

## 11 A Real Life Cricothyrotomy Trainer

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**Background:** Emergency surgical cricothyrotomy (ESC) is one of the most critical but least commonly performed procedures in emergency medicine, making simulation an important component in achieving and maintaining competence. Standard ESC models emphasize the external landmarks and basic procedural motions, but fail to account for the need for tactile-only guidance or the challenging environment of the procedure. A program teaching “real-life” ESC would benefit EM residents in learning this high stress/low frequency procedure.

**Educational Objectives:** Develop an ESC training program to train residents in ESC that accurately mimics the challenges to ESC in a patient (difficult visualization, blind technique, high stress environment).

**Curricular Design:** We developed an ESC training program using a reversibly modified airway mannequin in which standard ETI was not possible; the neck portion was also modified using parts available from a local hardware store and from the ED (Fig 1), giving not only the appropriate external tactile landmarks, but also requiring the learner to perform dissection through 2.5 cm of soft tissue and blind incision of the cricothyroid membrane. Additionally, visualization during dissection is limited by the instructor’s ability to make the model actively bleed after skin incision. ESC is taught in this scenario via the modified scalpel-forecep-scalpel-bougie (Fig 2) technique to prevent sharps injury. We also designed a “stand-alone” model to be used without an airway mannequin (Fig 2D). Use of a simulated monitor adds a realistic but controllable impetus to act or attempt to implement rescue techniques.

**Impact/Effectiveness:** ESC is a critical skill for emergency providers, but the first time an EM provider is likely to perform the skill will be in a critical setting on a patient that looks and behaves very little like the model he or she has practiced on; our novel curriculum and model recreate the conditions under which ESC must commonly be performed, ie a “real-world cric.” Using our models, we were able to train our classes of junior and senior level residents in ESC for a cost of \$25.22. For a procedure like ESC, which junior physicians may have at best one opportunity to practice during training, realistic simulation of the actual procedure is likely to be the learner’s only chance to not only learn the procedural steps, but how to perform those steps in the clinical setting.

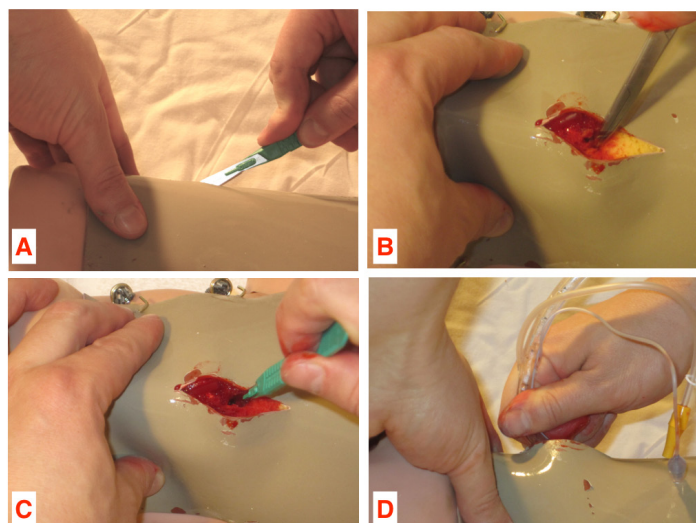


Figure 1.

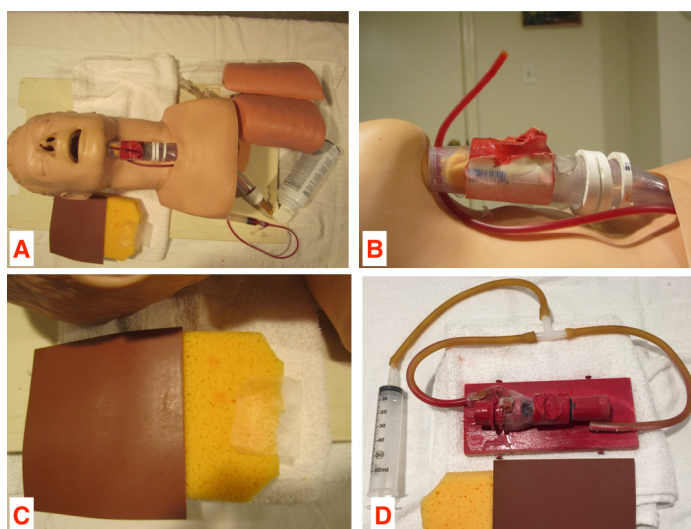


Figure 2.

## 12 A Web-based Patient Follow Up Log with Faculty Feedback Loop

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**Background:** The Residency Review Committee for Emergency Medicine (RRC-EM) requires that EM residencies must develop a system that provides and documents efforts to teach residents the importance of patient follow-up. This should involve a representative sample of patients who are discharged from the emergency department.” In addition, the Emergency Medicine Milestone Project requires residents to perform regular patient follow up to achieve a “Level 2” for the “Practice-based Performance Improvement” milestone.

