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A Simulation Based Approach to Disaster and Triage Training

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in this procedure prior to graduation. Previous models including live animal labs and computerized manikins are expensive and can be difficult to run. We developed a low cost, easy-to-construct model using supplies readily available in the emergency department and pork spare ribs purchased from a grocery store.

**Educational Objectives:** The objectives of this model are 1) to provide emergency medicine residents with a life-like task trainer for hands-on practice in tube thoracostomy insertion, and 2) to provide an inexpensive alternative to high fidelity simulators while remaining reusable and easy to set up.

**Curricular Design:** Our model was created in order to provide residents with additional practice in tube thoracostomy insertion above that which they gain on actual patients. The model was created using a side of pork spare ribs wrapped in an absorbable chux pad and supported on its side by towel rolls. The outside of the model was then covered with a thin foam sheet from an arts and crafts store and secured with tape (Figure 1). After construction, we used the model along with a standard chest tube insertion kit in small group sessions. This allowed each resident to independently perform the procedure (Figure 2) and provided an opportunity to discuss basic chest tube management in a low stress environment.

**Impact:** Residents were not formally assessed, however they universally expressed benefit from the added procedural instruction. Further, the model allowed for realistic simulation of the entire procedure from the injection of anesthesia to the “pop” felt when entering the chest due to the intact fascia along the back of the ribs. In conclusion, our tube thoracostomy model presents a low cost yet realistic alternative to high fidelity simulation for tube thoracostomy instruction.



Figure 1.



Figure 2.

## 6 A Prospective Analysis of Milestone Integration into Resident Global Assessment

*Lefebvre C, Hartman N, Hosmer K, Glass C, Hiestand B / Wake Forest School of Medicine, Winston Salem, NC*

**Background:** End-of-shift (EoS) evaluations including questions regarding milestone achievement are commonly used by Emergency Medicine (EM) training programs. There is little objective evidence regarding the integration of milestone achievement into existing evaluation strategies. This prospective observational study compared faculty assessments of resident global performance to assessment by a clinical competency committee (CCC) using EoS milestone data.

**Methods:** Surveys were distributed to faculty members, asking for a global performance score (1-6) for each resident. The score assigned to the resident was the average of the faculty responses. Milestone data was collected by an EoS evaluation tool, already in use at the institution, from January-June 2014. Free-text comments were also collected during these EoS encounters. The CCC, blinded to resident identity, assigned a performance score (1-6) to each resident based solely on EoS milestone scores. Scoring was repeated after including free-text comments to the milestone scores. Correlation between scores was assessed by Spearman's rho.

**Results:** 31/42 faculty participated in the survey. 43 EM residents were evaluated by the faculty and CCC. Mean performance scores: milestone-only data (MO)=3.76 (range 2-5), milestone plus free text comments (MFT)=4.2 (range 3-6), survey based faculty assessment (FA)=4.38 (range 3.5-5.4). Spearman's rho for FA and MO scores was -0.11, demonstrating no significant correlation ( $p=0.49$ ), while rho for FA and MFT scores was 0.4173 ( $p=0.007$ ), indicating significant correlation.

**Conclusions:** Subjective information in the form of faculty comments at the EoS may describe performance elements not adequately measured by milestone assessments. There was stronger correlation between the CCC and faculty scores when milestone data was combined with the subjective observations of supervising faculty. Other tools for resident assessment are necessary to supplement milestone achievement scores.

## 7 A Simulation Based Approach to Disaster and Triage Training

*Masters M, Crosby J, Thompson R, Lohmeier M / University of Wisconsin Hospital and Clinics, Madison, WI*

**Background:** There is a dearth of residency training in disaster medicine and techniques involved in triaging mass-casualty incidents (MCIs). Furthermore, due to variability and infrequency of MCIs, residents lack experiential practice.

**Educational Objective:** To create a simulation experience that improves practitioner confidence and skill

managing patients during a MCI.

