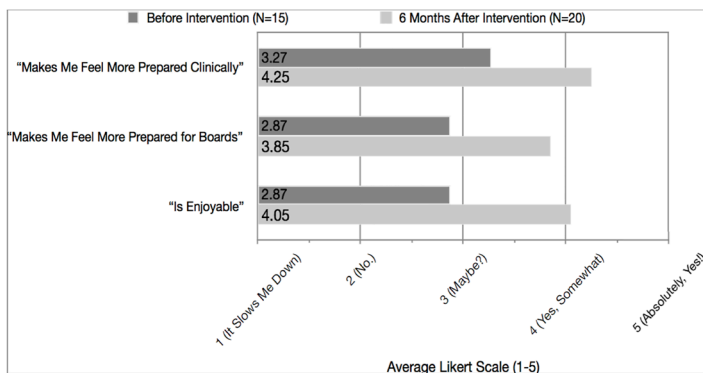


monthly trivia competitions held during didactic conference. Divided into three “Houses” at the beginning of the academic year, residents compete as a team. These competitions allow for review of that month’s material and encourage spaced repetition as well as active social learning to solidify knowledge.

Timely completion of the material is encouraged with late residents causing the entire team to lose points for that month’s competition and the first House finished receiving bonus points. The competition spans the academic year with the House winning the most months being declared the victors.

Impact/Effectiveness: Post-implementation of this Asynchronous model, our residents now have completion rates of > 90% prior to deadline compared to ~30% before intervention. Residents on standardized surveys also report not only markedly increased enjoyment of the curriculum but also rank it as more valuable for improvement in both clinical practice and Board preparation. This socially synchronized asynchronous curriculum model offers a new method of engaging residents as adult learners.



4 Creation of a Milestone driven Simulation based Resuscitation Course

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Background: To assess resident growth and development, the Accreditation Council for Graduate Medical Education (ACGME) and The American Board of Emergency Medicine (ABEM) have collectively established a set of twenty-three milestones for Emergency Medicine (EM) Residents. Biannually, residents are assessed on these milestones by residency leadership. Difficulty can arise when the faculty evaluating these milestones cannot recall specific examples of milestone achievement for each resident. A simulation curriculum to directly evaluate these milestones may improve assessment reliability.

Educational Objectives:

- To develop a prioritized list of resuscitation-oriented milestones as defined by EM attending physicians.

- To create a milestone driven simulation cases for EM residents to improve their readiness for EM resuscitation.
- To improve EM residents’ ability to perform vital resuscitation skills, while advancing their clinical skills and ability to care for critically ill medical patients.
- To improve direct observation of critical milestones performed by EM residents for residency leadership.

Curricular Design: Attending physicians at four EM residency programs were surveyed regarding the most important milestones associated with resuscitation care, establishing the top 10 resuscitation oriented milestones. Using these 10 milestones, we created a two-day simulation based resuscitation course, to evaluate second year EM residents’ preparedness for caring for critically ill patients. Day one included 4 milestone-driven simulation cases, followed by a formative evaluation. Day two included a summative evaluation for each individual resident on a standardized case that evaluated all the established milestones. These evaluation forms were created by 4 EM attending physicians, correlating simulation critical actions to specific milestones and numbered levels.

Impact/Effectiveness: In combining simulation and milestones, this resuscitation curriculum allows for the direct observation and evaluation milestones, in a safe environment. The information gathered can be used by residency leadership to report milestones to the ACGME. Long-term goals include expanding the curriculum to other post-graduate levels, and validating this milestone based assessment tool.



Figure 1. To prioritize resuscitation milestones, all 23 Milestones were ranked by Emergency Medicine Attending using a 1-5 Likert based scale based on their importance.

5 Faking the Friendly Skies: A Simulated In-Flight Emergency

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Background: Approximately 1 in 604 flights is

complicated by a medical emergency. Physicians called upon to treat passengers in-flight find themselves in the unfamiliar surroundings of an airliner cabin with limited resources, space, and equipment. Simulation of in-flight emergencies has been shown to improve medical student fund of knowledge and comfort level when responding to these unique situations.

