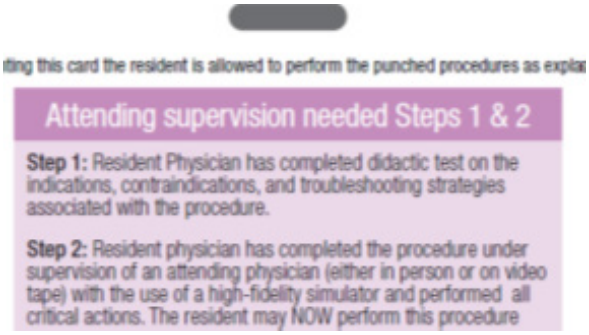

Figure 2.

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