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

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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	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 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."
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 - 40% Strongly Agree - 60% "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.

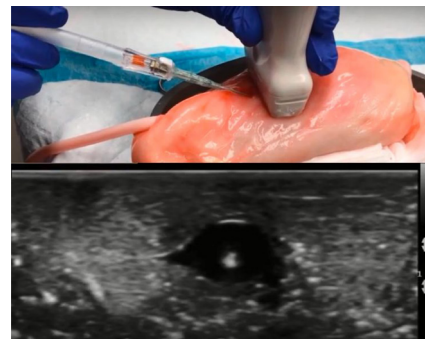


Image 1. Ultrasound Guided IV Training Video. A representative image from the training video illustrating use of the simulation model under dynamic ultrasounds.

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.