

1 “Acting” Interns, Assessing When Senior Medical Students Call for Help Using Standardized Patients

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Background: Previously we reported that senior medical students (SMS) frequently call a senior resident (SR) for help when encountering simulated cases.

Objectives: Using standardized patients (SP), we assessed how often and why SMS call a SR for help.

Methods: We developed 3 cases: chest pain (CP), sepsis (SEP) and altered mental status (AMS). The SMS were instructed to function as interns; they each evaluated one case and were told a SR was available for consultation. A post-course survey was used to assess how often and why the SR was called, differences between cases were evaluated using Chi-square analysis.

Results: 134 students completed the survey. Most agreed the cases were realistic: CP (93.5%, n=46), SEP (93.8%, n=48), AMS (92.5%, n=40). The SR was called by 49 (36.6%) SMS. The SR was consulted more often with the SEP case than the other cases (50% vs. 27.5% AMS, 30.4% CP; p=0.05). Reasons for calling were: reassurance (66.7%), assistance with therapeutic management (35.4%), assistance with diagnostic work-up (16.7%) and not sure I was providing the proper care (16.7%). All SMS felt they called at an appropriate time. SMS called more often for reassurance with the CP (71.4%) and SEP case (82.6%) than the AMS case (27.5%) (p<0.05). In the AMS case, SMS called more often because they were unsure what was wrong (36.4%) vs. 0% in the CP and SEP cases (p<0.05). 16.7% called because they were not sure they were providing proper care. In 68.8% of cases, the SR changed the care being provided; no difference noted between the 3 cases. 45.2% who did not call reported they would call if presented with the same case again. 18% (n=128) reported having concerns calling a SR. Not wanting to bother or annoy the SR was the most commonly reported.

Conclusions: SMS called a SR for variety of reasons; this may be affected by the type of case encountered. Some SMS may be hesitant to call their SR because they do not want to bother or annoy them.

2 A Comprehensive Procedural Credentialing System / Curriculum for High Risk Procedures

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Background: How to effectively train and credential residents to perform high-risk procedures has remained elusive. We present a detailed description for the

development and implementation of a simulation based procedural credentialing curriculum at a large academic institution. This three-step process provides training, graduated responsibility and credentialing that utilizes a badge system for 11 invasive procedures.

Educational Objectives: 1. Identify key elements necessary for the development of a simulation-based, patient safety procedure credentialing policy. 2. Illustrate a step-wise certification program that utilizes badge identification for graduated procedural competency.

Curricular Design:

Step 1: Didactic Requirement

- a. Review the instructional videos, formal written didactic materials and post-test.

Step 2: Simulation Lab Requirement

- a. Review the competency checklist for each procedure. An overall score of 80% on the checklist is necessary for passing.
- b. After successful completion of Step 2 the trainee Procedure Card will be punched indicating permission to perform the individual procedure under the direct supervision of a credentialed physician.

Step 3: Bedside Procedure Training Requirement

- a. The trainee will be provided with a Procedures Log Form to logging procedures under direct supervision with the goal of completing the pre-determined number of procedures, leading them to the completion of Step 3 (full credentialing for the individual procedure).

Impact/Effectiveness: We have effectively trained and credentialed 200 residents across multiple residencies using this system. Further, our data demonstrates that interns show improved confidence across all surveyed skills (3.2 vs. 4.0) after Step 2. We believe this procedure credentialing curriculum is generalizable to other institutions and would be useful to educators in emergency medicine. This credentialing process standardized the curriculum for residency programs at a major academic center.

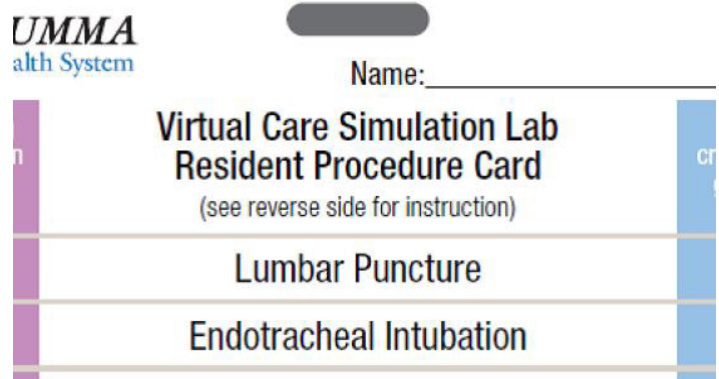


Figure 1.

