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Use of EBEM to Drive Quality Improvement Resident Projects

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Table 1. Description of activities.

Session Components	Description
Personal Responses Tour (pre-session)	Participants were asked to identify an image (from a collated set shared with them online) that spoke to their perceptions of starting residency and composed a brief written reflection
Paired Introductions (30 minutes)	Participants viewed a collated set of images and chose one that represented them. Participants went into breakout rooms in pairs to share and discuss their selected images, then introduced their partner to the large group via the image their partner had selected.
Visual Thinking Strategies (30 minutes)	Participants jointly viewed one work of art using a visual thinking strategies approach, where a facilitator leads participants in discussing what they see, why they see it, and what more they can find
Portrait Patient (30 minutes)	Participants were presented with a series of portraits, were asked to consider the portraits as patients, and then conduct "triage", and asked to share with the group which "patient" they thought most urgently needed their attention, and why
Sharing reflections (30 minutes)	Participants viewed the personal responses tour images together and shared their reflections on the transition to residency

Table 2. Evaluation of program.

Participant Responses	Participant Responses	Representative free-text comments
This session allowed me to reflect on my identity and role as a resident and new physician (Objective 1)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 20% Strongly Agree - 80%	"It's really nice to learn more about how my co-residents think and feel...further confirmation that we aren't alone in this." "I will try to keep on the forefront of my mind that everyone has a story and that we're all doing the best we can with what we have."
This session helped me get to know my co-residents better. (Objective 2)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 10% Strongly Agree - 90%	"I really enjoyed the change of pace and getting to know my peers better!" "I think one of the hardest cultural aspects of medicine to overcome sometimes is being vulnerable and this activity really made it easy to share all of our experiences that we've had. I got to learn so much more about my co interns and share things from my experiences." "I loved how open and vulnerable everyone was in sharing their interpretations and experiences. I learned that my anxieties and apprehensions about residency are not felt just by me and that I have an amazing support group of co interns around me."
This session helped me think about (name of city) in a different way. (Objective 2)	Strongly Disagree - 0% Disagree - 0% Neutral - 40% Agree - 10% Strongly Agree - 50%	"I will try to organize an art outing with our intern class once galleries and museums open back up." "When able to with COVID, I would love to continue to explore more of the art here."
This session has encouraged me to engage more with the arts and humanities in (name of city). (Objective 2)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 40% Strongly Agree - 60%	"I will try to organize an art outing with our intern class once galleries and museums open back up." "When able to with COVID, I would love to continue to explore more of the art here."
This session allowed me to practice the skills of close looking and observation. (Objective 3)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 30% Strongly Agree - 70%	
I feel that the skills we practiced today will be useful to me in the future. (Objective 3)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 20% Strongly Agree - 80%	"I think that this exercise will remind me to be more open minded to consider others' perspective when looking at a situation." "Not just taking patients and their chief complaints for face value but taking a moment to take a step back and look deeper" "It was a good exercise in listening to others, taking in their different perspectives on the same thing." "I learned that I'm quick to make judgments based on first impressions and if I just take the time to stop and take a longer look, I will often see something I did not see before."
This session encouraged me to think about my own biases or assumptions. (Objective 4)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 30% Strongly Agree - 70%	"I will try to listen before speaking myself as I know I sometimes get too eager and can miss out on another's perspective." "Looking at the painting we all discussed together made me reflect on my tendency to look at positives before negatives and how sometimes that can be good, while other times could block me from understanding a situation as a whole."
Participating in this session will change the way I think about or interact with patients in the future. (Objective 4)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 30% Strongly Agree - 70%	"It was a nice reminder to take a step back and try to view patients as a whole rather than a diagnosis or room number on my list."
Participating in this session will change the way I think about or interact with colleagues in the future. (Objective 4)	Strongly Disagree - 0% Disagree - 0% Neutral - 0% Agree - 20% Strongly Agree - 80%	"I learned that others' input and perspective enhances my own understanding and sparks ideas with the entire group." "Remembering that there are layers to us all and to be gentle with others."

