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Cricothyrotomy: An Inexpensive Training Model

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	Pre-Entrustable	Mostly Entrustable	Fully Entrustable/ Milestone 1	Outstanding/ Milestone 2
Patient- and team-centered communication <input type="checkbox"/> Unable to assess	Communication with patients and/or team is unidirectional or not tailored to circumstances. May not read or respond to others' emotions well. May not always attend to patient comfort or preferences. May not always integrate well into team, may not recognize value of team contributors.	Communication with patients and/or team is bidirectional and usually tailored to circumstances. Generally reads and responds to others' emotions well. Usually attentive to patient comfort and preferences. Usually integrates well into team, may not fully understand team roles or contributions.	Communication with patients and/or team is bidirectional and reliably tailored to circumstances. Skillful in reading and responding to others' emotions. Reliably sensitive to patient perspective and preferences. Integrates well into team and recognizes value of team members.	Demonstrates exceptional communication skills with patients and/or team. Effectively reads and regulates complex emotional situations and conflicts. Always sensitive to patient perspective. Highly regarded by patients and team.

Professionalism: Specific Attribute/Behavior	Concerns?		Please describe specific behaviors observed
	Yes	No	
Compassion, sensitivity, or respect towards patients			
Respect or collegiality towards team members			
Receptivity to constructive feedback			
Honesty or ethical conduct			
Dependability, accountability, or responsibility			
Initiative, diligence, or work ethic			
Punctuality, attendance, or preparation for duty			
Appropriate dress or grooming			
Other (please describe)			

Global assessment: compared to other students with a similar level of experience, this student's performance today was:

Lower 1/3	Middle 1/3	Top 1/3	Exceptional (top 10%)
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Please comment on this student's performance today:

3 ROAR: Resident Ovation and Appreciation Rewards, on the Path to Wellness in Emergency Medicine

Rainey J, Klyce V, Neugarten C, Chien J, Williams S, Fukumoto K, Mahadevan S/Stanford/Kaiser Emergency Medicine Residency Program, Stanford, CA; El Camino Hospital, Mountain View, CA

Background: Residency is challenging: physically, emotionally, and mentally. Numerous studies cite burnout rates amongst residents as high as 76%. Research also demonstrates that physicians who are primed to feel emotionally positive are more effective, ultimately providing higher-quality patient care. With this goal in mind, development of a wellness curriculum for residents could potentially mitigate burnout during training, promote practices that build personal and professional resiliency, and lead to a long and fulfilling career.

Educational Objectives: Drawing on research recognizing the benefits of expressing gratitude, we have developed the Resident Ovation and Appreciation Rewards, or "ROAR," pilot program. We devised a system of routine resident recognition by peers, attendings and other ED staff for the, "small but meaningful" things we do every day that often go unrecognized. Our goal was to support the development of a culture of gratitude within our department in our efforts to improve wellness.

Curricular Design: Prior to implementing the ROAR

program, we administered an anonymous 5-point survey to our PGY 1-3 EM residents to obtain baseline data on their sense of wellness. We then re-surveyed these same residents at 6-months and 1 year to evaluate the impact of ROAR.

We placed blank ROAR forms throughout our department and also created a web-based version of the form. Completed forms were collated, tabulated and presented to the individual residents each month. For each ROAR written or received, residents earned credits for domestic services, such as meal delivery and home cleaning.

Impact/Effectiveness: The departmental response to ROAR has been tremendous, as approximately 370 ROARs have been written in the first year of the program. Our preliminary survey results, based on two classes of residents, reveal a 9.7% improvement in self-reported overall wellness scores from pre-ROAR to 1-year post-intervention. Surveyed residents also noted an 8.3% increase in the positive effect of ROARs compared to their initial expectations. Based on the preliminary results, we plan to continue this program as well as explore other similar well-being initiatives.

Curricular Innovations Oral Presentations

1 Cricothyrotomy: An Inexpensive Training Model

Malik E, Deutchman M /University of Colorado School of Medicine, Anschutz Medical Campus, Aurora, CO

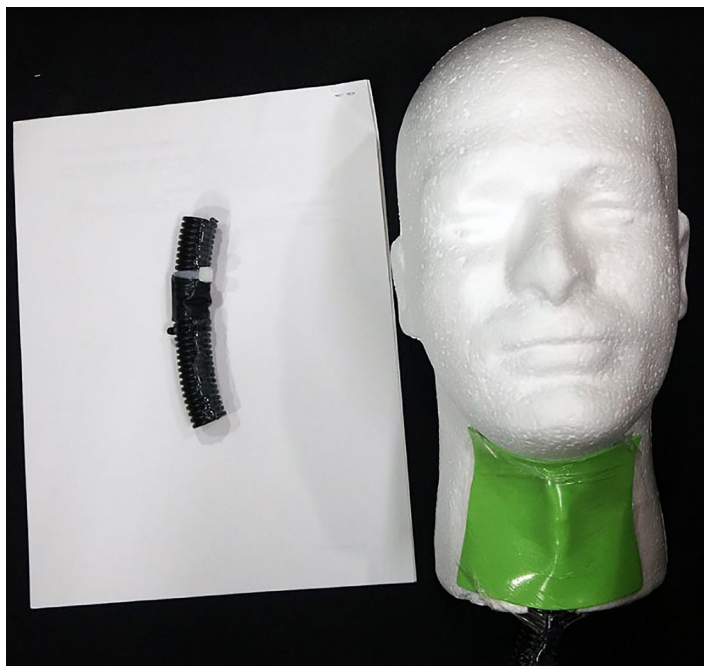
Background: Cricothyrotomy is a rarely used procedure that requires operator competence in critical situations. Trainees are rarely exposed to this procedure in the clinical setting, which necessitates simulated practice to prevent a potentially negative impact on patient care. Tightening residency budgets often make the use of expensive, commercially-available models cost-prohibitive. Here, we present a re-usable, inexpensive task trainer to address this gap in medical training.

