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A Cast to Last: Implementation of an Orthopaedic Splinting Workshop for Emergency Medicine Residents and Effects on Splint Quality

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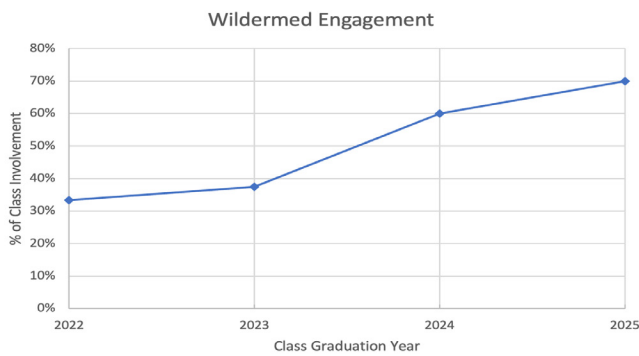


Figure 1.



Image 1.

Research Abstracts

1 A Cast to Last: Implementation of an Orthopaedic Splinting Workshop for Emergency Medicine Residents and Effects on Splint Quality

Jaron Raper, John Salmon, Maxwell Thompson, Andrew Bloom, Charles Khoury

Background: Immobilization is a core component of treating orthopaedic fractures and injuries in the emergency

department. However, emergency medicine (EM) residents at academic medical centers with orthopaedic training programs may receive limited formalized instruction on and evaluation of splint application. We sought to evaluate the implementation of a splinting skills workshop to improve EM residents' competency at this skill.

Methods: 26 EM residents of varying experience levels were assessed on their competency with splinting. Prior to the education intervention, residents were asked to apply a splint on a fellow resident. This splint was then assessed by three independent EM board-certified physicians on a scale of 1-5 in three categories: strength of splint, adequacy of padding, and overall quality of immobilization. Learners then completed a procedural workshop on proper splint application. Competency was then reassessed in these same categories. Before and after the session, learners were asked to self-assess their confidence in determining splint type, comfort with upper- and lower-extremity splints, and comfort with plaster compared to other commercially available splinting products.

Results: There was a significant improvement in the overall quality of immobilization (4.75 vs 3.15, $p < 0.05$), strength of splint (4.72 vs 3.58, $p < 0.05$), and adequacy of padding (4.53 vs 3.22, $p < 0.05$). Similar differences were also noted in residents' self-assessed confidence in determining splint type (2.96 vs 4.00, $p < 0.05$), confidence in applying upper extremity splints (2.88 vs

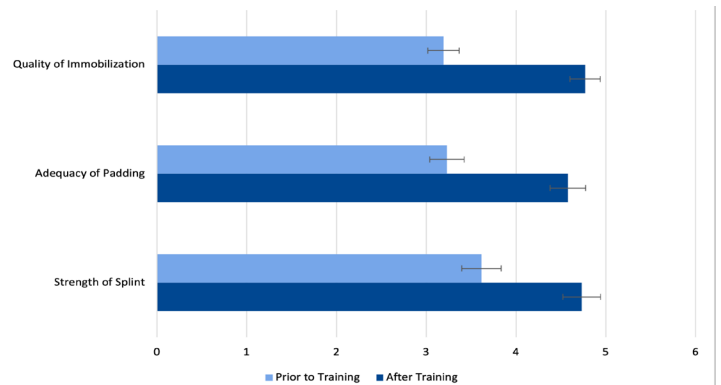


Figure 1. Panel evaluation of splint.

