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Development of a Simulated Model for Corneal Foreign Body Removal

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(EMMs) upon graduation from medical school, studies have shown that many have not achieved this goal. Evidence suggests that multiple different assessments over time are required to adequately evaluate competence in any particular domain. This may be difficult to achieve in a standard four week clerkship. A longitudinal elective, capstone course, or Clinical Track in EM may provide better assessment of EM milestones. At our institution, medical students are required to enter a specialty specific clinical track to work toward entry level milestones.

Educational Objectives: To describe the development and implementation of a Clinical Track in EM designed to give students the opportunity to achieve competency in all of the Level 1 EM Milestones (EMMs).

Curricular Design: A needs analysis was performed by mapping Level 1 EMMs to curricular components of required 4th year clerkships including a required clerkship in EM.

New assessment methods for milestones that were not being adequately evaluated were then created and incorporated into a comprehensive longitudinal curriculum.

The Clinical Track in EM is comprised of a series of required 4th year clerkships and electives which allow development of the EMMs. Students can take Advanced Topics in Emergency Medicine, an EM elective specifically designed to teach Level 1 EMMs. Alternatively, students can combine recommended electives (anesthesia, ultrasound, toxicology, etc.) to obtain equivalent knowledge and skills.

Students on the EM Clinical Track complete a series of assessments as shown in Table 1.

These include:

1. Structured shifts for evaluation of EMM 1-8 and 17-23
2. Quizzes for assessment of EMM 5
3. Procedure log and checklists for EMM 9-14
4. A final simulation for EMM 1-8, 11, 13, and 23

Impact/Effectiveness: Seventeen students are currently enrolled in the EM Clinical Track. This curriculum may provide the foundation for successful student transition into EM residency. Information garnered from these assessments could be used to help program directors customize early residency education around strengths and weaknesses of their incoming interns.

27 Development of a Simulated Model for Corneal Foreign Removal

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Background: Ocular foreign bodies are common and occur on a daily basis in the practice of emergency medicine. Mismanagement of these emergencies can have serious consequences. Adequate early training of residents and medical students regarding the approach to this problem is essential. The procedure involves a delicate process requiring a unique skill set. Attempts to learn these skills on human subjects can be awkward and in some cases dangerous. Developing a realistic model to establish the foundation of this procedure is critical in the initial development for competence.

Educational Objectives: The objective was to design an ocular model that was life sized, realistic, low cost, and mobile that could have readily interchangeable parts to accommodate the greatest amount of learners. This would allow for practice in a non-stressful and safe environment.

Curricular Design: An adult sized foam head from a craft supply store was obtained. Orbits were drilled into the model, and spherical gelatin ocular globes molded from ice cube trays were held in place with tooth picks. A defined amount of glitter was measured and placed in the center of the globe replicating corneal foreign bodies. The consistency and natural tendency of the gelatin to “hold” the glitter to its surface replicated an actual cornea with similar foreign body adhesiveness. Additional globes could be replaced quickly and easily to keep participants downtime at a minimum. Learners were educated in a didactic session and then assessed on 15 point scoring system felt to be critical in the accomplishment of this procedure.

Impact/Effectiveness: The ocular foreign body simulator provides a realistic, cost effective method to enhance learning in a safe and non-stressful environment. This will positively impact the learner’s practice when they encounter a patient with a corneal foreign body while maximizing patient safety. At the same time it will allow for an objective process for accessing procedural competency.

Table 1. Methods for Assessing Level 1 EM Milestones

Milestone	CPA	DOC	Sim	Procedure Lab	Assessment shifts	Learning quizzes	ATTEM Procedure checklist	Comprehensive Sim	Other
1									
2									
3									
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*Abbreviations: H&P—History and Physical Examination, PBL—Practice-Based Performance Improvement, ATTEM—Advanced Topics in Emergency Medicine
 CPA—Clinical Performance Assessment, DOC—Direct Observation of Competence, Sim—Simulation

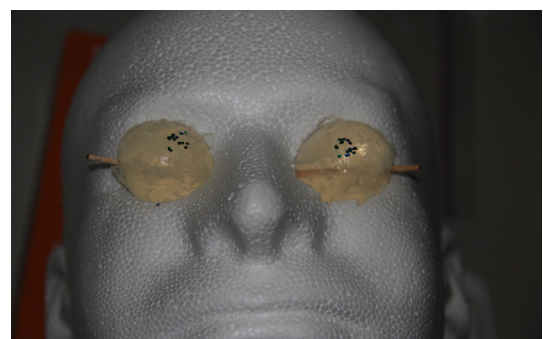


Figure 1.



