

## **UC Irvine**

### **Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health**

#### **Title**

Development of a Rigorously Designed Procedural Checklist for Emergent Cricothyrotomy for Assessment of Emergency Medicine Resident Performance

#### **Permalink**

<https://escholarship.org/uc/item/6ch006vn>

#### **Journal**

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 23(4.1)

#### **ISSN**

1936-900X

#### **Authors**

Rogers, Andrew  
Loke, Dana  
Leibowitz, Maren  
[et al.](#)

#### **Publication Date**

2022

#### **Copyright Information**

Copyright 2022 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

**Table 2.**

	Null Hypothesis	Hypothesis Test Summary		
		Test	Sig. <sup>a,b</sup>	Decision
1	The distribution of Been referenced as something other than a physician (mid-level provider, technician, food services is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
2	The distribution of Felt the need to correct a patient or family member when referenced as something other than a physician (mid-level provider, technician, food services is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
3	The distribution of Addressed yourself as the doctor more than once throughout each encounter is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
4	The distribution of Felt the need to wear a white coat is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.149	Retain the null hypothesis.
5	The distribution of Wore the white coat for reasons other than to be properly acknowledged as the physician is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.734	Retain the null hypothesis.
6	The distribution of Felt the need to wear business casual (or professional) clothing is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.39	Retain the null hypothesis.
7	The distribution of Felt the need to wear scrubs is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.146	Retain the null hypothesis.
8	The distribution of Felt the need to wear at least one type of make-up (eye-liner, mascara, concealer, etc.) is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.
9	The distribution of Felt the need to do something special with your hair (straighten, curl, pony tail, cut short, spike, gel to side, etc.) is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0.002	Reject the null hypothesis.
10	The distribution of Felt the need to have a manicure/unchipped nail polish is the same across categories of Male_Gender.	Independent-Samples Mann-Whitney U Test	0	Reject the null hypothesis.

**Best Of Best Innovation Abstracts**

**1 Amazing & Awesome: Incorporating Positive Case-Based Discussion in Emergency Medicine Residency Curriculum to Improve Learning and Team Morale**

Jessica Smith, Al'ai Alvarez

**Learning Objectives:** 1. Discuss and analyze cases with exemplary team performance using root cause analysis and case reflection. 2. Demonstrate the importance of clinical learning opportunities from successful cases in medical education (Safety-II Thinking). 3. Value positive clinical cases to boost team morale

**Introduction:** While M&M has long been part of residency training, few programs dedicate time to highlight above-and-beyond patient care. With this learning gap identified, the Amazing and Awesome (A&A) didactic series was created and implemented. While Saves-of-the-Month awards recognize exemplary care, A&A provides a deeper inspection of the cases. Literature review of other programs with A&A focused on reframing the culture of medicine from Safety-I thinking (reacting to errors) to Safety-II thinking

(learning from resilient systems and successful interventions). Currently, there is no data available to assess its perceived value by residents in their education or its impact on morale.

**Objectives:** as above

**Curricular Design:** At the Stanford EM residency program, we incorporated a monthly 30-minute session into our didactic curriculum. Two residents present the A&A case chosen as a “Save of the Month,” focusing on the contributions of the entire healthcare team-physicians, nurses, techs, pharmacist, consultants, etc. Each resident describes the case, highlighting key concepts, critical actions by the care team, and other contributing systems processes that led to the “Save” or exemplary performance. The resident shares the framework as clinical pearls for colleagues to apply in similar challenging clinical scenarios. After 6 total sessions, a survey was administered to residents to evaluate their perceived value of the didactics in their education. Ultimately 26/60 residents completed the survey. Unanimously, 100% of respondents reported A&A was a valuable addition to their curriculum, and 96% of respondents voted to keep A&A in the curriculum. Many comments focused on A&A’s positive impact on residency morale.

**Impact/Effectiveness:** Our resident response to the Amazing and Awesome didactics in GME helps identify a gap in potential learning opportunity and potential morale improvement, and this series could easily be implemented by other programs.

**2 Development of a Rigorously Designed Procedural Checklist for Emergent Cricothyrotomy for Assessment of Emergency Medicine Resident Performance**

Andrew Rogers, Dana Loke, Maren Leibowitz, Elizabeth Stulpin, Morgan McCarthy, David Salzman

**Learning Objectives:** The objective was to create an assessment tool for emergent cricothyrotomy using best practice checklist development and expert consensus.

**Introduction/Background:** Emergent cricothyrotomy is an infrequently performed, potentially life-saving procedural skill that is essential for emergency physicians to master during residency training. However, opportunities for real-life exposure to perform this procedure during residency is rare and ensuring emergency medicine graduates can perform this procedure correctly is essential. For rare, invasive procedures such as cricothyrotomy, checklist simulation assessments allowing for objective measures are best practice for competency based medical education. However, the literature for performing emergency cricothyrotomy is descriptive, not inclusive of evaluative checklists, and lacking a checklist that allows for multiple cricothyrotomy techniques.

**Educational Objectives:** The objective was to create an

assessment tool for emergent cricothyrotomy using best practice checklist development and expert consensus.

