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An Innovative Approach to Emergency Medicine Stroke Education Utilizing Simulation and E-Learning Improves Time to Diagnosis and Treatment: A Pilot Simulation Program

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Authors

Frallicciardi, A.
Nowicki, T.
Abbott, L.

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repairs using 4 stitches: modified Kessler, modified Bunnell, figure-of-eight and horizontal mattress. The lab takes an hour and requires the presence of a single faculty member.

Impact: 16 residents have completed the module so far. A post-lab survey was given with an 81% response rate. 92% of respondents agreed or strongly agreed that the training was useful and 85% felt more confident in performing extensor tendon repairs.

This educational innovation meets our objectives. Pig feet are readily available and inexpensive. The module is on-line, self-taught and faculty time expenditure is low. Post-test results have revealed good mastery of the content and resident feedback has been positive.

9 All NYC EM: A Regional Education Conference Enhancing Emergency Medicine Education

Egan D, Husain A, Jones M, Kass D, Morley E, Nguyen T, Silverberg M, Swaminathan A, Shah K / NYU School of Medicine, New York, NY; Staten Island University Hospital, New York, NY; Albert Einstein School of Medicine/Jacobi Medical Center, New York, NY; Stony Brook University School of Medicine, Stony Brook, NY; Mount Sinai Beth Israel, New York, NY; SUNY Downstate Kings County Hospital, New York, NY; Icahn School of Medicine at Mount Sinai, New York, NY

Introduction/Background: Emergency medicine (EM) residencies strive to improve the education of their residents through innovative didactic programs. The NYC area contains multiple EM residencies and as a result, numerous educators are concentrated in this region. In addition, highly desirable grand rounds speakers may limit repetitive travel to any single region, thereby preventing multiple residency exposures to them.

Educational Objectives: We sought to create a sustainable and innovative region-wide EM educational program for all learners in the NYC metropolitan area. A steering committee representing multiple residency programs was formed to design curriculum and to plan educational events. The "All NYC Emergency Medicine Conference, Inc" [All NYC EM] was registered as a 501(c) (3) non-profit entity with steering committee members serving on its inaugural board.

Curricular Design: All NYC EM hosts spring and fall conferences each year featuring local educators and prominent guest speakers from around the nation. Conferences are themed and have evolved to include multiple short lectures, panel discussions and resident lecture competitions. All NYC EM has also launched an EM Education fellowship (offering funding to Council of Emergency Medicine Residency Directors and iTEACH), an annual chief resident forum and a medical student residency application boot camp.

Impact/Effectiveness: Since its inception, All NYC EM

has hosted 7 conferences, 2 chief forums, 1 medical student boot camp and supported 2 fellows. Attendance at the regional conference continues to grow. 533 residents, students and faculty representing 18 EM residencies attended "All NYC 7" in April of 2014. Feedback has been overwhelmingly positive, with a satisfaction score of 4.1 on a 1-5 Likert scale in regards to education content and usefulness in April, 2014. Likewise the chief forum and medical student residency application boot camp have received praise for their contributions beyond traditional student/resident resources.

10 An Innovative Approach to Emergency Medicine Stroke Education Utilizing Simulation and E-Learning Improves Time to Diagnosis and Treatment: A Pilot Simulation Program

Frallicciardi A, Nowicki T, Abbott L / Hartford Hospital/ University of Connecticut, Hartford, CT

Introduction/Background: Time is brain. It is of utmost importance to recognize and treat stroke immediately in the emergency department (ED), but residents begin their clinical duties with little practical education on how to approach this complex disease.

Objective: The objective of this curriculum is to teach emergency medicine interns how to recognize and manage acute strokes effectively and efficiently in the ED utilizing a blended curriculum of medical simulation and e-learning.

Curricular Design: Part 1 of the curriculum is completion of the American Heart Association's® National Institute of Health (NIH) Stroke Scale online module. Learners then participate in a small group stroke simulation session consisting of 6 cases of neurologic catastrophes and interactive post case debriefing. Cases are original and emphasize the time sensitivity of an accurate diagnosis and treatment plan.

Effectiveness: The effectiveness of the curriculum has been measured over 2 years (n=36). Time to Head computerized tomography (CT) and tissue plasminogen activator (t-PA) orders in the sim cases significantly improved. Initially time to CT order was 7.8 minutes into the case (SD 1.8, 95% CI 1.4), which improved to 3.42 minutes (SD 2.3, 95% CI 1.8) by the end of the sessions. The residents also ordered t-PA in ischemic strokes 4.2 minutes faster (CI: [1.97, 6.5]). The NIH scoring of the patients was very accurate (SD 0.06) in all cases. The self-efficacy score improvement over the course was significant at 1.6 (CI: [1.9, 1.25]). On a multiple choice post-test, scores were on average 22.25 percentage points higher (95% CI: [-29.0-15]).

Teaching complex processes may require multiple educational modalities to be effective. Interns who participated in this blended learning program had improved

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

Goldflam K, Bodd J, Della-Giustina D, Tsyrlunik A / Yale University School of Medicine, New Haven, CT

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

Cabazon M, Gaeta T / New York Methodist Hospital, Brooklyn, NY

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.