

confidence, knowledge and efficiency in diagnoses and treatment of acute strokes. The e-learning effectively taught them the NIH scale and gave them the background required for rapid acquisition of knowledge during the simulations. Future steps include clinical performance analysis and Neurology resident participation.

11 Attending Faculty at an Emergency Medicine Residency Have Poor Agreement on Rating Residents Using the ACGME Milestones

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Background: In 2012, the Accreditation Council for Graduate Medical Education (ACGME) implemented 23 milestones to assess the proficiency of emergency medicine (EM) residents. The milestone and their progressive levels have been validated only in that residency leadership faculty were asked to rank the order through which the residents should progress in each category. No other validation method has been applied to date. One way to determine the validity of an evaluation tool is to examine the inter-rater reliability when the tool is applied to the same subject by different evaluators.

Objectives: Our study examined the inter-rater reliability of EM faculty members in assessing EM residents using the milestone levels.

Methods: This observational cross-sectional study was performed at an academic EM residency. Twenty faculty members evaluated 25 randomly chosen residents using eight ACGME EM milestones. These milestones were scaled on a 1-9 scale to represent the milestone levels. The specific milestones evaluated were chosen by residency leadership as those in which the average EM attending would have sufficient knowledge of the resident in order to properly evaluate them.

Individual and average Intraclass Correlation Coefficients (ICC) were calculated to determine the reliability of attending assessment.

Results: Each resident was assessed by an average of 16 attendings (min=10, max=20). Individual ICCs did not exceed a threshold of 0.72 (min=0.396, max=0.516). However, average ICCs were greater than 0.9 for each milestone examined.

Conclusions: Although agreement increases with a higher number of evaluators, there is low agreement between individual attendings evaluating the same resident on milestone levels. This means that EM faculty may require further education on the milestones or that the milestone levels require further refinement to become a valid assessment tool or both. The major limitation of this study is the small sample size of raters and residents evaluated.

Table 1. Attending evaluation intraclass coefficients by milestone.

Milestone	ICC individual	ICC average
Communication	0.39674	0.92934
Diagnosis	0.46124	0.94482
Diagnostic studies	0.48240	0.94908
Disposition	0.45488	0.94347
Emergency stabilization	0.51663	0.95531
History and physical	0.42507	0.93666
Multi-tasking	0.43501	0.93902
Team management	0.41651	0.93454

ICC, intraclass correlation coefficients

12 Basic Back: A Low Fidelity Simulation Model for Lumbar Puncture

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Introduction: Industrial models for lumbar punctures (LPs) are expensive and with a residency of thirty doctors, a need arose for a partial task trainer that is low fidelity, low cost, easily reproduced, re-usable and effective at simulating the procedure.

Educational Objective: To be used for teaching and assessing procedural skills in LPs; and to describe its integration into a milestone based, procedural competency education module.

Curricular Design: This is the second of multiple low fidelity simulation models that I have devised. The materials (and costs) per model are as follows: Wire Chaffing stand \$2.99, three-Wooden letter O's (vertebra) \$4.50, Wooden dowel \$1.00, Plastic tubing \$1.00, piece of Vinyl (skin) \$1.00, 3"x5"x2" piece of foam \$0.50. Total cost ~\$10.50, as compared to a professional model which lists \$510 to \$2200 per model.

The educational session begins with a written self-assessment of the participant's knowledge of the indications, contraindications, anatomic considerations, equipment, procedure, complications, and aftercare. The assessment tool is a structured open-ended questionnaire. During a didactic session, participants are encouraged to take notes on their self-assessment form (in red ink). Forms are collected and a pre-printed completed procedure overview sheet is provided for the learner to keep. In the practical session learners are paired off one-to-one with an attending or credentialed senior resident who reviews again the learners understanding from indications to aftercare. Faculty has the opportunity to evaluate senior residents in the "level 5" milestone (teaches procedural competency and corrects mistakes).

Impact/Effectiveness: This process incorporates all learning styles (visual, auditory and kinesthetic) in a simple, inexpensive, and reproducible manner. Resident feedback has been excellent, stating that the anatomy / landmarks are spot-on and the interactive multifaceted learning session improved understanding of the material.