**Curricular Design:** After an initial checklist was created based on literature review, a modified Delphi approach was used to design a final checklist. A multidisciplinary panel of 13 experts, including emergency medicine physicians and trauma surgeons, reviewed the initial checklist. Feedback was reviewed and subsequent iterations of the checklist were reviewed by the same panel of experts until final consensus of a 27 item dichotomous checklist was achieved.

**Impact/Effectiveness:** After 3 rounds of revisions, a rigorously developed procedural checklist for emergent cricothyrotomy was created (Figure A). To reach consensus, the checklist included options for several acceptable techniques to correctly perform the procedure. This adds to previously published work by developing a rigorously designed, versatile dichotomous procedure checklist that accounts for various techniques. This checklist can serve as a foundation for the development of a curriculum to ensure graduating residents can correctly perform this critical task prior to graduation.

**Figure A.** Emergency cricothyrotomy checklist.

Step	Task	Performed?	
<p><i>"You receive a pre-arrival call that EMS is transporting a patient that has extensive facial fractures and is difficult to bag. You anticipate a difficult airway and plan to set up for a cricothyrotomy as back-up. Please indicate the supplies you need to perform an emergent cricothyrotomy."</i></p> <p>NO additional prompts other than the above statement may be given to learners with regards to gathering specific supplies (e.g. – do not state, "are there any other supplies you would like to get?").</p>			
<b>Part I – Preparation (in order to be correct, items 1-5 must be performed before incision)</b>			
1	<p><b>Gathers sterile supplies:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Betadine</li> <li><input type="checkbox"/> Sterile gloves</li> <li><input type="checkbox"/> Eyewear</li> <li><input type="checkbox"/> Mask</li> </ul> <p>Must verbalize all materials listed above to be correct.</p>	Yes	No
2	<p><b>Gathers primary cricothyrotomy procedure supplies:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Scalpel</li> <li><input type="checkbox"/> 6.0 ETT and/or trach</li> </ul> <p>Must gather both scalpel and either ETT or trach. May ask for two scalpels.</p>	Yes	No
3	<p><b>Gathers secondary/supplemental cricothyrotomy procedure supplies.</b></p> <p>Correct if – asks for any of the following equipment (Trousseau dilator, tracheal hook, Bougie, hemostat) OR uses scalpel and tube only for procedure.</p> <p>Incorrect if asks for additional equipment at any point after incising the neck.</p> <p>Prompt: <i>If proceduralist asks for cric kit, ask them what should be included in the kit.</i></p>	Yes	No
4	<p><b>Gathers supplemental intubation supplies:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yankauer</li> <li><input type="checkbox"/> Suction tubing</li> <li><input type="checkbox"/> 10 cc syringe</li> <li><input type="checkbox"/> BVM</li> <li><input type="checkbox"/> ETT/trach holder or tape or sutures</li> <li><input type="checkbox"/> Colorimetric or waveform capnography</li> </ul> <p>Must verbalize all materials listed above to be correct.</p>	Yes	No
5	<p><b>Washes hands.</b> Correct if: Uses soap/water or uses alcohol/sanitizer</p>	Yes	No

### 3 Improving Student Documentation in the Emergency Department

*Jonathan Brewer, Emily Gohde, Justin Doroshenko, Brooke Atkinson, Joshua Lindsley, Shannon Burke, Adaom Goodcoff, Deena Khamees, Matt Ledford, Christine Kulstad, Mary McHugh*

**Learning Objectives:** Demonstrate a curriculum designed to teach medical students how to successfully write the medical decision making portion of the emergency medicine note.

**Introduction:** Documentation is an essential component of patient care in the emergency department (ED). Although students are taught the general rules of note-writing prior to clerkships, the emergency medicine (EM) note differs from most rotations. There is a need to teach the specifics of documentation of the EM note to medical students. The Emergency Medicine Residents’ Association (EMRA) Education Committee created a curriculum to teach formal documentation to medical students.

**Educational Objective:** Create a curriculum designed to teach medical students how to successfully write the medical decision making (MDM) portion of the EM note.

**Curricular Design:** Our curriculum design assumes that all senior medical students were taught the basics of writing a history and physical. Therefore, we primarily focused on teaching the MDM portion of the EM note. Following IRB approval and consent from the 55 students in our study, each student filled out a survey about their previous experience with documentation in the ED (Image 1). Next, students watched a video of a complete simulated patient encounter in order to assess their baseline ability to document a formal MDM that included the ED course and disposition. These notes were then graded on a rubric (Image 2) by a resident physician at each site who was a member of the curriculum development team to ensure standardization. Students were then given access to the EMRA documentation template and video. After the educational intervention, students documented a new MDM based on a different video encounter and were graded again.

**Impact/Effectiveness:** We found that a documentation curriculum significantly improved students’ MDM documentation. Repeated measures ANOVA revealed a strong effect on MDM Documentation scores [F(1, 38) = 72.547, p < .001, ηp2 = .656], demonstrating that MDM documentation statistically improved after the training curriculum and that implementation improves student documentation in the ED.