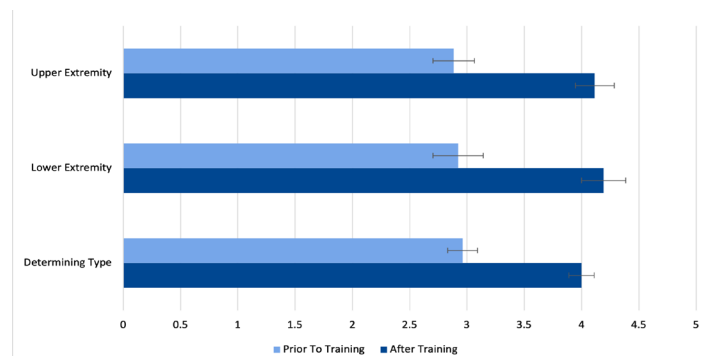


Figure 2. Panel evaluation of splint.

4.12, $p < 0.05$), and confidence in applying lower extremity splints (2.92 vs. 4.19, $p < 0.05$).

Discussion: The incorporation of a formal orthopaedic splinting skills workshop in EM training improves both splinting quality and learner confidence in splint selection and application.

2 A Multi-Procedure, Task-Training Kit And Curriculum For A Virtual Medical Student Rotation

Abbas Husain, Rodrigo Kong, Shorok Hassan, Norman Ng, William Caputo, Simone Rudnin, Adil Husain

Background: Due to the COVID19 pandemic, medical students' participation in ED clinical clerkships was significantly reduced which led to a loss in procedural skill training. To address this, we developed a multi-procedure, task-training kit and curriculum for use in a virtual format. Virtual procedure skill training with a specifically designed kit and curriculum can lead to improved confidence in performing those procedures for remote medical students. We discuss feasibility, resource allocation, and future development and application.

Objectives: Procedural training is essential in EM education as muscle memory contributes to practitioner proficiency. Practical skills labs are good ways to practice procedures that

are rare or difficult to perform on a patient for the first time. The objective of this task training kit is as an adjunct to a curriculum that provides training to medical students of the same caliber as a practical skills lab. This kit is to give our virtual medical students the experience they would have if they were in person.

Curricular Design: We created a lightweight (2.1kg), inexpensive kit (\$98.93) to teach 5 procedures: lateral canthotomy, cricothyroidotomy, tube thoracostomy, suturing and splint application. An accompanying curriculum was developed for use in a virtual format, including strategies for participant engagement, optimizing video and audio capture, and providing feedback. Kits were mailed to students. The curriculum was delivered via a video conferencing platform. The students completed pre and post session surveys.

Impact/Effectiveness: 12 Students have completed the rotation. Confidence to perform the steps of the procedures, as measured with a 5-point Likert scale, increased for four of the procedures with lateral canthotomy showing the largest change: from 2 (SD 0.89, Var 0.8) to 5 (SD 5.2, Var 0.27). There was no change with suture application.

3 A Needs Assessment for an Emergency Medicine Longitudinal Didactic Curriculum

Maxwell Thompson, William Davis

Background: Emergency Medicine (EM) encompasses many aspects of medical care. An ideal didactic curriculum prepares residents to pass the written board exam while also providing practical skills and knowledge essential for patient care. Designing such a curriculum is challenging due to advances in medical knowledge and changes to the content of the Qualifying Exam offered by the American Board of Emergency Medicine (ABEM). In 2019, ABEM released an examination blueprint detailing the breakdown of written exam content taking effect in fall of 2020. Content areas on the written examination are broken down based on their relative importance to practice. Frequently encountered and clinically significant content areas are given more weight in these guidelines. This project aims to identify areas for improvement in curriculum design to maximize preparation for the written board examination.

Methods: The didactic curriculum for an EM Residency Program was reviewed from July 2016 to June 2019. Each lecture was classified and compared to the updated ABEM examination blueprint. Additionally, the In-Training Exam (ITE) results for each of these content areas was reviewed and compared to national averages.

Results: When compared to the ABEM examination blueprint, 15 of 20 topic areas (75%) were underrepresented in the curriculum, with two content areas found to have comprised less than 1% of the didactic curriculum. ITE exam



Figure. A. The unpacked kit; B. Lateral canthotomy; C. Chest tube trainer; D. Cricothyrotomy trainer; E. Suture trainer; F. Splinting supplies.