

provide necessary information for diagnosis and treatment in the ED setting. In addition to basic rhythm interpretation, physicians must be able to identify cardiac ischemia, abnormal rhythm and subtle ECG findings that could herald sudden death. Pattern recognition is difficult to teach, and standard textbook methods aren't sufficient. The purpose of the study was to design an online module that teaches an accurate way of interpreting an ECG for use in medical education, that allows for pragmatic, pattern recognition of ECG abnormalities. This is a before and after study design to test the efficacy of an online ECG module that was developed. A module was chosen due to its accessibility and efficiency, conducive to the EM learner. The module is self-paced and can be completed in one hour. The module teaches a novel way of ECG interpretation through the following steps: Is it sinus? Is it wide? Is there ischemia? Does this herald sudden death? The module reviews electrical abnormalities while teaching the novel approach, which helps learners synthesize information gathered from the ECG into a meaningful interpretation. Incorporated knowledge checks utilize different learning styles and allow learners to evaluate their progress. Pre module and post module ECG interpretation tests, which included a variety of ECGs, were used to determine the efficacy of the module. The gold standard was interpretation of the ECGs by an electrophysiologist. A group of EM residents had one week to complete the module between pre and post tests. There was a 21.8% increase in the median percent correct after the module ($t= 5.48, p < 0.0001$). Subjective data demonstrated that after the module residents utilized the novel approach, were more confident in interpreting ECGs and would use it as a resource in the future.

3 A Novel 3D Printed Task Trainer for Peritonsillar Abscess Drainage

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Introduction: Peritonsillar abscess (PTA) drainage is an important skill in EM. Although the procedure is not technically difficult, it can be intimidating. To our knowledge, no commercially available PTA task trainer exists. Improvised trainers exist, but have various drawbacks such as lack of fidelity, technical difficulty in assembly, and requiring parts be sourced from pre-existing trainers. We describe a trainer built using cheap, commercially available materials, and easily shareable and reproducible 3D printed components.

Educational Objectives: Increase resident comfort and familiarity with PTA drainage. Learners will be able to successfully perform needle drainage of a peritonsillar abscess.

Curricular Design: A 3D printed cartridge containing a gel-filled balloon (approximating a PTA) was inserted into a frame mimicking the oropharynx. This frame was embedded into a head made from a latex mask filled with expanding foam. This trainer was used during a workshop as part of the University of Maryland EM procedure curriculum. Residents completed an optional post-session survey to gauge attitudes regarding perceived usefulness of the session, comfort performing PTA drainage before and after the session, and realism of the trainer on a 5-point Likert scale. This survey and subsequent analysis were exempt from full IRB review.

Impact/Effectiveness: 30 residents participated in the session and completed a survey. 28 residents (93%) agreed or strongly agreed that the session was useful (mean score 4.5, 95%CI 4.1-4.9). Comfort in draining a PTA significantly increased after the session (mean pre-session score 2.0, 95%CI 1.5-2.5; mean post-session score 3.9, 95%CI 3.4-4.3). This improvement was seen across all PGY levels. There was no significant difference in perceived realism between residents who had and had not drained a real PTA (mean realism score 3.7, 95%CI 3.2-4.2). The total cost of the task trainer was \$38.

In summary, this trainer represents a low-cost, easily reproduced method to improve resident comfort with PTA drainage.

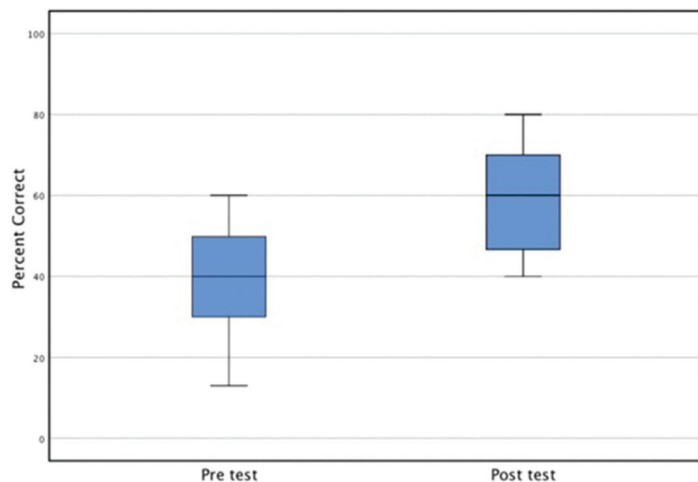


Figure 1. Boxplot showing median percent on the pre test completed before the module and on the post test after completing the module.



Image 1.

