

### Case 1

**Patient Information:** 92-year-old female with a history of mild dementia arrives from her SNF with a fever. Mental status A&O x 1, baseline x3.

**ED Resuscitation:** Code sepsis, fluids, IV antibiotics initiated. Found to have pneumonia with a new oxygen requirement. Patient currently sitting 93% on 15L

### YOUR TASK:

1. Patient’s son calls for an update.
2. Address patient’s goals of care and code status with him.

### Facilitator Script

Depending on prompting, son reveals the following:

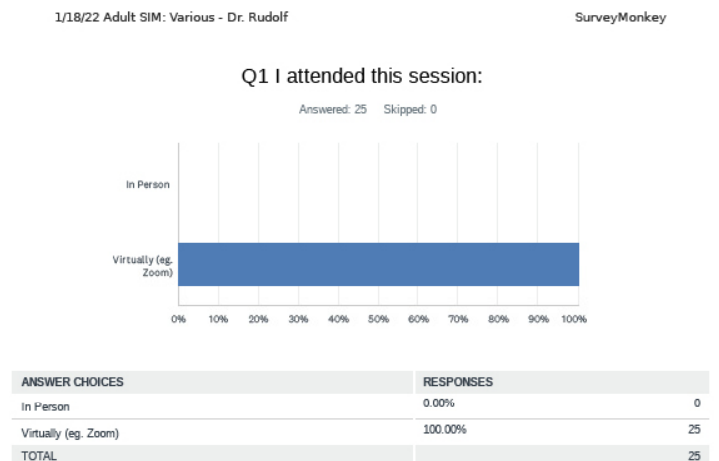
- 92 years old with minimal medical problems, though some mild dementia. Lives in an independent living facility where a CNA checks in on her once a day. Needs some help with organizing her meds and paying bills but can cook, bathe, cloth herself. Friendly and still “sharp as a tack.”
- Derives meaning from puzzles, her grandkids, and reading crime novels. Loves short walks around the neighborhood and family holidays like Thanksgiving.
- Has always said she doesn’t want to be a burden on others and wouldn’t want to her family to have to feed her, bathe her, etc. Does not want to die in a hospital, but has never mentioned her attitude towards ventilators or CPR

### Debrief

#### Rapid Code Status Discussion

1. What does the family member know?  
*Tell me what you know about what’s happened to your mother today*
2. Break the news and establish goals, urgency  
*I’m afraid I have some bad news, is it alright if I share it with you? Your mother is very ill with pneumonia. It is my hope that she will make a full recovery, but considering how sick she is, we need to work together quickly to decide what to do if she gets worse.*
3. Assess patient’s premonitory function  
*Help me understand your mother — what sort of activities was she doing on a daily basis before today? Was she able to feed, bathe, clothe herself? Did she require much help?*
4. Assess patient’s values  
*What things are important to your mother in her life? What does she derive joy from? If she were to get worse, are there things so crucial to her that life would not be worth living if she couldn’t do them?*
5. Summarize and Advise

**Figure 1.** EM SIM 1.18.



**Figure 2.**

Residents completed a post session survey which showed 100% of participants found it very to extremely useful. In the future, using trained standardized patients may increase authenticity and elicit more realistic responses from participants. Also, providing spaced repetition with similar SIM didactics over the course of the year would improve effectiveness.

## 40 Teammate Appreciation and Recognition: An Intervention for Improving Well-being in Emergency Medicine Residency Programs

Marie Wofford

**Introduction/ Background:** Emergency medicine (EM) is widely known as a specialty with high physician burnout rates. In EM residency programs, it has been shown that burnout can be as high as 80%. Despite this, wellness interventions vary widely throughout emergency medicine residency programs. It is mandatory for programs to incorporate well-being in education, however, there lacks a standard for wellness interventions across EM residency programs. According to the National Academy of Medicine Conceptual Model for Clinical Well-being and Resilience, external factors influence wellness more than internal factors. One potential way to advance well-being in EM residency programs is to target the Learning/Practice Environment domain by focusing on teammate appreciation.

**Educational Objectives:** To advance the culture of well-being by developing an appreciation and recognition platform available to residents on shift.

**Design:** A database for weekly teammate recognition was made by making a QR code available to residents on shift. This QR code linked anonymous responses to an excel sheet that was tracked weekly over two months. This QR code was made available throughout the emergency department at resident workstations. The chief residents utilized this platform during weekly educational conference to recognize residents for their accomplishments.

**Impact/Effectiveness:** In a post-survey given to residents, the utilization of the QR code was assessed in addition to the impact of the QR code on well-being and learning/ workplace environment. The creation of a QR code for resident appreciation and recognition represents a feasible platform for residents to utilize and in doing so could further advance the culture of well-being in residency programs.

## 41 The Key to Success in Transitions in Residency: Application of Coaching to Improve Feedback

Samantha Stringer, Charles Brown, Mallory Davis, Margaret Wolff

**Introduction/ Background:** The time and volume

constraints of a busy Emergency Department can create barriers to residents receiving timely, specific, and actionable feedback. Furthermore, graduate medical education lags behind undergraduate medical education in adding coaching into their repertoire of tools to lead to resident success. Applying principles of coaching to the clinical setting by creating coaching shifts would lead to an improvement in both the quality and individualization of feedback, and the likelihood a resident internalizes and acts upon it.

**Educational Objectives:** The objectives of coaching shifts are to improve resident satisfaction with and integration of feedback, reflect upon and create resident-driven learning plans for improvement, and ultimately lead to increased success in the transition from intern year to second year of residency.

**Design:** A voluntary shift was offered to interns in the second half of the year. The coaches were fourth year residents who volunteered to serve in this role, and being a coach was their only clinical duty during the shift. There was no formal coaching training but the objectives of the shift were clearly conveyed to them, along with the interns. Interns worked a shift in the ED and would receive verbal feedback either throughout the shift or directly after. The intern was asked to reflect on their performance, both positive and negative, and the coach then shared their feedback. The coach and intern would discuss a specific action plan for improvement going forward.

**Impact/Effectiveness:** Coaching shifts lead to increased individualized feedback and therefore improved resident satisfaction with feedback and provides them the opportunity and support to self-reflect and create an action plan. It's an innovative way to prepare EM interns for the most difficult transition in residency. More broadly, they introduce coaching in medicine into GME. This has been done in 2 cohorts so far, and we are currently reviewing survey data from the most recent cohort after survey modification.

## 42 The Price is Right: Cost Awareness Education for Emergency Medicine Residents

Amber Billet, Lorie Piccoli

**Introduction/Background:** There is an increased need to educate residents about cost awareness. The diagnostic, treatment, and disposition decisions made in the emergency department (ED) have a significant impact on healthcare resource utilization and constitute an ACGME core competency. This topic has been increasingly emphasized in annual ACGME surveys.

**Educational Objectives:** 1. To increase resident cost awareness of common ED tests. 2. To emphasize the importance of providing cost-conscious care.

**Curricular Design:** At a regional conference including five

different EM residencies, small groups of residents and medical students rotated through the “Price is Right” game station. Each group had 6 learners and the game took 15 minutes. Fifteen different groups rotated through. 14 tests commonly ordered in the ED were placed on a game wheel including: complete blood count w/ differential, comprehensive metabolic panel, type and screen, brain natriuretic peptide, blood culture, quantitative beta human chorionic gonadotropin, urinalysis, urine drug screen, rapid strep test, ethanol level, CT head without contrast, CT abdomen and pelvis without contrast, CT cervical spine and portable chest x-ray. The cost of each of these tests was on an index card placed on a table. Learners spun the wheel and used the available index cards to choose the correct cost. If they were incorrect, they could try again. The game ended when learners correctly matched the costs with all 14 tests.

**Impact/Effectiveness:** Learners considered the exercise educationally valuable and gamification an effective learning modality. This easily implemented activity will be incorporated into our residency’s formal cost awareness curriculum and repeated each academic year.

## 43 The Residency Olympics: A Novel Gamified Curriculum for Emergency Medicine Residents

*Brian Smith, Jessie Chen, Timothy Khowong, Anita Lui, Nao Yoneda, Saumil Parikh*

**Introduction:** Current Emergency Medicine (EM) residents can benefit from more interactive and creative learning strategies over traditional lecture-based curricula. Incorporating gamification into didactics has been shown to promote participation from learners. A novel “Residency Olympics” competition can motivate educators to create more immersive learning tools and boost resident participation.

**Objectives:** Our goal was to create an “Olympics” competition in which residents earn medals based on four contests. We hypothesize that our novel competition will be both engaging and entertaining to residents while also providing EM-relevant educational material.

**Curricular Design:** Residents were randomly divided into four teams, with equal distribution of PGY levels. The Olympics spanned one month, with each week having a theme relevant to EM: “Sonolympics” for ultrasound, “Simlympics” for simulation, “Smallympics” for pediatrics, and “Smartlympics” for medical education. During our scheduled weekly conferences, residents competed in 4-6 events relevant to that week’s theme. After each event, facilitators conducted a debrief to review key learning points. Each event was scored based on teamwork, communication, and time to task completion. Teams earned Gold, Silver, and Bronze medals for 1st, 2nd, and 3rd place,

respectively. At the end of the competition, the team with the highest overall medal count was declared the winner and earned prizes.

**Impact:** The “Residency Olympics” was entertaining and educational. Residents completed an anonymous 5-point Likert scale survey to assess the competition’s impact. 90% of residents reported it was educational, 92% reported it was appropriately timed, and 92% reported it covered EM-relevant topics. Overall, 92% of residents reported they would want another Olympics event in the future. This competition can be easily integrated into any EM residency curriculum.

