

51 Resident Generated ABEM Style Questions and Online Quiz Producing Program as a Cost Effective Method for Resident Medical Knowledge Milestone Assessment

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Background: The Accreditation Council for Graduate Medical Education (ACGME) defines 23 milestones with associated sub-competencies along a continuum for which residents are evaluated throughout their residency training. Frequent assessments, such as the ABEM inservice examination, quizzes, question banks, and clinical knowledge assessments, are integral to the accurate evaluation of the medical knowledge milestone. Our program employs a flipped classroom curriculum where assessments are vital to ensure adequate preparation for small group sessions.

Educational Objectives:

1. Utilize resident authored ABEM style questions and online test generating software to produce a cost effective method for a more robust resident medical knowledge milestone assessment.
2. Evaluate resident preparation for weekly small group discussions.

Curricular Design: As part of the flipped classroom pre-requisite preparation for small group discussions, learners are required to author one ABEM style question for each core content topic covered each week. Questions are assembled into a question database and provided to a member of the residency program leadership for review. The 10 best questions are chosen to comprise the weekly quiz. The quiz is produced using EasyTestMaker, which is available online for a yearly fee of \$75. Quizzes are released to the residents following the completion of small group discussions, have a 45 minute time limit, and remain active for two weeks. EasyTestMaker generates a data report including resident completion date and grade for each weekly quiz.

Impact/Effectiveness: Purchasing question banks for an entire residency program can be cost prohibitive; therefore, we sought to create a “homegrown” question bank requiring minimal funds. Residents produce high quality questions which result in a more continuous and robust assessment of the medical knowledge milestone. These assessments also allow program leadership to evaluate resident preparation for small group sessions as well as residents who may require remediation or additional instruction regarding the medical knowledge milestone. Residents also have access to review the entire question bank as another method to prepare for the ABEM inservice examination.

Student	Status	Grade	Finished	Version
Resident 1	Graded	6 / 10 pts 60%	8/12/2015 10:44 PM	1
Resident 2	Graded	7 / 10 pts 70%	8/12/2015 12:51 PM	1
Resident 3	Graded	8 / 10 pts 80%	8/12/2015 11:48 AM	1
Resident 4	Graded	6 / 10 pts 60%	8/12/2015 11:37 AM	1
Resident 5	Graded	7 / 10 pts 70%	8/12/2015 11:33 AM	1
Resident 6	Graded	4 / 10 pts 40%	8/12/2015 11:31 AM	1
Resident 7	Graded	9 / 10 pts 90%	8/12/2015 11:32 AM	1
Resident 8	Graded	6 / 10 pts 60%	8/12/2015 11:41 AM	1
Resident 9	Graded	4 / 10 pts 40%	8/12/2015 11:38 AM	1
Resident 10	Graded	6 / 10 pts 60%	8/12/2015 11:31 AM	1
Resident 11	Graded	8 / 10 pts 80%	8/12/2015 11:33 AM	1
Resident 12	Graded	9 / 10 pts 90%	8/12/2015 11:35 AM	1
Resident 13	Graded	6 / 10 pts 60%	8/12/2015 11:36 AM	1
Resident 14	Graded	5 / 10 pts 50%	8/12/2015 11:32 AM	1
Resident 15	Graded	5 / 10 pts 50%	8/12/2015 11:31 AM	1
Resident 16	Graded	7 / 10 pts 70%	8/12/2015 11:57 AM	1
Resident 17	Graded	8 / 10 pts 80%	8/12/2015 11:32 AM	1
Resident 18	Graded	6 / 10 pts 60%	8/12/2015 11:30 AM	1
Resident 19	Graded	5 / 10 pts 50%	8/12/2015 11:33 AM	1
Resident 20	Graded	6 / 10 pts 60%	8/12/2015 11:32 AM	1
Resident 21	Graded	6 / 10 pts 60%	8/12/2015 11:30 AM	1

Figure 1.

52 Resident led Sim Debrief as a Longitudinal Learning Model

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Background: Simulation based education has rapidly become a cornerstone of emergency medicine resident education. These are carefully constructed clinical scenarios designed to give learners the opportunity to deal with real life emergencies in a controlled setting. The lessons learned are often deeply ingrained as they are from a personal experience versus reading about a topic or listening to a lecture. Unfortunately, the valuable lessons learned from Sim cases often ends with the case resolution, or at best following a debrief immediately afterwards. Using a longitudinal multi-week Sim debrief model, residents are able to take charge of their education and expand their knowledge base along with that of their classmates.

