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Structured Competency-Based Curriculum for Ultrasound-Guided Peripheral Intravenous Catheter Placement

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collected electronically in a short-answer free text format from all 9 of our senior residents. 100% felt the new evaluation format was easy to use and helpful in providing real-time structured teaching and feedback. In prior years, the number of post-shift evaluations filled out at the end of the rotation per student ranged widely from 2-15 per student, with more evaluations being filled out for students ranked highly. Additionally, prior year evaluations infrequently provided feedback that was directly applicable to the SLOE. This year, every student had between 15-20 evaluations, 100% of which had consistent detailed data directly applicable to the SLOE. The preliminary success of our implementation is very promising here and should be considered by other programs with rotating medical students.

27 Tummy Time: Gamified Educational Session for Abdominal Ultrasounds

Zachary Ravnitzky, Quinn Bushman, Richa Gupta, Thomas Sanchez, Hannah Park, KeriAnne Brady, Richard Shin

Background: Ultrasound is an essential diagnostic modality for evaluating pediatric abdominal pathology. To enhance emergency medicine (EM) residents' hands-on experience, we developed a series of simulated task trainers that replicate both common conditions (e.g., constipation) and less frequently encountered pathologies (e.g., pyloric stenosis). Point-of-care ultrasound (POCUS) is routinely performed in the pediatric emergency setting; however, limited exposure can leave residents underprepared or uncertain in their imaging technique and interpretation skills.

Educational Objectives: To implement a gamified learning experience that strengthens EM residents' ability to identify and interpret pediatric abdominal ultrasound findings.

Curricular Design: A gamified educational session was held where EM residents were given a clinical prompt paired with an ultrasound-able model. Four unique models were used to show sonographic findings of constipation, intussusception, appendicitis or pyloric stenosis. Residents were directed to identify the pathology demonstrated on the model and then answer follow-up questions about management and potential complications. The session concluded with a pediatric EM faculty-led review of the characteristic ultrasound findings for each condition with real-time demonstration on the models.

Impact/Effectiveness: On a five point Likert scale survey of 14 residents, all respondents felt the activity was beneficial and enjoyable. After the session, 100% of residents noted increased confidence in identifying pyloric stenosis on ultrasound, 92.8% for identifying constipation and appendicitis, and 85.7% for identifying intussusception. Participants also rated the realism of the four ultrasound models highly, with scores ranging from 80% to 100%. The gamified ultrasound

session effectively improved resident confidence in identifying pediatric abdominal pathologies. The use of realistic, ultrasound-compatible models provided meaningful hands-on practice that helped bridge gaps in clinical exposure. These findings suggest that integrating simulation-based gamification into residency training may enhance diagnostic proficiency and learner engagement in pediatric POCUS.

28 Structured Competency-Based Curriculum for Ultrasound-Guided Peripheral Intravenous Catheter Placement

Braden Zoller, Melanie Camejo, Monica Gaddis

Background: Ultrasound-guided peripheral IV catheter (USGIV) insertion is a core skill for emergency physicians, as 8–23% of emergency department patients have difficult venous access. Ultrasound guidance improves success rates and reduces complications and patient discomfort compared to traditional techniques. Despite its importance, emergency medicine residents often receive inconsistent instruction in USGIV placement, leading to variable skill acquisition. Prior studies support multimodal education using didactics, simulation, and assessment to enhance confidence and procedural success.

This innovation aims to improve first-year emergency medicine residents' procedural competency through a structured, competency-based education program combining asynchronous learning, simulation-based deliberate practice, and objective assessment. A pre-session curriculum and validated competency checklist promote standardized skill development and feedback. Pre- and post-tests, along with a retention survey, assess changes in knowledge, skills, and confidence.

Educational objectives:

1. Describe indications, contraindications, and procedural steps for USGIV insertion.
2. Demonstrate image acquisition and dynamic needle guidance on simulation models.
3. Achieve competency using a validated USGIV checklist.

Curricular Design: Residents complete pre-learning materials and a pre-test via email, followed by a two hour simulation session focused on vascular anatomy scanning and USGIV practice. Competency is assessed at session completion utilizing a procedure checklist and post-test, with follow-up surveys administered during a subsequent ultrasound rotation to evaluate retention.

Impact/Effectiveness: This project standardizes instruction for a high-frequency procedure that directly impacts patient care quality and efficiency. Preliminary data has been collected, but a revised assessment tool will be implemented in the next academic year.