53 Ultrasound Guided Intravenous Cannulation Training for Medical Students - A Team Based Learning Curriculum

Sean Burns, MD; Diandra Escamilla, MD; Stephanie Stapleton, MD; Kelly Mayo, MD; Laura Welsh, MD,

Learning Objectives: To develop an ultrasound guided IV curriculum utilizing a team-based learning session for third- and fourth-year medical students rotating through the emergency department.

Abstract:

Introduction/Background: Ultrasound guided IV (USIV) placement is an increasingly utilized skill among trainees in EM. Despite an increased integration of U/S teaching into undergraduate medical education, currently there is no published curriculum for USIV placement for medical students.

Educational Objectives: This curriculum sought to improve the USIV skills of medical students, specifically addressing

safety, equipment, site identification, image acquisition, vein cannulation, and troubleshooting. Ultimately, participants should feel empowered to perform USIVs with resident supervision during their rotation.

Curricular Design: We created a two-hour interactive small group session for third- and fourth-year EM clerkship students rotating at Boston Medical Center. A comprehensive literature review and a needs assessment of graduating Boston University medical students who matched into EM informed our curriculum. Specific content was based off of the ACEP policy on US education and consensus from EM education and U/S faculty.

This project employed a Team Based Learning approach. A short instructional video was created by the authors and was required viewing for students prior to the teaching session (available at youtu.be/yXZN-7UFn_E). During the session, individual readiness assurance tests assessed students' understanding of the content in the video. They were then divided into groups where they completed a team readiness assessment test. Following these tests, each team applied this knowledge utilizing a high fidelity, low cost USIV model prepared from a chicken breast and penrose drain (Image 1).

Impact/Effectiveness: In a post-survey given to the participants, 86% (13/15) of participants felt "comfortable/very comfortable" attempting an USIV on a patient in the future and approaching a resident to supervise them. 93% (14/15) of the participants "Strongly agreed" that the online pre-session video and the simulation model were useful.

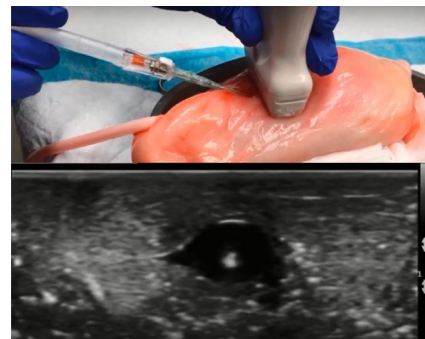


Image 1. Ultrasound Guided IV Training Video. A representative image from the training video illustrating use of the simulation model under dynamic ultrasounds.

54 Use of EBEM to Drive Quality Improvement Resident Projects

Maria Moreira, MD; Stacy Trent, MD; Maria Moreira, MD; W. Gannon Sungar, DO; Jennie Buchanan, MD; Christy Angerhofer, Miss; Richard Byyny, MD

Learning Objectives: We aimed to develop a system allowing for introspection and systematic changes providing residents with an understanding of QI principles.

Abstract:

Introduction/Background: The ACGME requires residents “demonstrate the ability to analyze the care they provide” and “play an active role in system improvement processes”. Our residents satisfy quality improvement (QI) requirements by assessing their practice pattern comparing it with evidence based medicine (EBM). While allowing for introspection, this method rarely results in systematic change.

Curricular Design: After identifying practice variation and performing literature appraisal at conference, residents and faculty draft a guideline. Residents perform chart reviews and data abstraction to quantify variation in practice and potential implications of the proposed guideline. Collaboration with relevant specialties results in finalization of guidelines and implementation. Pre and post implementation data collection and analysis is performed to assess policy effect.