## 44 Ultrasound-Guided Mystery Key Identification: An Interactive Learning Module 2.0

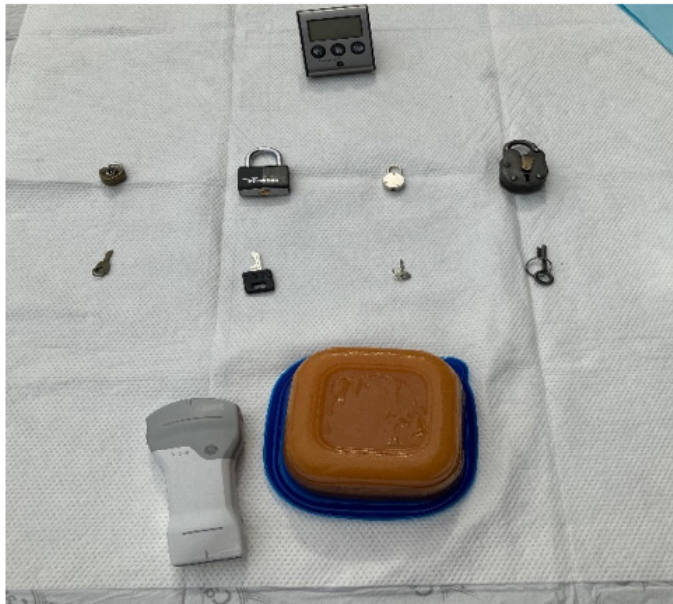
*Caleb Morris, Jeremi Laski, Nava Kendall, Therese Mead, Rupinder Sekhon*

**Introduction/Background:** The utility of point-of-care ultrasound (POCUS) is dependent on operator experience. Hands-on exposure to POCUS is important to incorporate into regular residency didactics to develop skill. This gamified learning module provides experience with foreign body identification and removal using POCUS.

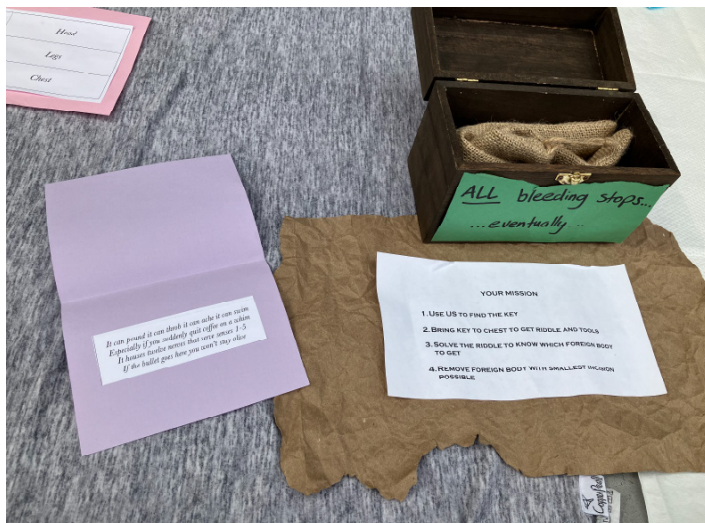
**Educational Objectives:** To develop precision with transducer manipulation and to practice ultrasound-guided foreign body removal.

**Curricular Design:** Seven groups of six participants used the high-frequency linear probe of a handheld GE VScan Air to identify which of four keys were embedded into a 24-oz, square, gelatin phantom. They then inserted the matching key into its corresponding lock to open a wooden chest revealing a scalpel, hemostats, and one of multiple riddles. Once solved, each riddle indicated which body part of a gelatin phantom teddy bear (head, chest, abdomen, arms, and legs) required removal of an embedded toothpick. Previous versions of this module allowed foreign body removal from any location, causing the bear to break down sooner after multiple attempts on the same region. This riddle-based format allowed the same bear to be used for all groups. Each component task was initially awarded equal points, but because teams varied widely on incision size, we ultimately awarded more points for a small, carefully planned incision.

**Impact/Effectiveness:** This learning module was implemented by a community academic residency in August 2022 as one of several simulation stations at an outdoor didactic event. Of the 42 participating residents and medical students, 94% described this as an effective learning activity. This gamified learning module is an easily-reproduced, engaging way to provide experience with POCUS, and may be especially useful as part of an interactive didactic day.



**Figure 1.** One of four keys was embedded in phantom for US-guided identification.



**Figure 2.**

## 45 Use and Insights from Novel Scholarly Activity Dashboard

Anwar Osborne, Mehrnoosh Samaei, Bradley Wallace, Matthew Gittinger, Jeffrey Siegelman

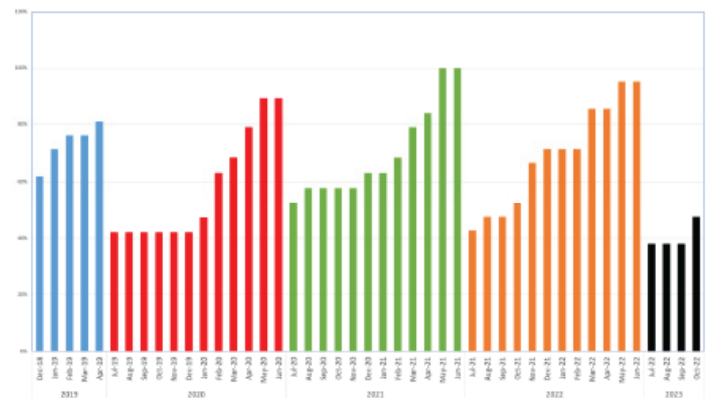
**Introduction/Background:** The ACGME requires completion of scholarly activity before graduation. In 2012, over 400 citations were issued across specialties for scholarly activity by the RRC. Individual programs track/value scholarly activity differently. Without adequate data,

programs and institutions may not be able to provide residents with the resources needed. Keeping large departments current on activity in the department could increase compliance with scholarly activity requirements.

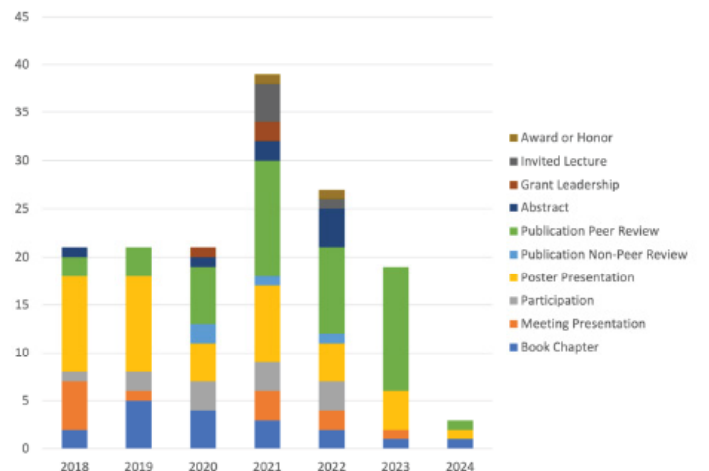
**Objectives:** We created a dashboard-style tool to facilitate communication in our emergency medicine residency program to improve compliance and promote the breadth activities in which residents participate.

**Design:** We used 2 metrics to accomplish these goals: 1) 3rd Year Compliance of Scholarly Activity (figure 1). This metric is the monthly percentage of senior residents who have logged any acceptable activity. The education management system in use at our institution is 'New Innovations'. The stretch goal is to increase the compliance rate at the beginning of the senior year. 2) Scholarly Output Distribution (figure 2). This metric describes the activities by type divided by class. The goal is to be able to show a variety of activity in each class.

**Impact:** Use of this over the past 4 years has caused us to gain several insights. First, the impact of COVID restrictions



**Figure 1.** Third year residents new innovations' compliance by class.



**Figure 2.** Scholarly output distribution by class.

on residency programs and life in general has had both a spike and tail effect on this output. The draw back of residents to the department caused an increase in output in 2021 that could be attributed to additional time to write and participation in conferences as they were largely virtual for months. However, in later classes, output dropped somewhat and we believe this was secondary to residents having less exposure to specialized faculty as some rotations were contracted during their 1st two years. As these metrics are simple to obtain, they may be ideal for use in other programs.

## 46 Virtual “Jamboard”: Just-in-time Recognition to Boost Resident Morale

Mihir Tak, Alexa Ragusa, David Lebowitz, Shayne Gue, Latha Ganti

**Introduction/Background:** Building confidence through the use of positive reinforcement is crucial to developing strong emergency medicine residents. During COVID-19, resident morale was low due to difficult working conditions and lack of in person didactics. Working conditions declined after the pandemic due to severe staffing shortages. Residents were tired, overworked and felt that their day-to-day efforts were not recognized. A virtual “Google Jamboard” was implemented to anonymously acknowledge individual residents for all their hard work and to boost morale and well-being.

**Educational Objectives:** Boosting resident morale and confidence Promoting a culture in which individuals are recognized for their work with regards to patient care Maintaining a virtual copy of the Jamboard so that residents can see their growth over their 3 years of residency.

**Curricular Design:** Many residencies have mechanisms to give “shout-outs” to residents for strong clinical work, but often it lacks permanence. After looking into several options, we decided upon the use of Google’s Jamboard. It is a virtual “whiteboard”, where residents/faculty/hospital staff can anonymously leave positive feedback for each other (Fig. 1). Every Sunday, a slack reminder goes out to the department reminding them to post their shout outs. Every Thursday, at didactics, a screenshot of the Jamboard is taken and individual residents are recognized. We keep these screenshots over the course of the academic year, and at our graduation event combine them, so that residents can see their growth.

**Impact/Effectiveness:** Recognizing resident hard work boosts confidence and morale. When residents were polled after implementation of the Jamboard, they stated that they felt more appreciated and believed that their work actually mattered. We hope to expand this curricular innovation across our other residency programs at our hospital to promote a culture of positive reinforcement and boost resident morale.



Figure 1.

## 47 Welcome to the Block Party: An Emergency Medicine Reference for Regional Anesthesia

James Tanch, Leland Perice, Donald Stader, Mark Brady

**Introduction/Background:** ED ultrasound-guided regional anesthesia (UGRA) procedures reduce pain and opioid usage, among other benefits. A previous nationwide survey of EM U/S directors reported that 84% of academic institutions perform U/S-guided nerve blocks. Yet, there is significant variability in UGRA educational curricula. Despite techniques such as the fascia iliaca block decreasing morbidity and mortality, only 33% of institutions reported performing this procedure. Specialty-specific reference and educational materials are needed to standardize UGRA education. We developed a reference tool intended to serve as a national standard for UGRA techniques in the ED as an educational innovation.

**Educational Objectives:** The objective of the “Block Party” booklet and web app is to increase access to its high-quality, standardized materials for providers to safely learn these procedures. We expect that by creating a quick and accessible reference to U/S on shift, we can increase the confidence and speed in which emergency practitioners learn and perform the procedures. By having a specific knowledge of the extent of complications and multiple visual aids of the procedure being performed, we believe providers will have the confidence to perform these techniques and train future trainees as well.

**Curricular Design:** A group of nationally recognized experts identified a list of blocks that emergency physicians should be able to perform. This served as the basis for creating the content, including videos and chapters for the handbook and digital application. We also created a digital corollary to our handbook as trainees are increasingly using medical apps to aid in education.