Using this card the resident is allowed to perform the punched procedures as explained

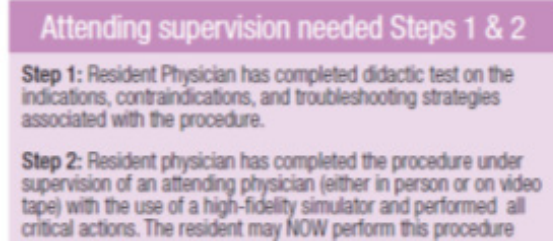


Figure 2.

3 A Dedicated EBM Curriculum Integrated into Journal Club Increases and Sustains EBM Competency: An Innovation in EBM Curriculum

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Introduction: With the increasing volume of clinical evidence available to practitioners, curricula designed to teach residents the principles of evidence-based medicine (EBM) and knowledge translation have become a significant focus throughout graduate medical education. The method to best deliver these needed skills has been an area of active research and innovation.

Educational Objectives: The goal was to develop a dedicated EBM curriculum implemented as part of a monthly journal club on EBM competency. We hypothesized that integrating EBM principles into a novel and revised journal club format would increase EBM competency, and that these educational gains could be sustained.

Curricular Design: A formal EBM curriculum was implemented utilizing a four-pronged approach: 1) peer instruction model and peer to peer discussion coordinated by a teaching resident, 2) dedicated EBM lecture delivered at the beginning of each journal club, 3) identification of teaching residents who select articles consistent with EBM topic focus, and 4) core EBM faculty to deliver lectures and meet with teaching residents. An 18 month curriculum was adopted with this approach in June, 2012. The Fresno test, a validated instrument for assessing EBM competency, was administered to all residents annually, starting the year before implementation.

Effectiveness: A total of 22 respondents encompassed the pretest group, with 23 respondents in the year 1 post-test and 26 respondents in the year 2 post-test. A multivariable model using generalized estimating equations controlling for year of residency and repeated measures demonstrated a significant increase in performance from the pre-test data to the subsequent two post-test years (pre-test adjusted mean 110.16, year 1 adjusted mean: 127.82, year 2 adjusted mean 127.07, $p=0.011$). An EBM curriculum implemented as a part of journal club was an effective strategy for increasing competency, and improvements were sustained after implementation.

4 A High-Fidelity Porcine Model for Teaching Transvenous Pacing to Emergency Medicine Residents

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Introduction: The Accreditation Council for Graduate Medical Education (ACGME) considers cardiac pacing a “key index procedure” for Emergency Medicine (EM) residents, requiring 6 pacing procedures during training. Because it is considered a “rare” procedure, the ACGME allows all 6 to be performed in the lab. Transvenous pacing (TVP), a subset of cardiac pacing, is technically challenging and requires training to develop competence. Many modalities have been described (bedside instruction, mannequins and instructional videos) but they are relatively low fidelity. To our knowledge, there are no commercially-available simulators for TVP training.

Educational Objective: We sought to use swine as a high-fidelity, anatomically and physiologically realistic training model for teaching TVP.

Curricular Design: We found anecdotally that swine make excellent models for teaching TVP. Once the internal jugular vein is cannulated, TVP can be performed in practically the usual manner. The internal jugular (IJ) catheter is placed under ultrasound guidance and remains secured in place between iterations. Thereafter, the process of inserting and advancing the pacer, and adjusting the rate and output are the same as in humans, and can be done multiple times on a single model. We monitor for pacer capture using a pulse oximeter, although cardiac monitoring may also be possible. Alternatively, direct visualization can be used if thoracotomy training is performed prior to TVP. To our knowledge, this is the first description of the porcine model to teach TVP to EM residents.

Impact/Effectiveness: The model allows multiple learners to perform multiple training iterations on the same day, of a procedure that is life-saving but infrequently encountered. We feel that this repetition allows learners to develop muscle memory and to solidify equipment familiarization. Finally, our porcine model provides residency programs another avenue for achieving ACGME requirements for this key index procedure.

5 A Low Cost Yet Realistic Tube Thoracostomy Model for Emergency Medicine Resident Training

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Background: Emergent tube thoracostomy is a critical lifesaving procedure performed in the emergency department. Emergency medicine residents must be confident and experienced