**Curricular Design:** A group of faculty and residents designed a multi-station disaster simulation scenario involving attendings, residents, nurses, and medical students. The aim was to provide participants with a realistic learning environment, enhance proficiency with clinical skills and triage models, and increase comfort managing complex, dangerous situations. Teams of 5-6 were introduced to a multi-victim scene using live actors in moulage and low-fidelity manikins. They triaged patients with colored tags, assigning treatment and modes of transport using hypothetical resources from a defined, limited supply. A subsequent scenario involved a scene patient, a high-fidelity SIM manikin. Other stations included the use of personal protective equipment (PPE) and performing clinical skills wearing PPE. Group debriefing followed, with a lecture on the different triage models (START, SALT, and JumpSTART).

**Effectiveness:** We measured the training's efficacy using pre- and post-scenario surveys designed to assess the individual's knowledge base and comfort with MCIs. Questions included "do you have an understanding of models for triage in a MCI?", "are you comfortable triaging multiple patients?", and "are you comfortable leading a team of providers?" 75% of respondents were residents; all reported an increase in comfort and understanding across the criteria surveyed. Furthermore, all respondents agreed (33%) or strongly agreed (67%) that a disaster and triage simulation is a



Figure 2.

useful training tool. The plan is to repeat a similar scenario in 18 months, with a follow-up survey.

## 8 ACGME Milestone Achievement through Simulation: Development of an Extensor Tendon Repair Simulation Model

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**Introduction:** Tendon repair is an Accreditation Council for Graduate Medical Education (ACGME) Emergency Medicine Milestone (Milestone 13, Wound Management, Level 5 - "Performs advanced wound repairs, such as tendon repairs"). However, emergency medicine (EM) residents may have limited opportunity to develop these skills. Previously described tendon repair simulation models, designed for surgical trainees, have used models such as rubber worms, sheep forelimbs and cadavers. We developed a simple and inexpensive extensor tendon repair simulation model for emergency medicine residents, designed to satisfy Level 5 of Milestone 13.

**Educational Objectives:** Development of a simulation module to teach EM residents: 1) the relevant anatomy of the extensor tendons of the hand; 2) the indications and contraindications for emergency department (ED) tendon repair and 3) the techniques of tendon repair.

**Curricular Design:** During the post graduate year-2, EM residents are provided an on-line module containing the: 1) relevant anatomy; 2) indications and contraindications; 3) relevant PE findings; 4) suture techniques; 5) aftercare and 6) a post-test.

Each month, 2-3 residents receive this module prior to their scheduled session. The module is to be completed ahead of time.

During each session, each resident is supplied two pig feet. They dissect out extensor tendons and perform tendon

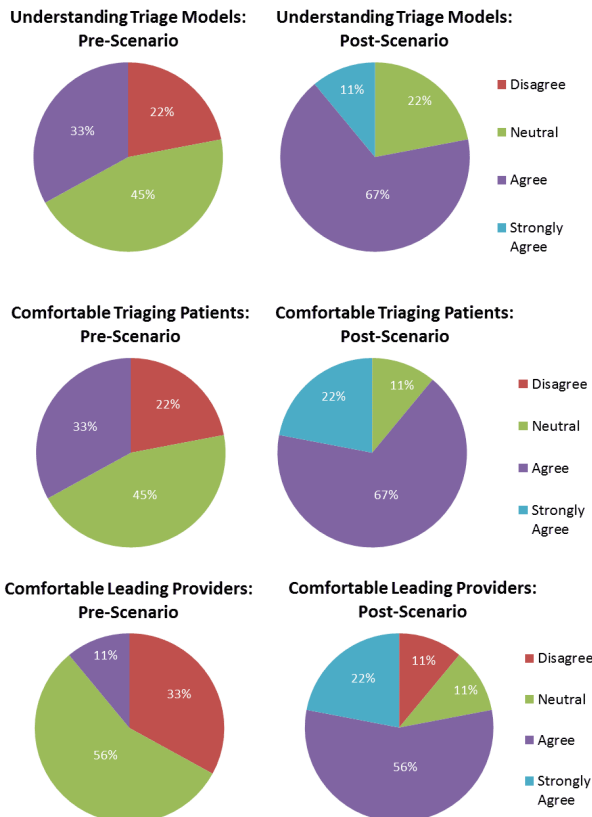


Figure 1.