**Impact/Effectiveness:** In this educational innovation,



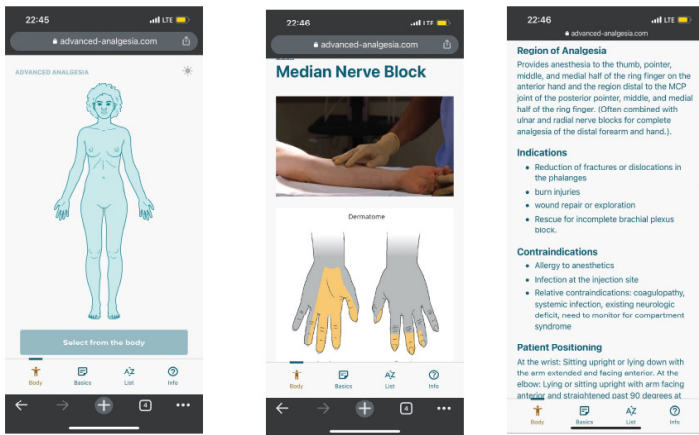


Figure 1.

is sometimes the only setting in which victims of human trafficking or domestic violence can be identified or connected with social support and resources, yet a lack of empathy and understanding limits the effectiveness of treatment of patients who are victims of intimate partner violence (IPV).

**Educational Objectives:** The objective of this educational innovation is to provide an interactive, role-playing game to aid medical students and residents in their future clinical interactions with patients who are experiencing IPV.

**Curricular Design:** Participants play a board game in groups of four to six players. Each player chooses a character story for an individual in an abusive relationship. The player will play as that character and attempt to leave the relationship. They must acquire resources and investments to gain a house, a car and a job, so that they can escape the dangerous relationship and survive (Figure



Figure 2.

**X: PLAY FOR YOUR LIFE**  
-- GAME COMPONENTS --

**RESOURCES**  
Information, Opportunity, Money, Friends & Family, Health

**INVESTMENTS**  
Education (Level 10), Autonomy (Level 10), Savings (Level 10), Community (Level 10), Life (Level 10)

**RELATIONSHIPS & FIGHTS**  
Each player chooses a character & relationship story (booklets). After the introduction page, each page describes a 'fight' in the character's abusive relationship. When you win a fight, you experience a level. The players must escape the relationship before the 10th fight, or they will die. Accumulate investments to escape the relationship. Fights will drain investment levels from the players. Sometimes, fights will instruct the players to draw additional (bad) event cards (examples below).

**LIFE & DEATH**  
If Life Level = 0/10, You Die! (Game Over)

**SKILLS** – are 'learned' as players build their investment levels

<b>EDUCATION (Level 2)</b> Trade (1) or use any Resource (1) to invest in Education. For each level (max 10) you invest, you gain a level of your choice during each fight.	<b>AUTONOMY (Level 2)</b> If you die (0/10), this allows you to survive with 1/10 Life, but drains your Autonomy level to 1/10. Remaining Order Levels (5) if you die (0/10), this allows you to survive with 3/10 Life, but drains your Autonomy level to 1/10.	<b>SAVINGS (Level 2)</b> Purchase (1) level of any Resource for (1) money. Financial Aid (Level 5) increases (1) level of ANY investment for (2) money.	<b>COMMUNITY (Level 2)</b> You may offer to trade (1) of your investment (1) for another player's investment levels during your turn. Gifts (Level 4) Collect (1) encounter card if you do not collect any resource cards on a roll.	<b>LIFE (Level 2)</b> Life Plan (Level 3) Lose (1) life level from every fight. Life Insurance (Level 4) Collect (1) money from the bank if you lose a life level.
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Figure 1.

we developed the material required for EM to begin to adopt UGRA as a new standard practice. Planned changes include producing the project's ultimate goal of a textbook. Going forward, we plan to assess this with formal surveys.

## 48 X: Play for Your Life – An Interactive, Role-Playing Board Game Designed to Foster Empathy and Teach Medical Students How to Address Intimate Partner Violence in the Clinical Setting

Erica Warkus, Celina Ramsey, Nick Caputo, Kelly O'Keefe

**Introduction/Background:** Clinician empathy improves patient outcomes and satisfaction scores, reduces physician burnout and increases clinical efficiency. However, there are no educational methods shown to be effective at teaching empathy to medical students. The Emergency Department

1). Players must escape by the 10th 'Fight' or they will die. Information is relayed through event cards and character stories that progress through the stages of change and are read aloud by the players to the group during each fight (Figure 2).

**Impact/Effectiveness:** This educational intervention was evaluated through pre- and post-game surveys that gauged knowledge and effectiveness. The use of this interactive role-playing model to teach empathy and understanding was feasible and well received among students and professionals. Respondents reported increased comfort and scored higher on measures of empathy. They also correctly identified an imaginary patient's readiness to change more frequently and were better able to identify the most effective interventions.

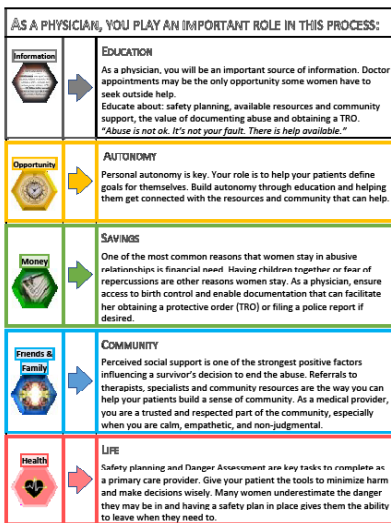


Figure 2.

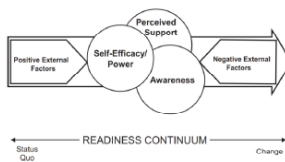


Figure 4. The psychosocial readiness model for IPV victims.

**Box 5. Support and Resources**

**National Coalition Against Domestic Violence**  
<http://www.ncadv.org>  
 Online tool for creating a safety plan

**National Domestic Violence Hotline**  
 1-800-799-SAFE  
 TTY 1-800-787-3224  
<http://www.ndvh.org>  
 Help with safety planning and crisis interventions  
 Text-trained counselors  
[www.crisistextline.org](http://www.crisistextline.org)  
 Text "START" to 741741

**Futures Without Violence**  
<http://www.futureswithoutviolence.org>  
 Posters, brochures, safety planning cards

**National Health Resource Center on Domestic Violence**  
 Supports health care providers improve responses to intimate partner violence; offers free, culturally competent materials appropriate for a variety of settings  
[www.enabuse.org/health](http://www.enabuse.org/health)  
 888-80-ABUSE (888-792-2837) Mon-Fri, 9 am-5 pm PST  
 TTY 800-595-4889  
 email: [health@enabuse.org](mailto:health@enabuse.org)

## 49 “Visual Odyssey”: An Asynchronous Initiative to Encourage Learning of Core Concepts in Emergency Medicine

Nicole Schnabel, Jamie Swisher

**Introduction:** In 2012 the Academic Emergency Medicine conference consensus stated, “flexibility of scheduling with a Web-based asynchronous teaching model, coupled with its similar effectiveness to traditional methods, makes it a very attractive adjunct to development of a well-balanced EM didactic curriculum”. In the ten years since this statement was released asynchronous learning has increased in popularity among emergency medicine (EM) residents, however novel asynchronous curricula remain limited. Our faculty were interested in implementing an educational initiative that would encourage learning outside of didactics and could be tailored to the educational needs of our residents.

**Objectives:** Visual Odyssey (VO) is an asynchronous learning initiative with goals of encouraging self-directed learning by residents and increasing knowledge regarding recognition and treatment of classic conditions in EM.

**Design:** VO is an email containing a prompt and a picture followed by several questions. The VO topics are chosen by the faculty and questions require 15 minutes to complete. The VO is sent out weekly with a new prompt as well as answers to last week’s questions. There is an incentive for participation. This novel format allows faculty to have autonomy in choosing topics they feel are integral to resident education or gaps in our curriculum. This method is appealing to the residents because of its convenience and brevity.

**Impact:** A survey answered by 35 of 36 residents revealed that 76.5% found VO to be “Beneficial” or “Very Beneficial” to their learning. On average 40% of residents

submit answers. Interestingly, 76.4% of residents work through the cases or look at the answer slides even if they do not submit. This indicates the residents are utilizing VO as a tool for asynchronous learning regardless of the incentive. When asked why residents did not submit a response, forgetfulness was mentioned most. Given this a future change is to distribute a weekly reminder.

## 50 Addressing Immigrant Health in the Emergency Department: An Interprofessional Perspective

Leonardo Garcia, Carolina Ornelas-Dorian, Katrin Jaradeh, Caroline Burke, Theresa Cheng, Robert Rodriguez, Christopher Peabody, Nicholas Stark

**Introduction/Background:** To understand knowledge gaps in the healthcare of immigrants, we conducted interprofessional needs assessment interviews with local attorneys, physicians, and social workers who work with immigrants. Clinicians, both in the literature and through our needs assessment, note significant gaps in immigrant health. There is a need for a medical education intervention, ideally during emergency medicine (EM) residency.

**Educational Objectives:** Our objectives were developed based on themes that emerged from the 11 interprofessional needs assessment interviews. Session objectives were to 1) define the role of the EM clinician when caring for immigrants, 2) illustrate best practices around asking, documenting, and sharing immigration specific health care information, 3) outline principles in interacting with immigration law enforcement, and 4) identify existing immigration resources and advocacy opportunities.

**Curricular Design:** We created a 30-minute, interactive didactics session (with pair share and large group discussions) based on a real-life EM case during our residency program’s weekly didactic conference. Curriculum was reviewed by attorney and physician content experts prior to implementation. To capture the impact of the lesson, we administered pre and post surveys consisting of 5 Likert scale questions on confidence with immigration topics and 3 multiple choice content questions.

**Impact/Effectiveness:** A total of 38 participants completed either the pre or post survey. Overall, there was a significant improvement in both confidence (self-reported rating of 2.58 pre to 4.18 post out of 5, p-value<0.001) and knowledge (1.40 pre to 2.33 post out of 3 correct, p-value<0.001) between the two surveys. This interprofessional approach to curriculum design offers a novel approach to addressing the knowledge gap on implementation of protocols and policies pertaining to immigrant populations. We hope to expand this approach across institutions.