Educational Objectives: Our goal was to simulate an in-flight emergency for residents in a space similar to that of an airliner cabin using only equipment typically available on a plane or in a standard airline medical kit. After participating in this simulation, residents would be familiar with 1) the contents of an in-flight emergency kit, 2) crowd-sourcing to obtain additional supplies, 3) the challenges in providing care on a plane, and 4) possible flight diversion.

Curricular Design: We designed an in-flight pediatric anaphylaxis simulation. Any necessary equipment needed to either come from the in-flight emergency medical kit, which the team had to request, or be crowd-sourced from other passengers. Passengers on the plane provided useful adjuncts, including a glucometer and an Epi-pen. Upon recognizing anaphylaxis, the team administered epinephrine, diphenhydramine, and IV fluids. Flight diversion was discussed with the pilot. During the scenario the team faced many challenges, including working in a limited space with immovable chairs and a narrow central aisle. They had to interface with fellow passengers, some of which were helpful, while others were irritated or inebriated. Residents also needed to recall pediatric medication dosing as their smartphones were nonfunctional. The overall assessment of resident performance was made by direct observation during the simulation.

Impact/Effectiveness: Participants were surveyed to assess the efficacy of the simulation. Feedback was uniformly positive, with 6 of 7 respondents rating the simulation as “excellent” and 1 of 7 rating it as “good.” No learners considered the simulation “poor,” “fair,” or “average.” One learner described the case as a “good review of a common, real-life situation.” We believe simulation of in-flight emergencies will provide residents with a framework for approaching this common resource-limited scenario.

6 Foundations EKG: An Open Access Flipped Classroom Critical EKG Curriculum

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Background: Electrocardiogram (EKG) interpretation is critical to Emergency Medicine (EM) practice. Hartman et al found 28%, 39%, & 54% of PGY1s, PGY2s, and PGY3/4s respectively passed a validated test of critical EKG interpretation. Despite this educational gap, Ginde et al found that 36% of residencies lack formal EKG curricula. Free Open Access Medical Education (FOAMed) resources for EKG interpretation exist but are not focused on the specific needs of the junior learner.

Educational Objectives: We sought to demonstrate the value of a flipped classroom, critical EKG curriculum for junior learners that incorporates curated FOAMed content into didactic instruction. Additionally, we (1) provide an interpretation framework to help residents develop mastery and rely on when confronted with complex EKGs and (2) ensure open-access to the curriculum for all residency programs or interested individual learners.

Curricular Design: The 2016-2017 Foundations EKG curriculum was organized around 5 concise reviews of core EKG principles and 20 challenge EKG cases. Topics included the 15 critical EKG diagnoses reported by Hartman et al and 5 additional topics. Cases included a brief history, EKG(s), standard interpretation stem(s), and FOAMed links. Using a flipped classroom approach, learners were assigned EKGs weekly for independent review. During a subsequent 10-minute didactic session faculty or senior resident facilitators guided a review of core concepts and interpretation of EKG(s).

Impact/Effectiveness: Our curriculum was offered to any interested residency program. In February 2017, program leaders and learners from 6 sites were surveyed by collecting anonymous responses to 5-point Likert scale questions and a free response section. All leaders, 5/5 (100%) with 1 leader excluded as a course creator, and 54 of 76 learners (71%) completed the survey. We found high satisfaction among both leaders and learners (Table 2). Additionally, learners believed the curriculum to be level-appropriate, were satisfied with the standardized format, and noticed a beneficial clinical impact.

Survey responses from all Foundations leaders/learners showed significant interest in an EKG curriculum for advanced PGY2/3 learners. In response, we added 28 new cases for a total of 48 and divided the curriculum into Fundamental and Advanced courses for the 2017-2018 academic year.