Educational Objectives:

- To present an inexpensive task trainer for the education and practice of cricothyrotomy
- To compare the effectiveness of teaching with this constructed model against sheep trachea

Curricular Design: Ten task trainers were constructed from a Styrofoam head, ribbed garden hose with a cut hole for the cricothyroid space, electrical tape as the cricothyroid membrane, zip-ties to signify the laryngeal prominence and cricoid cartilage, and foam sheets with Tegaderm to represent the subcutaneous layers (Fig. 1). Twenty second-year medical students were given a 10 minute lecture on the standard, surgical cricothyrotomy and then randomly divided into two groups for practice on either the constructed model or the sheep trachea. After 10-15 minutes of practice, students were given a pristine airway of the same model type and evaluated on their ability to correctly perform a cricothyrotomy using a procedural checklist.

Impact/Effectiveness: There was no significant difference in trainee scores on the procedural checklist using the constructed model (mean 18.5; SD 1.6) compared to the animal model (mean 18.0; SD 2.9) ($p = 0.64$) (Fig. 2). Students completed the procedure faster on the constructed model (mean 84.1 s; SD 17.8 s) than on the sheep trachea (mean 117.5 s; SD 54.3 s) ($p = 0.038$). These results suggest that learning the procedural steps of cricothyrotomy on our model is equivalent to learning on animal tissue. Students' ability to complete the steps more quickly on the constructed model may be due the lack of subcutaneous tissue to dissect, simplifying the anatomy. Our model allows trainees to perform many iterations of a cricothyrotomy without the expense or difficulties in procurement and storage with animal or commercially available models. Overall, this model addresses the need for increased access to cheap, hands-on practice of cricothyrotomy for medical trainees.



Procedural Step	Constructed Model	Sheep Trachea	p value
1. Correctly identifies cricothyroid membrane	2.0 (0.0)	1.9 (0.3)	1.00
2. Vertical, midline incision, 3-5 cm, stabilized larynx	2.0 (0.0)	2.0 (0.0)	1.00
3. Bluntly dissects to expose cricothyroid membrane	1.8 (0.6)	1.8 (0.6)	1.00
4. Horizontal, 1-2 cm incision in membrane	1.9 (0.3)	1.9 (0.3)	1.00
5. Index finger of non-dominant hand guards opening	1.6 (0.8)	1.6 (0.7)	0.58
6. Spreads membrane vertically with clamp	1.9 (0.3)	1.6 (0.8)	0.47
7. Rotates clamp 90 degrees	1.8 (0.6)	1.5 (0.8)	0.58
8. Inserts and twists endotracheal tube into place	2.0 (0.0)	1.9 (0.3)	1.00
9. Blows up cuff with 10 mL syringe	1.8 (0.6)	2.0 (0.0)	1.00
10. Verbalizes connecting to ventilator, checks CO ₂	1.7 (0.7)	1.8 (0.6)	1.00
Total scores	18.5 (1.6)	18.0 (2.9)	0.64

Figure 2. Comparison of the trainee performance on the constructed model vs sheep trachea on the procedural checklist. The p value was determined using Fisher's exact test. Data are expressed as mean (SD).

2 Incorporating an Interesting Case Discussion Board into an Emergency Medicine Clerkship

Wald D, Fane K, Barrett J/Lewis Katz School of Medicine, Philadelphia, PA

Background: With shift work scheduling and students being assigned to geographically separate training sites, student - student collegial interaction is limited. Asynchronous discussion boards may help to address this and allow for more comparable educational experiences across clinical training sites.

Educational Objectives: Our goal was to incorporate an asynchronous "Interesting Case" discussion board into a 4th year EM clerkship for students rotating at geographically separate training sites.

Curricular Design: Using Blackboard Learning Management System, a student initiated "Interesting Case" discussion board was developed. Guidelines including expectations for participation were reviewed during the clerkship orientation. The discussion board allows students working different shifts and assigned to separate training sites to interact by creating case threads and replying to posts about cases encountered during their EM clerkship. A post clerkship evaluation was administered.

Impact/Effectiveness: From May - September 2016, 83 students at 8 clinical training sites participated in the "Interesting Case" discussion board. Students initiated 126 separate threads, 501 total posts. The mean # of threads per rotation was 25 (range 19-29), mean posts per rotation was 100 (range 65 - 159). 131 posts included references or hyperlinks, 49 PDF's, 44 radiographic images, 16 photographs and 15 EKG's. More than one third (37.3%) of threads had 5 or more posts. 63 students (75.9%, n=83) completed post clerkship evaluations. Most students (82.5%) favorably viewed our discussion board. Only 8 students (12.7%) report previously participating in a discussion board for medical education purposes. The majority, 55.6% reviewed the discussion board every few days, 22.2% reviewed it weekly. 63.5% of students spent 1-3 hours each week on the discussion board. 77.8 % of students report learning something from participation in the discussion board that they were able to directly apply to patient care during their rotation. 79.4% of students report reviewing articles or linking to websites that were posted. In the first 5 months of use, the discussion board was well received, improved collegial interactions and generated many interesting conversations.