## 51 Can Efficiency be Taught? A Novel Efficiency Curriculum

Guy Carmelli, Simi Jandu, Viral Patel, Alexandra Sanseverino, Richard Chruuch

**Introduction:** Emergency Medicine physicians are tasked with providing simultaneous care to multiple patients. In order to combat increased patient volumes, improve wellness and wage-earning potential, as well as ensure patient safety, development of workflow efficiency (WFE) skills becomes imperative. During training, residents are expected to passively improve their WFE, but there is a lack of formalized efficiency education among residency programs. Here we present a program evaluation for a novel asynchronous virtual curriculum on WFE that was piloted for UMass Chan’s interns in July 2022.

**Objectives:** 1) Prioritize tasks that focus on critical actions in resuscitation followed by patient throughput to maximally utilize ancillary staff participation. 2) Predict the tasks that require the most attention or result in lengthy delays during patient care delivery to minimize roadblocks. 3) Utilize best practices in communication (e.g., closed loop, directive) to decrease errors or care delays and provide safe, efficient signoffs and consultation.

**Curriculum:** A group of educators used Kern’s Six-Step Model to systematically create a WFE curriculum. We performed a global and targeted needs assessment of our stakeholders and were able to identify three WFE evidenced-based categories. We used Articulate Rise learning platform to create our three content modules (Order of Operations, Anticipating Roadblocks & Effective Communication), disseminated online via ALiEMU.com.

**Impact:** This is the first virtual asynchronous curriculum on WFE targeted to new EM learners. Our participants strongly agreed to most satisfaction survey questions (Figure 1). Based on a pre- and post-test multiple-choice questionnaire, residents’ improved on average by 13.72%

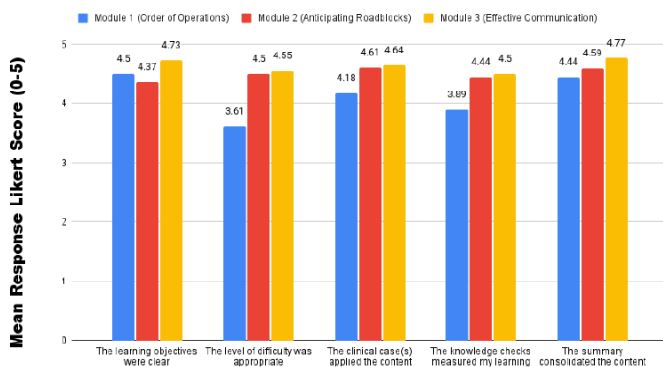


Figure 1. Satisfaction survey.

after curriculum completion (Figure 2). We plan to compare efficiency metrics from the current PGY-1 class to prior years. In conclusion, this curriculum can be utilized by EM training programs to teach efficiency.

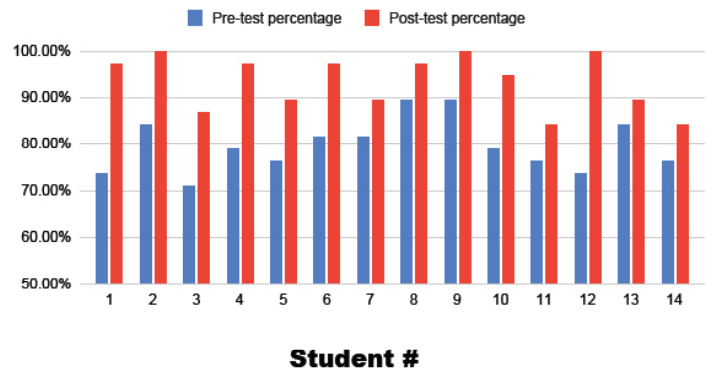


Figure 2. Pre- and post-test percentages.

## 52 Come One, Come All: Carnival Themed Gamification of Emergency Medicine Resident Board Review

Shayne Gue, Taylor Cesarz, Maria Tassone

**Introduction:** Didactics are an essential component of emergency medicine (EM) resident education. Traditionally, formal lecture sessions formed a majority of didactics. Recently, there has been momentum to introduce active learning through small group learning, simulation, and gamification. Gamification can be a successful tool for medical education by meeting a learner’s needs for competence, autonomy, and relatedness, as outlined by the self-determination theory. We explored how gamification of our board review session influenced resident perception on various domains.

**Educational Objective:** To increase resident motivation, engagement, and challenge in ITE preparation and determine various learning outcomes through the design of a team-based gamified interactive board review session.

**Design:** We created a novel, gamified review session consisting of 3 games. Games focused on reviewing visual diagnoses, board-style questions, and “buzz” words. The session was held twice, one time each for two community EM programs. At each session, residents were divided into teams with all PGY levels represented. To assess the intervention, we surveyed residents after completion. The survey utilized a 5-point Likert scale on items indicating agreement with statements regarding perception of motivation, engagement, challenge, and overall

preparedness of the session compared to traditional lecture reviews.

**Effectiveness:** Residents reported overwhelming agreement in all four domains. 20 of 25 (80%) residents completed the survey. High levels of agreement were reported for motivation (4.75, 95% CI=4.51-4.99), engagement (4.85, 95% CI=4.64-5.00), challenge (4.75, 95% CI=4.51-4.99), and overall exam preparedness (4.8, 95% CI=4.57-5.00) compared to traditional lecture-based review methods.

### 53 Development of a Emergency Department Operations and Throughput Curriculum for Resident Physicians

Bryan Stenson, David Chiu

**Introduction:** Emergency Departments (ED) across the country are facing ever increasing levels of crowding and boarding. As a result, it has become more and more difficult to generate throughput through the ED. Furthermore, as volume increases, resources are getting further constrained which leads to multiple bottlenecks in the progression of patients through the ED. There exists little formal education on this topic for ED resident physicians, even though this is a major aspect of the job of an ED physician and a significant contributor to physician burnout.

**Educational Objectives:** This curriculum introduces the basic concepts of queuing theory, human behavior, data analysis and process improvement methodology to teach ED resident physicians to be able to analyze congested EDs and propose changes to fix bottlenecks, increase throughput, better match staffing levels to ED volume.

**Curricular Design:** The curriculum was designed to be as interactive as possible and is composed a mix of lectures, small-group interactions/discussion, and question/answer sessions. Lectures were used to introduce basic concepts around resource bottlenecks, queuing theory, schedule optimization, process/change management. Prior to the session, each resident received a data set that reflects a real-world ED problem. Three case studies were used. One case around need for additional shift. Another around adjusts of the schedule to fit patient arrival. A third around analyzing delays in CT imaging. Participants were broken up into small groups to do their own analysis and present each case study as well as their own data analysis and their solutions to the problem.

**Impact/Effectiveness:** This curriculum has been given at two independent residency programs and has been met with positive feedback. Many commented on the significance of the topic, but little formal education/curriculum regarding it. The case studies were well received and made the session practical and interactive.

### 54 Emergency Medicine Neurocritical Care Bootcamp: A Collaborative Curriculum with Simulation Based Learning

James VandenBerg, Lauren Koffman, Dillon Warr, Penny Garcia, Jane Cripe

**Introduction:** Neurologic emergencies (NE) are a core component of emergency medicine (EM) training. We identified gaps in education of NE, which require identifying subtle physical exam findings that are challenging to reproduce in simulation. We believed using Standardized Patients (SP) in NE simulation cases would reinforce these exam findings, supplement our resident’s training, and add realism to the cases. We collaborated with our neurocritical care team to adapt a neurology simulation-based learning (SBL) bootcamp for EM residents.

**Educational Objectives:** The primary aim was to have EM residents National Institute of Health Stroke Scale (NIHSS) certified and improve knowledge and treatment of NEs.

**Curricular Design:** EM residents completed an educational needs assessment and weaknesses included: acute stroke, seizures, and meningitis. Neurocritical Care faculty prepared didactics on these topics. A previously created simulation-based learning (SBL) course designed by our neurocritical care team for neurology residents was adapted for EM residents, with cases

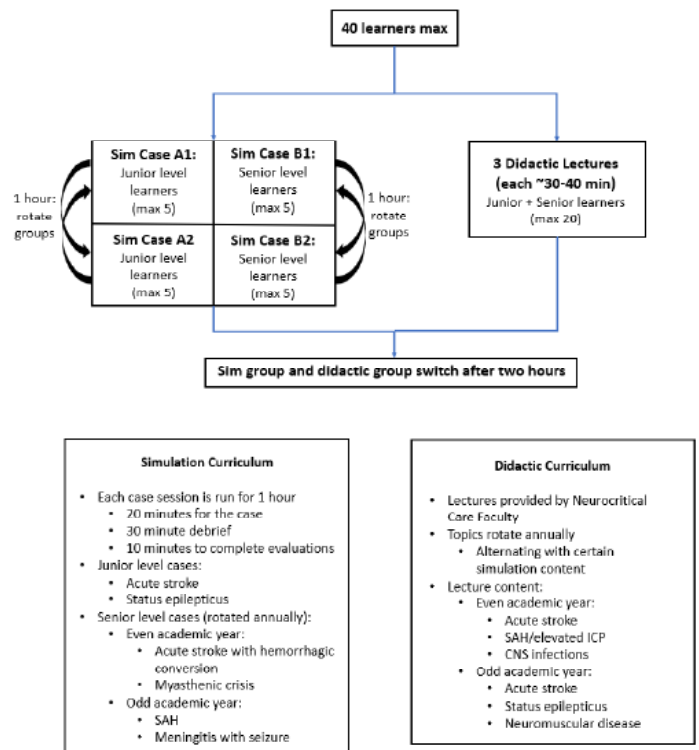


Figure 1. Curriculum overview.

for both junior and senior learners. One facilitator was required per simulation room to run the cases. Trained SPs were used for the acute stroke cases. Residents completed online NIHSS certification prior to the course. The bootcamp was 4 hours long and included 2 hours of simulation and didactics each (curriculum format shown in Figure 1). Both faculty and learner evaluations were completed (Figure 2).

**Impact/Effectiveness:** Residents received didactics from topic experts and applied these concepts in a simulation setting. The course received universal praise due to its use of SPs and their ability to simulate neurologic deficits. Future iterations of the course will include our EM and ICU nurses to help facilitate cases, collaborating with neurology residents to simulate real world processes, and performing further educational needs assessments from learners.

**Faculty's Evaluation of Junior Level Learner's: Acute Stroke**

Please check the below boxes regarding whether the actions were observed or not observed during the simulation scenarios. Feel free to add additional comments to help guide your debriefing.