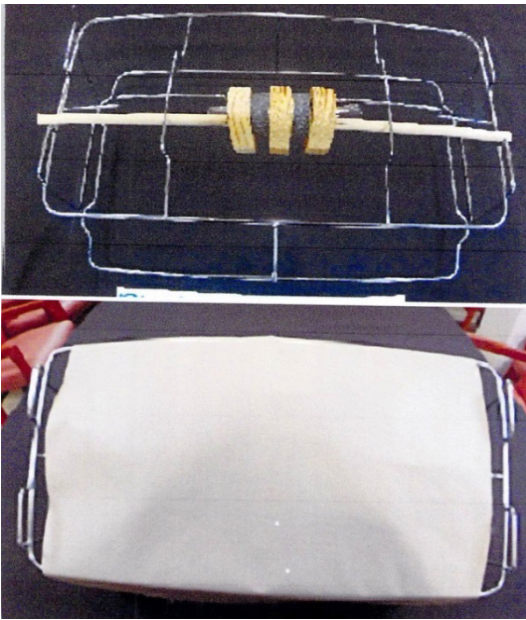


Figure 1.

13 Bridging the Gap: Implementation of a Near-Peer Resident-Medical Student Mentoring Program Within an Academic Emergency Medicine Residency Program

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Background: Many medical students find navigating the residency application and match process challenging. Medical students often cite mentors and peers as having the greatest impact on this process. Thus, we sought to develop a mentoring program where current emergency medicine residents mentor rising senior medical students through the application and interview process. Given their proximity to the process, these residents function as near-peer advisors. Currently, there is no literature within emergency medicine describing such a resident-medical student mentoring program (RMSMP).

Educational Objectives: The primary educational objectives of the RMSMP are (1) to provide senior medical students intending to pursue residency in emergency medicine with mentoring through the residency application and interview process; (2) to allow residents the opportunity to gain experience mentoring medical students; (3) to improve medical student comfort with the application and interview process.

Curricular Design: The RMSMP is open to both University of Wisconsin (UW) rising 4th year students and visiting students. UW students opt-in during the spring semester of 3rd year while visiting students opt-in on their first day of the rotation. Students are then paired with a resident

mentor. There is no fixed agenda for meetings; however, it is recommended that they discuss away rotations, the personal statement, CV, interviews, and rank list formation. A post-mentoring survey was deployed to assess perceived benefits and potential improvements to the program.

Impact: Students responded overwhelmingly in support of the program with 94% responding that it was a beneficial experience. The most commonly cited positive aspects of the program included obtaining specific feedback and advice on the application process, personal statement, and interviews. Suggested improvements focused on increasing face-to-face meetings. We plan to collect and publish outcome data at the 5-year mark.

14 Building a Resident Research Program

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Introduction/Background: Residency requirements state “residents participate in the development of new knowledge, learn to evaluate research findings, and develop habits of inquiry as a continuing professional responsibility”. However, there is little consensus regarding how best to achieve these requirements.

Educational Objectives: Implement a Resident Research Program emphasizing resident participation in empirical work.

Curricular Design: A 3-step program “Think, Do, Write” roughly follows the 3 years of the residency. During the 1st phase the resident chooses a topic, formulates a hypothesis, and completes standard research certifications. Phase 2 involves submitting an institutional review board (IRB) and conducting the study. The final phase entails analyzing and interpreting the data and writing an abstract to present during an annual research day. Residents are encouraged to submit their projects for presentation at scientific conferences and for publication. Multiple departmental resources are available, including a Resident Research Fund and full support of the faculty.

Impact/Effectiveness: Prior to the new program, most scholarly activity consisted of case reports, book chapters, review articles, or other miscellaneous projects. Starting in 2012 the new program was fully implemented. Within 1 year, there was a growth in original empirical works among residents (see Figure 1). Currently there is almost 100% participation in studies, and numerous residents have presented at national conferences and have peer-reviewed publications. There is increased enthusiasm for research, and the new program has demonstrated that emergency medicine (EM) residents can conduct high-quality projects. Implementation of similar programs across EM residencies can increase the presence of such work conducted by residents in the EM literature and scientific conferences.