Educational Objectives:

- To enhance resident education through first hand experience via Sim cases (“to learn by doing”)
- To fully utilize the educational opportunity presented in a simulation case
- To give residents the opportunity to teach their classmates using whatever

Curricular Design: Our Sim debrief model is based on a 3 week plan. Week one is the simulation session. This typically consists of 3 cases focused on high stakes medical scenarios. Teams of 5 residents rotate through all the cases, with the intent of having 3-5 main topics to design a mini-lecture on. Week two is presentations. Residents have a week to reflect on their performance and read up on the topic of their case. Presentations are meant to be informal, high-yield, and equally educational for

those giving the presentations as for those listening. Residents are encouraged to use whatever medium of information best fits their learning style, such as: power points, Socratic discussions, videos, handouts, and pod casts. Presentations last 10-15 min each. Week three is focused on knowledge testing. Each presenter creates 3-5 questions with explanations focusing on the highlights of their individual topics. This is designed to solidify main teaching points from the previous two weeks.

Impact/Effectiveness: Simulation has become an integral part of residency training. Unfortunately, among many residency programs it is an isolated educational modality separated from a more conventional curriculum. Using the debrief model, the invaluable first hand experience gained through simulation cases is expanded and integrated into the curriculum, with residents taking charge of their education in an active and dynamic method of learning.

53 Residents as Investigators: Original Research as a Universal Standard for Scholarly Activity to Teach Evidence-Based Medicine

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Background: The Review Committee for Emergency Medicine (RC-EM) requires that all residents complete scholarly activity. This requirement facilitates their education in evidence-based medicine. The basis for modern medical education as pioneered by William Osler is practical experience. Yet, there is no stipulation specifying that this research requirement must take the form of a completed original research project; specific alternatives cited include review papers, case reports, and performance improvement projects. A recent national survey of all Emergency Medicine residency programs found no consistent interpretation and implementation of this requirement.

Educational Objectives: We sought to construct a research curriculum facilitating each resident serving as principal investigator on a single original research project as a graduation requirement. We designed an intensive didactic curriculum structured around establishing the residents as investigators on department protocols for the purpose of obtaining practical experience executing various study designs. Subsequently residents are expected to design and execute their own original research projects.

Curricular Design: The curriculum entails a two-week intensive seminar halfway through intern year comprising active resident participation in ongoing department protocols of various methodological designs (e.g., randomized controlled trial, cohort, case-control) to better understand the mechanics of executing a research protocol. To measure performance, we defined six serial milestones to track each

resident's individual research project from start to finish: (1) formulate a question with testable hypothesis; (2) develop protocol; (3) collect data; (4) analyze results; (5) prepare manuscript; (6) present and submit results for publication.

Impact/Effectiveness: The new curriculum began implementation in July 2015. Thus far, all 16 interns are on track for meeting the research milestones. In comparison to the last academic year, the number of newly submitted resident protocols to date has increased 67%, the number of abstract presentations 200%, and the number of peer-reviewed publications 150%.

54 Rethinking Airway Management Training in Emergency Medicine Residency Programs: Improving Resident Airway Skills with a Comprehensive Airway Boot Camp Course

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Background: For most residents in emergency medicine training programs, airway management skills are acquired and refined one case at a time while caring for patients in the emergency department and augmented with the obligatory off-service anesthesia rotation. Intubation experiences may differ between residents due to the variability of airway cases that present on any given day. Therefore, residents should be exposed to a standardized airway curriculum that covers core airway principals and management of difficult airway scenarios.

Educational Objectives: Improve all residents' airway management skills by providing them with an 8-hour airway course during intern orientation.

Curricular Design: The resident airway boot camp implements multiple learning modalities to engage the participants and more effectively reinforce basic and advanced airway concepts. Several interactive lectures incorporating an audience response system are augmented with hands-on breakout sessions. The hands-on training focuses on the familiarization of adult and pediatric intubation equipment and techniques, as well as airway adjuncts (i.e. bougie, extraglottic devices, video laryngoscopes and fiberoptic intubating bronchoscopes). Pig tracheas are used to realistically teach both surgical and percutaneous cricothyrotomy techniques. Finally, the residents test their newly acquired knowledge and technical skills by participating in 8 separate airway code simulations in a high fidelity simulation center.

Impact/Effectiveness: The participants (n=16) completed a survey before and after the airway boot camp, where they ranked their perceived skill level for different airway tasks. A comparison of pre and post survey results showed a statistically significant improvement in participants' perceived skill in 6 airway categories after completing the course: bag valve mask ventilation, adult endotracheal intubation,