Criteria	Observed	Not Observed	Comments
Calculated NIHSS			
Team confirmed patient's "last known well" time			
Obtained accu-check			
Activated stroke protocol and obtained CTH			
Assessed patient for exclusion criteria for tPA			
Treated elevated BP to below 185/110 prior to giving tPA			
Administered tPA			
Treated elevated BP to below 180/105 post tPA			
Counseled patient on diagnosis and plan			

Additional comments:

Figure 2. Example faculty's and learner's evaluation forms.

## 55 Emergency Medicine Resident Financial Wellness Curriculum

*Erin Butler, Darielys Mejias-Morales, Latha Ganti*

**Introduction/Background:** Resident physicians are at increased financial risk given their debt burden, low income, and lack of formal financial management education during their training. Deficiencies in financial literacy for taxes, investments, savings, and insurance have been identified among resident physicians. These deficiencies could potentially affect the well-being of residents and contribute to burnout while in residency.

**Educational objectives:** 1) Incorporation of financial management education into residency didactics for short- and long-term financial success of resident physicians. 2) Improve financial literacy of residents.

**Curricular design:** Curriculum was structured as interactive lectures along with small group discussions/workshops. This educational method was chosen based on the extensive amount of material to cover and to promote engagement from the learners' end. Topics included budgeting and savings principles, student loan repayment options, insurance, retirement plans/savings, and investment strategies. The curriculum also includes a discussion panel about monetary compensation in Emergency Medicine and strategies for job offer evaluation and contract negotiations. Lectures were divided into five sessions, some of them divided into small groups based on the year of residency (PGY1, 2, 3). The course culminates in residents developing their own written financial plan based on their individual priorities.

**Impact/Effectiveness:** Evaluation showed that after the lecture series residents felt better prepared and more comfortable with financial concepts. Residents also reported increased motivation to continue learning about financial wellness, to get life and disability insurance, and to seek individualized financial advice. The incorporation of financial wellness into our residency academic curriculum allowed residents to optimize their finances during training and to better prepare for long-term financial management.

## 56 Feel Good Fridays: Incorporating Wellbeing into Resident Morning Reports

*Sarah Lee, Ritika Gudhe*

**Introduction/Background:** Physician well-being and resiliency continues to be an essential topic of focus and discussion in medical training, particularly in the specialty of Emergency Medicine (EM). Residents of EM are often faced with critical patients, diseases, and scenarios that make them especially vulnerable to burnout. Having a longitudinal means to incorporate wellness and wellbeing in a busy resident schedule would provide a regular avenue for discussion and outlet for debriefing.

**Educational objectives:** The objective of Feel Good Fridays is to incorporate resident wellness into regular morning reports to provide a weekly forum for residents to decompress and discuss wellness. It will also increase resident awareness of wellbeing resources.

**Curricular design:** The SIUH EM residency program has weekday morning reports at 10AM in which a resident is pre-assigned on the schedule to give a short chalk talk on a medical topic of their choice or an interesting case presentation with learning points. This academic year, we have started the Feel Good Fridays initiative in which Friday morning reports are purposefully focused on wellbeing and wellness. Examples include discussing topics such as physician suicide awareness, sleep schedules with shift work, imposter syndrome, and second victim syndrome. Some

residents may also choose to use morning report time to lead a group mediation exercise, a mini-workout session, or to incorporate narrative medicine by sharing a story about an impactful patient experience. Feel Good Fridays takes place weekly and every resident will have a chance to lead morning report at least once. The authors of this initiative distributed anonymous, optional pre-surveys to evaluate the resident perspective of their current state of wellness prior to Feel Good Fridays initiative and will administer post-surveys at the end of the academic year to measure impact.

**Impact/Effectiveness:** Feel Good Fridays introduces a method to allow residents to incorporate wellness into their training in structured way on a weekly basis.

## 57 Homemade NeoPuff Simulator for NRP

Jacy O'Keefe, Brett Milbrandt

**Introduction/Background:** Neonatal resuscitation is a topic that can cause significant unease amongst providers due to both the complexity and rarity of these patient encounters. At our residency program, there is a general consensus amongst residents and faculty that it would be beneficial to have more exposure and education on the topic of neonatal resuscitations. In order to better prepare residents at our level 1 trauma academic center, we constructed an interactive respirator/positive pressure ventilator simulator (modeled from Neopuff™) for residents to practice on to improve their competency and comfort with neonatal resuscitations.

**Educational Objectives:** 1. Strengthen residents knowledge utilizing PPV for neonatal resuscitations. 2. Provide exposure to the equipment used in Neonatal Resuscitation Program (NRP).

**Curricular Design:** After reviewing feedback from residents on topics they wish they had more exposure to, it was noted that neonatal resuscitations were mentioned quite frequently. While attempting to set up a department wide simulation/education session on the topic of neonatal resuscitations, it was determined that the equipment used for neonatal resuscitations in our hospital were unable to be used for simulation/education as they needed to be available for use at all times. After this was determined, I developed and constructed a homemade Neopuff™ simulator to allow residents, faculty, nurses, respiratory therapists, and other staff a chance to practice how to use positive pressure ventilation in neonatal resuscitations. Neonatal resuscitation simulations were performed in the emergency department where residents were able to practice/run through resuscitations using the homemade PPV simulator.

**Impact/Effectiveness:** A survey was sent out to those that participated in the neonatal resuscitation simulation. A significant improvement/increase in comfort and knowledge was noted with regards to PPV.

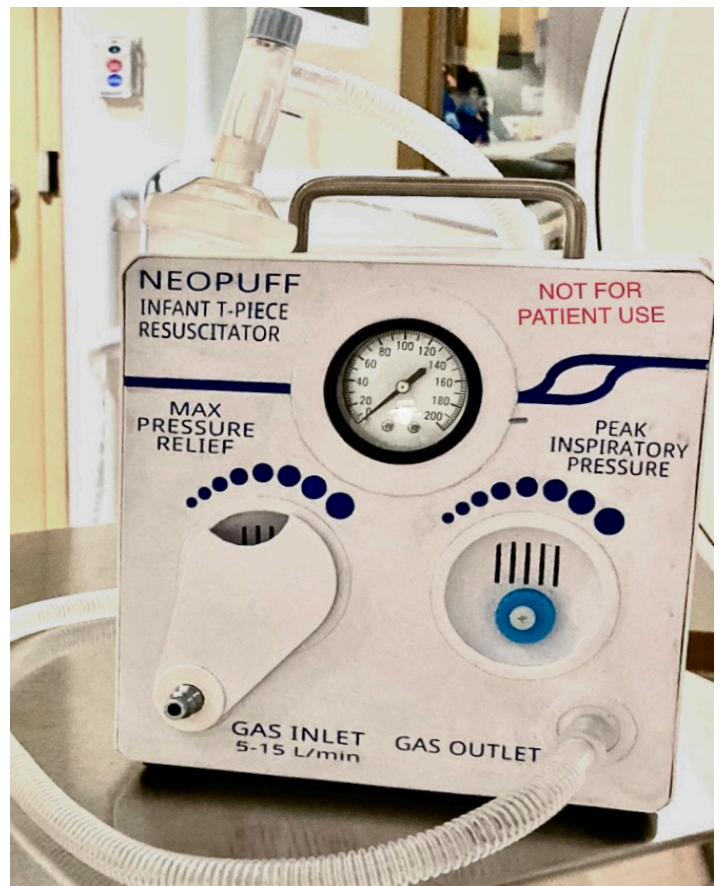


Figure.

## 58 Implementation of a Financial Education Curriculum for an Emergency Medicine Residency Program

Mitchell Blenden, Niti Nagar, Mahbod Pourriahi, Maurice Hajjar, Peter Pruitt

**Introduction/Background:** Financial literacy is not currently taught in the early stages of medical education, which can be problematic given physicians' significant debt burden. While many aspects of medical education are similar across institutions, there is significant variability in financial education during training. Prior studies have highlighted that residents have significant deficits in their financial preparedness and would benefit from a financial education.

**Educational Objectives:** To improve the financial literacy of emergency medicine residents by creating an educational curriculum.

**Curricular Design:** A needs assessment was conducted by surveying residents on common financial topics. Based on the findings, a group of attendings and residents created presentations tailored to meet residents' needs. The curriculum was divided into four didactic sessions per year beginning during intern orientation

during which residents were educated on loan repayment, budgeting, and retirement planning. Subsequent didactic sessions addressed other financial topics including savings, taxes, retirement planning, investing, insurance, health savings and flexible spending accounts, and home buying. The curriculum concluded with a session for graduating residents focused on financial strategies for attendinghood such as tax preparedness, contract review, and disability insurance. Based on feedback, the curriculum was modified to span a four-year residency program with topics and case studies targeted to each residency class based on the financial decisions and actions that may be relevant to that year of residency.

**Impact/Effectiveness:** Sixty residents participated in the curriculum annually. Data were collected over two years. Thirty-two residents completed post-curriculum surveys: Of all respondents, 100% of residents felt more prepared to make financial decisions after the financial curriculum.

## 59 Implementation Of Civic Health and Community Engagement Education Through Voter Registration In The Emergency Department

*Claire Abramoff, Jacqueline Dash*

**Introduction/Background:** Lack of civic participation is linked to “poor self-rated health, independent of both income inequality and median household income” (Bakely et al, 2001). In a policy statement from June 2022, the AMA “supports measures to facilitate and equitable access... [and] acknowledges voting is a social determinant of health”. Our hospital has been using the tools provided by Vot-ER (a national nonpartisan organization) for some time, but it had been an informal, word-of-mouth initiative that only a few faculty utilized. We aimed to standardize the education and implementation of provider-assisted voter registration, with the ultimate goal of increasing the number of registered voters in our community. By providing our patients with the tools they need to register to vote, healthcare providers can help create a non-partisan, inclusive democracy for our learners, faculty, institution, and patients.

**Educational Objectives:** To increase emergency medicine resident and faculty awareness of voting as a social determinant of health, and provide tangible resources and methods for helping patients register to vote while in the emergency department.

**Curricular Design:** Faculty members participating in the Vot-ER Civic Health fellowship organized a didactic session that introduced the history and research surrounding voting as a social determinant of health. It specifically covered the voting history of the population surrounding our hospital. The session then divided into small groups to role play patient encounters and brainstorm techniques to incorporate voter registration questions into the patient interview.

**Impact/Effectiveness:** During the session, we were able to provide 60 residents and faculty members with Vot-ER registration tools, as well as practical tips and resources to help register patients. We saw a significant increase in the number of patients registered at our institution after our educational efforts.