Figure 2.

28 ED Patient Safety Rounds as a Source for Quality and Patient Safety Education and Quality Improvement

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Background: Patient Safety Leadership Walk Rounds^{1,2} were first introduced at Partners Healthcare in January 2001 as a way to engage frontline staff, throughout the hospital, in patient safety, to show frontline staff that hospital quality and safety leadership is interested in what they have to say about improving the safety of patient care, and to support a culture of safety. These rounds also serve as a source of safety concerns that might not otherwise be captured in event reporting systems, complaint letters, or quality reviews. Quality and patient safety (QPS) rounds were not routinely performed in our emergency department (ED) until 2013 when the QPS leadership expanded. Now QPS rounds are held once monthly in the ED clinical areas.

Educational Objectives: With the emphasis on patient safety in Emergency Medicine (EM) education through the patient safety milestone and the focus of patient safety as one of the 6 areas evaluated in the ACGME Clinical Learning Environment Review, we sought to use ED safety rounds as a way to illustrate QPS terminology and process improvement.

Curricular Design: EM residents are asked to participate in EM patient safety rounds during their administrative rotation, as a member of the ED patient safety team, and during their clinical shifts as a frontline staff member. Rounds occur during huddles after staff introductions of name and role for the shift. ED frontline staff are asked to suggest ways to improve the safe care of patients, to vocalize problems that have compromised safety, discuss workarounds that may lead to errors, and voice other concerns for patient flow, boarding, and clinical care. A member of the QPS leadership catalogues these concerns and steps are taken to determine ways to address each problem or concern.

Impact/Effectiveness: This hands-on approach illustrates patient safety concepts. By participating as frontline staff, residents see how a culture of safety is fostered within the

ED and see how QPS leaders in the ED administration are working to improve safety and quality in the ED while improving patient care. EM residents also use the list of problems identified to develop quality improvement projects.

29 Electronic Health Record Reports can be Utilized to Provide Data About Residents' Practice Habits

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Background: The ACGME requires that programs provide residents with data about practice habits. However, the 2014-2015 ACGME Resident Survey report shows that, on a national level, there is poor compliance with this requirement.

Educational Objectives: We sought to create a report within the electronic health record (EHR) that would provide residents with details on their practice habits in the emergency department (ED).

Curricular Design: In collaboration with our EHR analysts, we identified triggers within our EHR (Epic Systems; Verona, WI) to report numerous metrics, including: total number of patients seen (excluding patients signed-out to the provider), patient acuity, length of stay, treatment time, time to decision, number of laboratory and imaging tests ordered, time to first laboratory and imaging test ordered, number of procedures performed, and time to completion of charting. We then created a report in our electronic shift scheduling software to identify the number of hours worked by each resident so that the patients seen per hour metric could be calculated. We ran both reports from 7/1/2015 - 9/30/2015. The data was de-identified and divided by graduating class prior to dissemination (see Table 1 for an example of report data).

Impact/Effectiveness: In total, the 2016 ("PGY-3"), 2017 ("PGY-2"), and 2018 ("PGY-1") graduating classes had 15, 12, and 11 residents rotate through the ED during the study time period. PGY-3 residents saw 2.28 patients per hour in a supervisory role and 1.22 patients per hour as a primary medical provider. In addition to those metrics, PGY-3 residents saw an average of 0.22 critically ill patients per hour in the stabilization room. PGY-2 and PGY-1 residents saw 1.15 and 1.01 patients per hour as a primary medical providers, respectively.

We created a report within the Epic EHR to provide residents with information on their practice habits, as outlined by the ACGME. After several iterations of the report, we will analyze whether the report objectively or subjectively changes residents' practice habits, feelings towards the data that they are provided on their practice habits, and the results of the ACGME Resident Surveys.