**Educational Objectives:** To date, there is limited data on

the utility and educational value of patient follow-up logs. In order to address the RRC-EM requirement for patient follow-up logs we have created a web-based follow up system (WBFUS) with a faculty feedback loop to enhance educational value.

**Curricular Design:** The patient follow up is designed around a clinical question for a patient encounter. The resident performs a brief literature review to answer this question, follows up on inpatient reports, consults or calls the discharged patient. Once the question is answered it is entered into a WBFUS. This is encrypted for Patient Health Information and allows for entry of a number of descriptors (Image 1). Also included is a brief description of the clinical course, entry of the clinical question, and the reflection on the case as well as resources used. The unique feature for our WBFUS is that the resident can assign their faculty advisor as well as the faculty involved in the patient's care to be prompted via email for feedback on the entered case. This is all organized in a concise one-page web interface allowing for a fast, efficient provider input. The WBFUS has convenient search options including, but not limited to, listing those lacking cases and/or feedback.

**Impact/Effectiveness:** The WBFUS incorporates the tenants of deliberate practice into a life-long learning component for our curriculum. During the first year of its implementation in 2014 we had a total of 150 patient follow-up logs created. Out of the 150 created, 107 residents (71%) reported that it will impact their practice. In addition there were 147 faculty feedback comments to increase the educational value. Using this model we have created an effective and satisfactory method of self-learning with faculty feedback.

literature review to our own experience to develop this EM-specific team leadership curriculum. Residents complete one session per year with a simulated case followed by a debriefing and review of the ABCs of Team Leadership. An end-of-shift feedback card was created to enable the residents to do a self-evaluation of their team leadership performance, as well as to receive faculty comments. In 2015 we modified the faculty section of the feedback card to incorporate some milestone questions to the card.

**Impact/Effectiveness:** To guide future education in this topic, we performed an educational quality review of the resident card data in November 2015. Based solely on the resident self-evaluation section of the card, we looked for any specific questions in which they did not answer 'yes' as consistently to see if we need to modify our yearly educational team leadership session. The data for the classes of 2014, 2015 and 2016 is presented in Table 1. Based on the data, it would appear that 'Did you use direct, clear, closed-loop communication?', 'Did you periodically review the plan with the entire team?' and 'Did you do a quick debriefing of the case with your staff, team, or key personnel?' may need to be emphasized or taught differently in our yearly team leadership session. Other EM residencies that teach team leadership skills may find this data helpful to guide their curriculum as well.

### 13 ABCs of Team Leadership: Using Shift Card Data to Guide Future Education

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**Background:** Based on the need for Emergency Medicine (EM) Residents to gain expertise in leading medical and trauma code teams, we created the ABCs of Team Leadership curriculum in 2012. In addition to teaching our residents the team leadership curriculum, we have an optional end-of-shift card filled out by residents and faculty to facilitate focused feedback on team leadership performance (image 1).

**Educational Objectives:** The Residency Review Committee for EM states that 'each resident must have sufficient opportunities to direct major resuscitations of all types on all age groups'. Our team leadership curriculum was created to prepare residents to direct and lead those resuscitations.

**Curricular Design:** The ABCs of Team Leadership curriculum was created in 2012 based on a literature review of team leadership in medicine, aviation, business and the military. We applied common themes learned from the

ABCs of Team Leadership			
Resident: _____			
Faculty: _____		Date: _____	
Feedback given to resident		Yes / No	
Resuscitation: Adult / Pediatric		Location: ED / SIM	
<b>Assemble:</b>			
Were you prepared?	Yes	Somewhat	No
Was your team prepared?	Yes	Somewhat	No
<b>Be an Effective Leader:</b>			
Were you an effective leader?	Yes	Somewhat	No
<b>Communicate:</b>			
Overall, did you communicate well with your team?	Yes	Somewhat	No
Did you use direct, clear, closed-loop communication?	Yes	Somewhat	No
Did you periodically review the plan with the entire team?	Yes	Somewhat	No
<b>Debrief:</b>			
Did you do a quick debriefing of the case with your staff, team or key personnel?	Yes	Somewhat	No
<b>Milestones</b>			
Recognizes when a patient is unstable requiring immediate interventions	Yes	No	
Performs a primary assessment on a critically ill or injured patient	Yes	No	
Prioritizes critical initial stabilization actions in the resuscitation of a critically ill or injured patient	Yes	No	
Recognizes in a timely fashion when further clinical interventions is futile.	Yes	No	
Ensures clear communication and respect among team members	Yes	No	
Uses flexible communication strategies to resolve specific ED challenges such as difficulties with consultants and other healthcare providers	Yes	No	
<b>Comments:</b>			

Figure.