Figure.

## 60 Navigating Uncertainty in Clinical Practice: A Workshop to Prepare Medical Students to Problem-Solve During Complex Clinical Challenges

*Frances Rusnack, Kestrel Reopelle, Martinique Ogle, Mary Stephens, Kristin Rising, Danielle McCarthy, Nethra Ankam, Dimitrios Papanagnou*

**Background:** Uncertainty is abundant in clinical practice. Curricula to prepare trainees to navigate uncertainty in clinical practice have been cited in the literature, yet few interventions prepare trainees to appraise the uncertainty faced and to problem-solve accordingly. We designed and implemented a workshop that equips learners with a taxonomy to categorize the types of uncertainty and a framework to apply problem-solving strategies when navigating uncertainty in complex clinical encounters.

**Objectives:** After the workshop, students will be able to appraise the types of uncertainty they encounter in clinical practice, apply a sense-making framework to diagnose clinical challenges using principles informed by Health Systems Science (HSS), and reflect on strategies to apply when navigating uncertainty.

**Curricular Design:** A virtual workshop was designed for third-year students at the end of core clerkships. The session began with a didactic session to review HSS concepts and the uncertainty frameworks. Students then engaged in small group learning through a time-lapsed, unfolding case of a patient navigating his care. Several challenge points were built in that introduced a differing clinical uncertainty. Students were prompted to apply HSS tools and strategies to navigate dilemmas, as well as apply a framework to make sense of and classify the uncertainty in order to select a problem-solving strategy. The session ended with a debriefing.

**Impact:** The session was conducted with 128 students, of which 111 completed the evaluation (87%). Most (101/111, 89%) found the session useful in preparing them to problem-solve during uncertainty. Students applied an array of strategies integrating HSS knowledge (e.g. patient advocacy, patient-centered communication, interprofessional collaboration, social determinants, transitions of care, and shared-decision making). Our case also successfully highlighted the complexities of care for persons living with disabilities.

## 61 Not Everyone Can Be a Chief

*Sameer Desai, Linda Katirji*

**Background:** In 2015 our program adopted a new chief resident model of having all final year residents have a “chief” role. Multiple other programs had already adopted this. “Chiefs” are meant to be leaders, have direct influence in the program, & serve as liaisons with other department chiefs. Common jobs include assisting in conference scheduling, clinical scheduling, & recruitment.

**Objectives:** Prior to 2015, our program had 3 chief residents a year. They were chosen using a vote within the program, with ultimate decision made by the residency leadership. Many other residents were interested, and often qualified, but ultimately not chosen. In 2015 we adopted all-chief model with the goal of giving each PGY3 a leadership opportunity & a tangible product as they transition to fellowship or new job.

**Curricular Design:** Residents were allowed to pick their position, with some influence by residency leadership. Residents were also encouraged to “think outside the box” and create new roles which aligned with their personal interests or career goals. Examples included Medical Director Chief, U/S chief, and Wellness Chief.

**Impact/Effectiveness:** We quickly learned that some residents thrived when given responsibility & others did not. Some that were barely able to fulfill residency requirements & could not manage more responsibility. There was clear

disparity in effort. When we started this, all residents’ total shifts/month was decreased equally. This created some controversy when workload, as well as work ethic, was not equal. We altered details, requirements, & expectations every year in attempts to correct the failures. Ultimately, we feel all chief model was a failure. This year (2022-23) we reverted to a traditional chief model, allowing only those the residency leadership felt could manage chief responsibilities have a role. We only chose 6 residents out of 12, creating some healthy competition. Those not doing a chief role did not get a shift reduction.

## 62 Orthopedic Taboo: A Break from Traditional Image Review

*Damian Lai, Brent Becker, Amber Billet*

**Background:** Recognition of specific fracture patterns and determination of appropriate management are vital skills in emergency medicine (EM). EM residents have traditionally been taught through a review of radiographic images in lecture format; however, gamification facilitates experiential learning, incorporates team-building and promotes wellness. The classic board game Taboo provides a format well suited to strengthening memorization, improving pattern recognition and engaging both clue-givers and team members as active learners. We adapted this game as the basis for a novel educational activity: Orthopedic Taboo.

**Education Objectives:** 1) Increase EM resident medical knowledge of specific orthopedic fractures and management. 2) Enhance resident team building and wellness.

**Curricular Design:** Randomly ordered radiographic images of classic fracture patterns involving the spine, pelvis and extremities were organized in a slide presentation. Residents were split into teams of 3-5 participants. The classroom was set up such that only one chair in each group faced the screen. The resident facing the screen (clue-giver) described each Taboo word/image (fracture pattern) using medical terminology so the other blinded team members could correctly guess the fracture. If unsuccessful after 30 seconds, an additional hint slide was revealed. After all groups had identified the fracture, the management was jointly discussed, including reduction and splinting techniques. A point was awarded to the team that identified each fracture the fastest and the team with the highest cumulative point total won the game. The total time for this educational activity was 30 minutes.

**Impact/Effectiveness:** Orthopedic Taboo was incorporated into didactics with positive resident feedback, particularly early in the academic year. It enhances team building and wellness. These sessions are conducted for 30 minutes every 1-2 months to enhance spaced repetition.



## 63 Paintball Casualty Care – Using Paintball to Teach Trauma Related Procedures

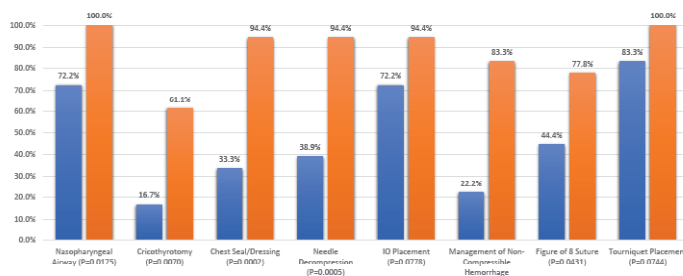
Damian Lai, Julianne Blomberg, Brent Becker, Robert Clontz

**Background:** The ability to effectively perform trauma-related procedures is an important skill in emergency medicine (EM). We identified 8 procedures that had relevance to patient care in both the ED and the prehospital setting. Combining assessment of technical skills with a paintball activity creates an opportunity for experiential learning while also emphasizing team building and wellness.

**Educational Objectives:** 1) Increase EM resident competency in performing 8 trauma related procedures. 2) Increase knowledge retention through an experiential learning activity. 3) Increase resident cohesion via a team building activity. 4) Introduce EM residents to basics of prehospital trauma care.

**Curricular Design:** An outdoor paintball facility was used to host this activity. 4 stations were set up with each covering 2 procedures. In addition to classic paintball games, we designed “Capture the Patient” where teams had to capture the opposition’s mannequin and return it to their base. Players were “eliminated” after being struck with a paintball and subsequently presented to a skill station. If a specified procedure was performed correctly, they “revived” and returned to the field of play. An EM attending physician assessed each learner’s competency with the procedure. All residents progressed through each skill station twice. Participants completed surveys before and after the activity to gauge their comfort level with these procedures based on a 5-point Likert scale (“Not Comfortable,” “Somewhat Comfortable,” “Neutral,” “Comfortable” or “Very Comfortable”). Proportions of respondents reporting “Comfortable” or “Very Comfortable” for each procedure were compared pre- and post-activity via chi square analysis ( $\alpha=0.05$ ).

**Impact/Effectiveness:** Experiential learning has been shown to enhance knowledge retention. 18 residents completed pre- and post-activity surveys. Self-reported comfort levels demonstrated significant improvement in 6 of the 8 procedures (Figure 1).



**Figure 1.** Percent of respondents who were "comfortable" or "very comfortable" with the procedure based on a 5-point Likert scale. 8 procedures were assessed pre- and post-activity to gauge effectiveness of the event.

## 64 Presenteeism in Emergency Medicine

Jennifer Bolton, TJ Welniak, Christine Stehman, Carolyn Sachs, Aaron Barksdale

**Background:** Presenteeism has been previously indicated as prevalent in the healthcare field and thought to be due to a self-sacrifice culture. It has been postulated that presenteeism may be even more prevalent in resident physicians due to reduced opportunities for a full and fair sick coverage system in residencies and possible pressure or expectations from peers during residency. Few studies have expanded this research on presenteeism to include the COVID-19 pandemic and how this has affected the culture in the medical field regarding working while ill. In addition, little research has been done looking at interventions to reduce presenteeism in residency programs, although prior research has breached the possibility of the need for a transparent policy to decrease presenteeism amongst hospital staff.

**Education Objectives:** A survey has been designed to be sent to emergency medicine programs in the United States to determine the motivations behind presenteeism in Emergency Medicine.

**Curricular Design:** A transparent sick policy has been designed to designate how coverage is obtained when sick days are used by residents at the University of Nebraska. The sick policy also encourages the use of sick days for mental health emergencies and for illnesses. A post-survey will be conducted to determine if there is a change in attitudes towards or comfort with using sick days for mental health or medical reasons within the residency program.

**Impact/Effectiveness:** The purpose of this project is to identify the motivations of emergency medicine personnel for working while sick as well as changes that may have transpired related to the COVID-19 pandemic. If there is a change in resident comfort calling in sick with a transparent policy, this may be an intervention to be applied elsewhere and improve resident wellness.

## 65 Sex and Gender Transformative Medical Education Curriculum Begins with Assessment

Mehrnoosh Samaei, Alyson J. McGregor

**Background:** Assessment tools are available for measuring sex and gender responsiveness in health policies and research (Table 1), but not for medical education and curriculum design. Educators and institutions can benefit from a tool that guides the incorporation of sex and gender into medical education.

**Objective:** We developed a tool that provides a framework for evaluating the state of the inclusion of sex and gender in

**Table 1.** Summary of World Health Organization and The Canadian of Health Research Sex and/or Gender Responsive Assessment Scale.