Impact/Effectiveness: Practice variation was identified in acute coronary syndrome (ACS) evaluation. After literature review, the HEART score was selected to risk stratify patients. Chart abstraction identified variability in care and demonstrated the HEART score accurately predicted risk of major adverse cardiac events (MACE). After implementing the HEART score pathway, data abstraction was performed for 12 weeks and showed the HEART score accurately predicted the prevalence of MACE: 0% (95% CI 0-1%) for low risk group, 10% (95% CI 8-14%) for moderate risk, and 55% (95% CI 41-68%) for high risk. Implementation of an institution specific HEART score pathway increased admission for the moderate risk group by 38% (95% CI 29-47%), decreased median ED length of stay by 37 minutes (95% CI 17-58 min), and increased objective cardiac testing among moderate and high risk patients by 10% (95% CI 0-19%). The impact on resource utilization lead to increased access for ED patients with a HEART score of 4 to ED and rapid outpatient stress testing.

55 Virtual Morning Report: A COVID-Era Innovation with Advantages over Traditional Models

Trevor Pour, MD; Samantha Ledonne, MD; Arjun Prabhu, MD; David Cisewski, MD; Elaine Rabin, MD; Andy Jagoda, MD

Learning Objectives: Virtual Morning Reports was created as a practical replacement for traditional morning report, in order to create a space for interactive case based learning. Multiple additional benefits were realized after our one-year pilot.

Abstract:

Introduction/Background: The requirement for physical distancing during COVID has led to challenges in education. Emergency Medicine (EM) residencies pivoted to online educational conferences, however a need for interactive education previously met through Morning Report remained. Third-year Teaching Residents (TRs), who historically

supervised these sessions, also lost this opportunity for faculty-observed peer teaching.

Educational Objectives: VMR aims to fill the gap left by the cancellation of in-person educational activities. These goals are as follows: Allow for a venue for interactive discussion between students and faculty in a non-clinical space. Create an opportunity for TRs to hone teaching skills during their block. Create a model which is easily accessible to learners.

Curricular Design: VMR is held twice weekly using Zoom software, for strictly 30 minutes. The end time was enacted to ensure that participants can reliably schedule around VMR and see the entire presentation. Cases are presented by the TR, except for one monthly case by a pediatric EM fellow and one by a toxicology resident. Presentations encourage participation from the audience to develop a differential and discuss management. Residents on shifts have this half-hour protected and are expected to join, but sessions are optional for other residents. Individual feedback on session design is given by core faculty to the TR at the conclusion sessions.

Impact/Effectiveness: The first VMR occurred on May 12 and has continued without interruption all year. Participation ranges between 20-60 learners. VMR allows for off-service residents to stay in touch with our department. Faculty from multiple sites, who previously would not have venue to interact, discuss management with learners. Student participation includes pre-clinical as well as EM-bound students. “Virtual” clerkship students and interviewees are invited to VMR engage with our residency. This model is easily reproducible.

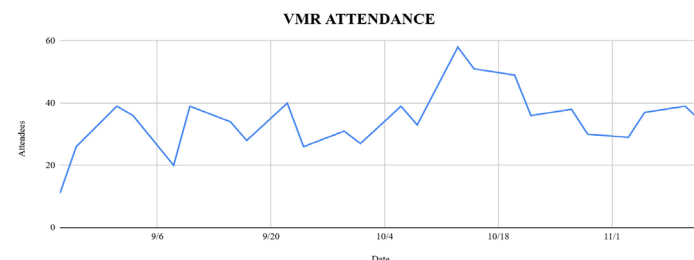


Figure.

56 Virtual Resuscitation Curriculum and Testing

Zachary Aust, MD; Jedidiah Leaf, MD; Robert Barnes, MD; Shane Jennings, MD; Shelly Saha, MD

Learning Objectives: Educational Objectives: Design a virtual critical care curriculum providing individualized education and formative evaluation to assess learner knowledge and address deficiencies.

Abstract:

Introduction/Background: Resuscitation is a cornerstone of EM. As our residents transition into the second year, they run our critical care/trauma pod. Prior to this they undergo