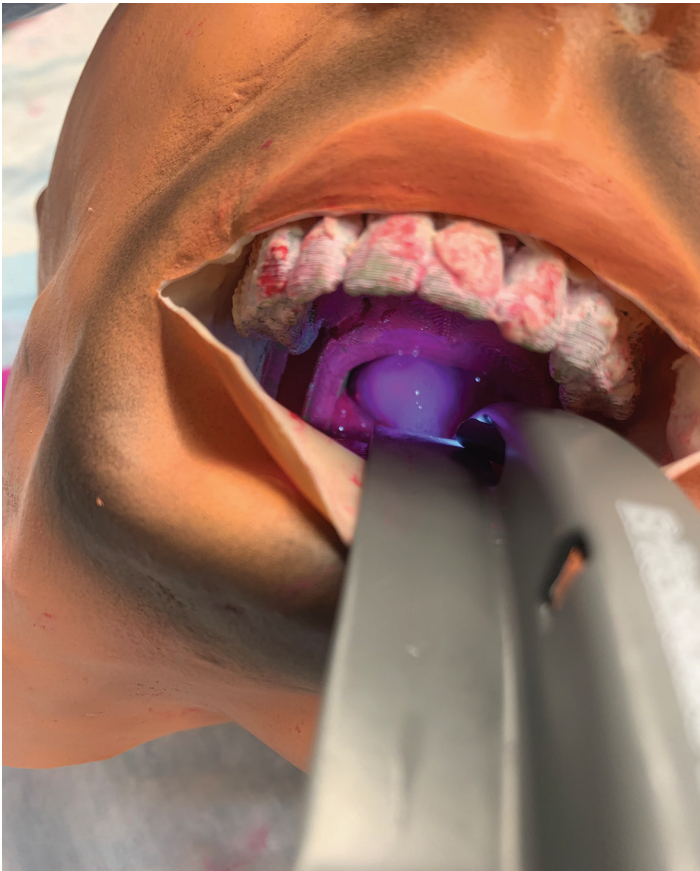


Image 2.

4 A Novel approach to Neonatal Resuscitation Education for Senior Emergency Medicine (EM) Residents

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Introduction: Caring for critically ill children, and in particular neonates, is a low-frequency and high-stakes scenario; EM physicians must be facile in the management of these stressful cases. Most emergency medicine training focuses on experience in pediatric ICUs, neonatal ICUs or the resuscitations that occur in the ED. We describe a novel approach to EM resident training that specifically augments skills in neonatal resuscitation.

Educational Objective: Our educational objective was to design a rotation focused on training in and exposure to neonatal resuscitation. During this novel rotation, senior EM residents attend emergent deliveries and resuscitations in the hospital as part of the neonatal resuscitation team.

Curricular Design: Prior to this week rotation, residents received training from a pediatric ED nurse educator and pediatric EM attending in neonatal resuscitation and obtain Neonatal Resuscitation Program (NRP) certification. The

residents attend and participate in all deliveries in the hospital. They also participate in the obstetric, PICU, and NICU rounds and may assist with procedures in those units. At rotation end, residents give a short presentation on a neonatal resuscitation topic. On rotation completion, they are expected to set-up a neonatal resuscitation, lead the team through the NRP resuscitation, and care for the critically ill newborn in the first minutes after birth.

Impact: After implementation during the 2018-2019 year we compared the rotation's mean score by senior residents to all other off-service rotations (1-lowest and 4-highest). The mean score of the neonatal resuscitation rotation was 3.67 (95% CI; 3.49-3.84), compared to 3.00 (95% CI; 2.84-3.16) for all other off-service rotations, the highest ranked senior rotation. Programs should consider implementing a directed neonatal resuscitation experience for EM residents given the critical and high risk nature of caring for this low frequency population.

5 A Novel Curriculum In Free Open Access Medical Education (FOAM) Utilization and Evaluation For Emergency Medicine Residents

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Objective: Implement a novel curriculum for resident physicians to obtain critical evaluation skills for FOAM resources
1) Define FOAM, its impact and utility 2) Use tools for evaluation and 3) Implement these skills to apply FOAM sources in didactic learning and real-time clinical applications

Abstract: Free open access medical education (FOAM) resources are ubiquitous and frequently utilized in Emergency Medicine (EM). EM residents regularly use FOAM sources for on-shift clinical application and didactic learning without the necessary training or tools to critically analyze their variable quality and utility. Though FOAM has been used and studied for content delivery, no formal curriculum exists to our knowledge to teach evidence-based evaluation of FOAM sources. We present the first, formal didactic curriculum on critical evaluation and application of FOAM sources for Emergency Medicine residents.

The goal of our curriculum is to focus on the process of utilizing FOAM rather than the content itself. The curriculum consists of an innovative, structured series of small group didactic sessions each relating to a core component of FOAM utilization and evaluation in real-time using evidence-based principles (Table 1). Sessions were designed following elements of problem-based and team-based learning in a small-group, active learning setting and include preparation, a short didactic component, an interactive exercise and a group discussion. Each session focuses on a core concept in FOAM utilization and evaluation in stepwise fashion using an emerging clinical content area as a concrete example (Table 2). All sessions include