WHO Gender Responsive Assessment Scale: criteria for assessing program and policies		Sex/Gender Responsive Assessment Scale: criteria for assessing for health research	
Gender-Unaqual	Perpetuates gender inequality by reinforcing unbalanced norms, roles and relations	-	-
Gender-Blind	Ignores gender norms, roles and relations	Sex/Gender-Blind	Ignores sex & gender trends and needs. Sex and gender are included as a variable in research design and methodology
Gender-Sensitive	Considers gender norms, roles and relations	Sex/Gender-Sensitive	Acknowledges the differences in sex & gender trends and needs without the inclusion of sex/gender in the research design
Gender-Specific	Intentionally targets and benefits a specific group of women or men to achieve certain policy in program goals or meet certain needs	Sex/Gender-Specific	Acknowledges the differences in sex & gender trends and needs with the inclusion of sex/gender in the research design
Gender-Transformative	Considers gender norms, roles and relations for women and men and that these affect access to and control over resources Considers women's and men's specific needs Addresses the causes of gender-based health inequities Includes ways to transform harmful gender norms, roles and relations The objective is often to promote gender equality Includes strategies to foster progressive changes in power relationships between women and men	Sex/Gender - Transformative	Considers gender norms, roles and relations for people of all genders Considers the specific needs of people of all genders Addresses the causes of gender-based health inequities Includes ways to transform harmful gender norms, roles and relations The objective is often to promote gender equality Includes strategies to foster progressive changes in power relationships between people of all genders

educational content, identifies the gaps and provides guidance on steps toward a more sex and gender-responsive curriculum.

**Curricular Design:** At Alpert Medical School, we trained faculty on how to assess sex and gender responsiveness of their educational content using our 5-level assessment scale. Listed below are descriptions of the levels with examples in Table 2. Sex/gender-biased: Reinforces stereotypes. limits the discussion of disease presentations to those that are predominant in one gender or sex or include incorrect use of terminologies. Sex/ gender-blind: Does not mention any sex and gender differences. Sex/gender-sensitive: Acknowledges the differences without mentioning the mechanisms or contributing factors. Sex/gender-specific: Acknowledges the differences and discusses the possible contributing factors to the observed differences including sex hormones, environmental or genetic factors or highlights the knowledge gap. Sex/ gender-transformative: In addition to the previous level, includes knowledge translation strategies that can be used in clinical settings to improve patient care.

**Table 2.** Sex/Gender Responsiveness Assessment Scale: examples for health education.

	Example	Explanation
Sex/Gender-Biased	An illustration of a man with a large body habitus, placing his fist on his chest to speak about symptoms of a MI on a PowerPoint slide.	Using this picture to talk about MI presentation reinforces the stereotype that heart attacks only present with midchest chest pain. Whereas evidence shows that MI symptoms typical for women include fatigue, chest sensations other than pain, nausea, SOB, weakness, and indigestion. <sup>7</sup>
Sex/Gender-Blind	Family history is a strong risk factor for alcohol use disorder. <sup>8</sup>	This statement is blind because it fails to discuss any sex and gender differences. When discussing the risk factors for alcohol use disorder it's important to mention stress and negative mood states as risk factors in women. Smoking is an important risk factor for men. <sup>8</sup>
Sex/Gender-Sensitive	Women develop COPD earlier and with less smoking exposure than men. <sup>9</sup>	This statement is sensitive because it mentions a difference between men and women. However, it does not explain the mechanism for the observed difference or alternatively highlights the existing knowledge gap.
Sex/Gender-Specific	There is a large disparity between men and women in the prevalence of BPH; the exact mechanisms for hormonal progression of, or progression to BPH have yet to be determined. <sup>1</sup>	This statement is highlighting a difference between men and women and makes an attempt to explain the contributing factor to the observed difference. Since the evidence is not very strong it highlights the knowledge gap.

**Impact:** This assessment scale could be applied to a wide range of educational materials, including slideshows, clinical vignettes, and curriculum in general. It can increase faculty competency and provide a roadmap for modifying educational content to be gender and sex-responsive. Based on interviews conducted after the training sessions, using this scale could address some of the barriers to integrating sex and gender into educational activities.

## 66 Sonographer Educator in the Emergency Department: Evaluation of a Novel Education Intervention

Anita Knopov, Stephanie Hess, Andrew Musits, Gianna Petrone, Brian Clyne, Janette Baird, Ruby Meran, Kristin Dwyer

**Introduction/Background:** Point-of-care ultrasound (POCUS) is considered standard of care for evaluation of Emergency Department (ED) patients. There is a wide range of provider comfort and competency. Physicians who completed Emergency Medicine (EM) residency training greater than 10 years ago may lack POCUS proficiency unless they have pursued additional focused training. This project sought to address this potential skills deficiency by evaluating the impact of a dedicated sonographer educator on provider ultrasound competency.

**Educational Objective:** Our objective was to provide hands-on training sessions for faculty to learn from a dedicated sonographer educator, a non-physician registered diagnostic medical sonographer (RDMS) who functions as a sonographer educator in the ED.

**Curricular Design:** Study participants were board certified EM faculty within a single large academic ED. Prior to the first session with the sonographer educator, each participant provided informed consent and completed a survey. Participants completed the same survey after the educational session. During the intervention, the faculty worked with the ultrasound educator in the clinical environment and received one-on-one, real-time feedback and coaching. This included operational logistics of the ultrasound, documentation, and hands-on scanning for numerous ultrasound indications.

**Impact/Effectiveness:** Twenty-six participants completed at least one session with the sonographer educator. The median years post-residency training for all trainees who completed the survey was 20. Three participants reported that POCUS was an integral part of their residency/ fellowship training. Among those completing the post-survey, the most frequently performed POCUS exams were FAST, Echo, and Gallbladder. All study subjects either agreed or strongly agreed that they would participate in additional sessions with the sonographer educator.

## 67 Substance Use Disorders Rotation: Addiction Medicine for EM Residents and Students

Kay Lind, David Duong

**Introduction/Background:** Safe and compassionate care for patients with complications of substance use is a cornerstone of emergency medicine practice. However, many barriers exist to up-to-date addiction medicine practice in ED settings; a 2020 survey of ED physicians revealed that only about half had DEA-X waivers, and only 23.5% had ever prescribed buprenorphine upon discharge (Myles 2020). Emergency medicine physicians can benefit greatly from specific education in addiction medicine. The Substance Use Disorders elective rotation for resident physicians and medical students at Highland Hospital is designed to meet this need.

**Educational Objectives:** After completing this rotation, resident physicians and medical students should be better able to: -Diagnose and manage substance use disorders in a variety of inpatient and outpatient practice settings -Identify and safely prescribe the range of medical adjuncts for substance use disorders -Navigate the healthcare system to assist patients in accessing multimodal social and therapeutic support options.

**Curricular Design:** The Highland Hospital Substance Use Disorders elective rotation was developed by medical educators with a background in curricular design and undergoes regular design-redesign iterations incorporating feedback from rotating residents. Rotation goals and objectives are aligned with ACGME requirements and linked to ED milestones. Rotating learners alternate their time between ED/inpatient addiction medicine consults, in-person Bridge clinic patient care, and telemedicine in the Bridge clinic, as well as having the opportunity to join street medicine teams.

**Impact/Effectiveness:** Our rotation is hugely popular with an ever-expanding volume of rotators. We have had at least one resident choose to complete a fellowship in addiction medicine based on the rotation experience. Our residents report greatly increased knowledge, skills and positive attitudes towards management of substance use disorders.

## 68 Time is Brain

Megan Stobart-Gallagher, Lesley Walinchus Foster

**Introduction/Background:** The National Institutes of Health Stroke Scale (NIHSS) remains a fundamental tool in assessing stroke severity.<sup>1</sup> Performing an accurate NIHSS on patients with acute stroke symptoms is a core concept in emergency medicine (EM) training. Quick and accurate assessments are crucial to determine whether thrombolytic

administration or thrombectomy is indicated.

**Educational Objectives:** The objective of this innovative was to engage learners in active learning on the presentation and management of strokes.

**Curricular Design:** Gamification is thought to promote risk-free healthcare decision making, learner engagement, and cooperation.<sup>2</sup> In this exercise, our faculty performed the function of both patient and scorekeeper in this team-based activity for acute stroke and its mimics. Prior to the day of the exercise, self-directed learning resources were sent out to participants. On the day of, residents were divided into teams with mixed learner ratios. They were challenged in four rounds of play: identify common stroke mimics, adequately perform a neurological exam and NIHSS, work through whiteboard cases of variable stroke presentations/management options and then actively engage in a role play conversation about the administration of thrombolytics. The activity concluded with a review of institutional specific guidelines.

**Impact/Effectiveness:** A post activity survey assessing perceived improvement in ability to perform a neurological assessment and stroke knowledge gained with a 78% response rate. Most respondents marked either a moderate or significant improvement of management and ability to perform a neurological assessment. Ninety percent enjoyed the interaction with faculty and felt it was both satisfying and impactful as an activity. We believe this model of gamification in stroke education can be applied to larger groups in hopes of boosting the confidence in high stakes critical medical decision through a low-risk activity.

## 69 Trigger Warning-A Game Creating Difficult Conversations

Jessie Nelson, Kristi Grall

**Introduction/Background:** EM trainees frequently have difficult conversations. Opportunities to practice in a low-stakes environment may improve future conversations with patients, families, colleagues, and employers.

**Educational Objectives:** The learners will be able to: (1) initiate potentially difficult conversations, and (2) name tools or resources available to help in challenging communication scenarios.

**Curricular Design:** A low-tech card game allowed trainees to quickly create difficult conversations during regular didactics. Scenario Cards, aspects of situations likely to require difficult conversations, were dealt to each player. A player reviewed their cards and created a plausible scenario of a conversation between a physician and someone else (patient/family, employer, etc). The player then rolled dice to determine if there would be a major, minor, or no complication added to the scenario. Two trainees role-played

the difficult conversation, followed by debriefing with the larger group.

**Impact/Effectiveness:** This session occurred three times in a 2.5-hour period averaging ten trainees per session. Trainees generated conversations about suspected interpersonal violence, informed consent, consultant interactions, protected time negotiation, colleague substance abuse, goals of care, unrealistic family demands, and power differentials. Common themes were influence, recognizing limits, knowledge of resources, and time pressure in the Emergency Department. The gaming aspect adding random complications brought positive energy to the group interactions and an effective counterbalance to the heavier topics discussed. Spontaneous trainee feedback during the sessions and formal conference evaluation data was very positive. The raw materials created for this session are readily available for re-use by other faculty and will, by nature of its design, create different difficult situations each time.

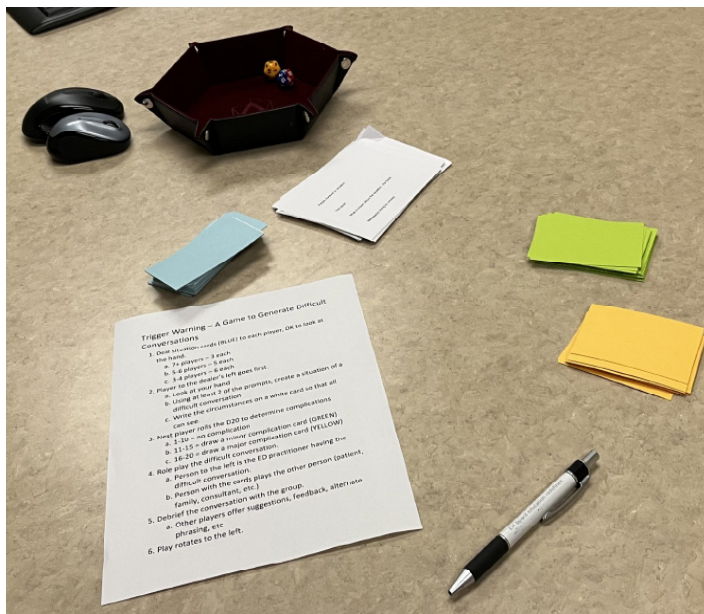


Figure.

## 70 Understanding Resources in Our Community to Understand and Help the Patients We Serve

Deborah Pierce, Joshua Reitz, Danielle Sturgis

**Background:** Many ED patients present with complaints due to insecurity of food, clothing, shelter, inadequate access to medical or mental healthcare, and issues with addictive behaviors. These issues often result in frequent ED visits

trying to seek help.

**Educational Objective:** Introducing our new EM residents to resources in our community will increase their awareness and understanding of our patients’ potential insecurities and give them the ability to provide appropriate education to access these resources. The ultimate goal is to reduce overall patient insecurities and decrease repeat ED visits.

**Curricular Design:** During the first week of their orientation block, PG1 residents went on a tour of our catchment area which included educational sessions in a City Health Center, Local Nursing Home, Opioid Use Treatment Center, and a Local Shelter. Community resources were noted during the tour including food banks, WIC office, Methadone clinic, local schools, medical clinics, shelters, and other important sites. Surveys were completed pre-and post-tour asking the same questions. Results obtained anonymously from 2 consecutive classes of 15 interns are shown in the attached graph.

**Impact:** Our residents found the tour of our community resources gave them awareness of potential insecurities that our patients may experience and understanding of

**Y-axis – Likert Scale**

- 1=Strongly Disagree
- 2=Disagree
- 3=Neutral
- 4=Agree
- 5=Strongly Agree

**X-axis - Questions**

1. I feel confident in my ability to direct patients with food insecurity to local resources.
2. I feel confident in my ability to direct patients with housing insecurity to local resources.
3. I feel confident in my ability to identify patients with limited access to medical care.
4. I am aware of local resources available to uninsured patients for routine medical care.
5. I am aware of local resources available to uninsured patients for specialty care.
6. I feel confident in my ability to educate patients with limited access to medical care about local resources.
7. I feel confident educating patients with opioid use disorders about local treatment options.
8. I have a good understanding of services available to patients in a nursing home.
9. I have good understanding of services available in a rehab facility.
10. Increasing my knowledge of local resources will improve my ability to provide comprehensive care for my patients.

Figure 1.

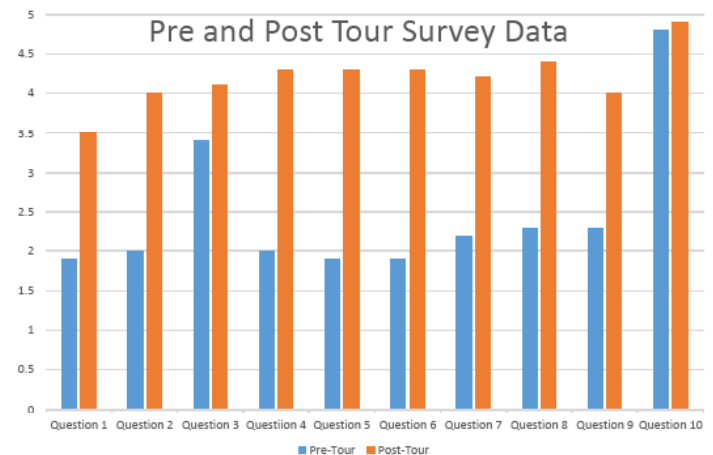


Figure 2. Pre- and post- tour survey data.

resources available to manage these issues, and ultimately the confidence to pass this education on to their patients.

## 71 What's Wrong with Me, Doc? Applying A Curriculum for Communicating Diagnostic Uncertainty in The Emergency Medicine Clerkship

*Frances Rusnack, Chaiya Laotepitaks, Xiao Chi Zhang, Alan Cherney, Kestrel Reopelle, Danielle McCarthy, Dimitrios Papanagnou, Kristin Rising*

**Background:** Diagnostic uncertainty is ubiquitous in emergency medicine (EM). Training to prepare students to communicate uncertainty with emergency department (ED) patients is limited in UME. Previous work has integrated the Uncertainty Communication Checklist (UCC) in EM resident education. Implementation in the EM clerkship has not yet been examined. We developed a curricular intervention that implements uncertainty training into the EM clerkship for third-year medical students.

**Objectives:** Students will be able to describe diagnostic uncertainty and its impact on patients and provider, explain the UCC during patient conversations, practice using checklist during simulated encounters, and apply the checklist to patient conversations on shift.

**Curricular Design:** At our institution, students complete a required 3-week EM clerkship. Students were first tasked with completing prework in the form of an Articulate Rise module on communicating diagnostic uncertainty. An additional didactic session was included in the clerkship orientation. Students then engaged in peer role play, as either patient or physician during a simulated case of discharging a patient with an uncertain diagnosis. The session ended with a debriefing. While in the department, we assessed students' performance in applying each aspect of the checklist while communicating diagnostic uncertainty with patients through a standardized direct observation tool.

**Impact:** As students grapple with diagnostic uncertainty during their EM clerkship for the first time, the clerkship itself may serve as an ideal time to implement training on navigating these conversations. The breadth of patient encounters in the ED allows for deliberate practice of this skill. The UCC was successfully implemented into our clerkship. Initial data shows that students perform well and complete most elements of the checklist (83%). We plan to continue with implementation, data collection, and dissemination of this innovation.

## 72 Sub-internship Simulation Curriculum to Enhance Medical Student Preparedness for Practice

*Robert Nolan, Eric Bustos, Joseph Ponce, Cody McIlvain, Maria Moreira, Manuel Montano*

**Background:** Simulation and procedure work-shops in Emergency Medicine (EM) training aid in the development of procedural competence, recognition of disease processes, and help address a lack of clinical experience to better prepare medical students for residency training. We developed a simulation curriculum for our senior medical student EM rotation incorporating procedural practice and exposure to high acuity clinical scenarios.

**Objective:** Develop an EM clerkship curriculum focused on teaching common procedures and exposure to high acuity clinical scenarios via simulated cases appropriate for fourth year medical students.

**Methods:** All the residents at a three-year EM program were surveyed using an anonymous questionnaire in Google Forms. Resident wellness was assessed using the Depression, Anxiety and Stress Scale (DASS), a validated psychometric scale that is used across multiple industries. Using a 5-point Likert scale, residents were also asked how often they feel like they are the victim of microaggressions: 1: never or almost never to 5: very frequently. The term "microaggressions" was not defined, allowing residents to determine what they feel it to be. Pearson product moment correlation between the two variables was calculated and statistical significance to  $p < 0.05$  was determined.

**Results:** 20 out of 27 residents responded to the questionnaire. Seven residents scored for at least mild depression (three severe), nine residents scored for at least mild anxiety (five severe), and 11 residents scored for at least mild stress (one severe). The average rating on the frequency of being the victim of microaggressions was 2.2 (95%CI: 1.6, 2.7), suggesting residents infrequently felt victimized by microaggressions. The Pearson correlation between Depression and the frequency of microaggressions is  $r=0.56$  ( $p=0.01$ ), between Anxiety and microaggressions is  $r=0.41$  ( $p=0.07$ , NS), and between Stress and microaggressions is  $r=0.63$  ( $p=0.004$ )

**Conclusion:** This study suggests there is a correlation between depression/stress and a residents' perception of being victimized by microaggressions. It is unclear whether being the victim of microaggression leads to more depression/stress or if residents with more depression/stress view comments as being more insulting. Certainly, this subject merits further study.

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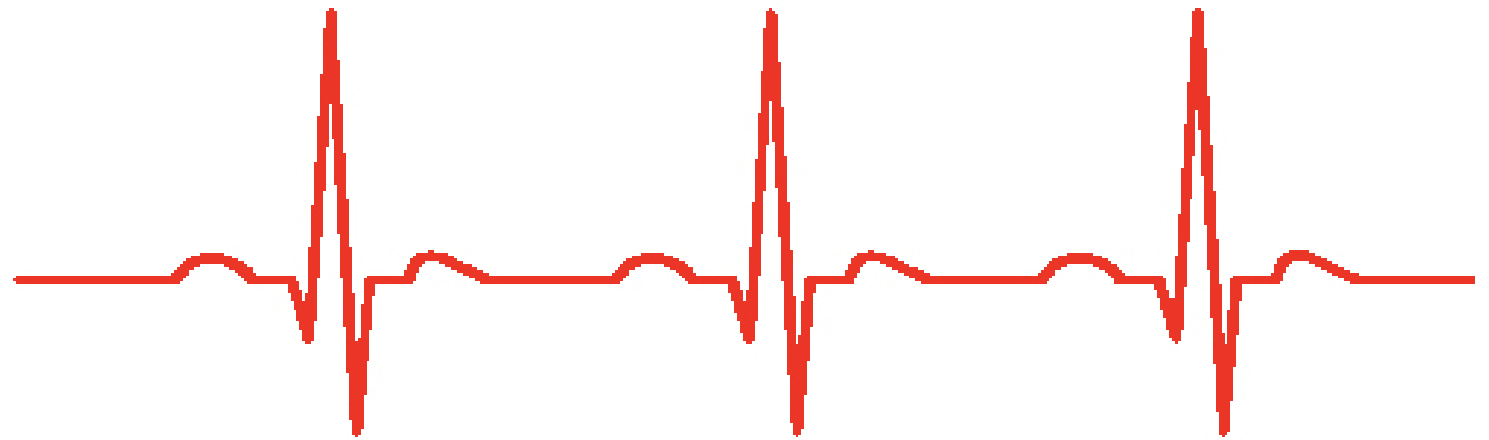
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