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 cricothycotomy checklist.

Step	Task	Performed?	
	"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." 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?").		
Part I – Preparation *(in order to be correct, items 1-5 must be performed before incision)*			
1	**Gathers sterile supplies:** ❑ **Betadine** ❑ **Sterile gloves** ❑ **Eyewear** ❑ **Mask** Must verbalize all materials listed above to be correct.	**Yes**	**No**
2	**Gathers primary cricothyrotomy procedure supplies:** ❑ **Scalpel** ❑ **6.0 ETT and/or trach** Must gather both scalpel and either ETT or trach. May ask for two scalpels.	**Yes**	**No**
3	**Gathers secondary/supplemental cricothyrotomy procedure supplies.** Correct if – asks for any of the following equipment (Trousseau dilator, tracheal hook, Bougie, hemostat) OR uses scalpel and tube only for procedure. Incorrect if asks for additional equipment at any point after incising the neck. *Prompt: If proceduralist asks for cric kit, ask them what should be included in the kit.*	**Yes**	**No**
4	**Gathers supplemental intubation supplies:** ❑ **Yankauer** ❑ **Suction tubing** ❑ **10 cc syringe** ❑ **BVM** ❑ **ETT/trach holder or tape or sutures** ❑ **Colorimetric or waveform capnography** Must verbalize all materials listed above to be correct.	**Yes**	**No**
5	**Washes hands.** Correct if: Uses soap/water or uses alcohol/sanitizer	**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 [$F(1, 38) = 72.547$, $p < .001$, $\eta p2 = .656$], demonstrating that MDM documentation statistically improved after the training curriculum and that implementation improves student documentation in the ED.

All data will be kept completely confidential within a secure server and will not be shared with anyone other than internal EMRA Education Committee affairs

Age: _____

Year (Circle One): MS-II / MS-III / MS-IV

Degree Type (Circle One): MD / DO / IMG / Other

What number (first, second, third, etc) EM clerkship is this for you?: _____

Location of Clerkships Completed (including current): _____

Did you work as a scribe prior to medical school? Yes/No
If yes, did you work in the ED or another capacity? ED/other (with open explanation)

Previous EM Scribe/EMS/Nursing Experience: Yes/No
If so, how long? _____ months/years (Circle One)
In what capacity? _____ (i.e. RN/Paramedic/Scribe/other)

How many notes have you written so far during your current clerkship?
None / 1-2 / 3-4 / 5-6 / 7-8 / 9+ / N/A (We do not write notes on our clerkship)

Image 1. EMRA documentation sruvey.

Student Name: **Resident Grader:**

	1	2	3	4	5
MDM	May or may not include a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course May/may not justify the final disposition	Provides a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course May/may not justify the final disposition	Provides a brief summary Provides a weak DDx including none or some reasoning for ruling in/out major life-threatening diagnoses May/may not provide an ED course Justifies the final disposition	Provides a brief summary Provides an adequate DDx including some reasoning for ruling in/out major life-threatening diagnoses Provides an ED course Justifies the final disposition	Provides a brief summary Provides a thorough DDx including strong reasoning for ruling in/out major life-threatening diagnoses Provides an ED Course Justifies the final disposition

Comments:

Image 2. EMRA emergency medicine clerkship note rubric.

4 Task Trainer Augmented Joint Reduction Training

Jeremy Riekena, Kent Li, Justin Wang, William Chan, Richard Shin, Victor Huang

Learning Objectives: To investigate whether augmenting joint reduction education with 3D printed task trainers will offer a learning benefit when paired with traditional teaching methods using lectures and videos. The application is focused on EM residents with potential expansion to surgical subspecialties.

Introduction: Prior studies and EM training programs have called for the need for innovation in the realm of orthopedic education. When compared to other core skills developed during EM residency, joint reductions are relatively infrequent. The development of 3D printing technology offers an opportunity for the development of task trainers to supplement resident experience. There are no current 3D printed task trainers available for joint reductions. We developed a series of 3D printed joint models with orthopedic curriculum to supplement exposure to dislocation reductions to improve emergency medicine residents' preparedness, confidence, and competency in joint dislocation reductions. Models were designed to create tension and tactile feedback upon reduction. The supplemental curriculum summarized patient evaluation, anatomy, and techniques.

Curricular Design: We utilized the trainers in simulation sessions with reductions taught using Peyton's 4 step approach, and competency assessed through Miller's pyramid educational theory. A likert type survey was administered to assess resident learning, preference in teaching style, and confidence in reduction techniques. Baseline experience data was collected to assess prior clinical experience. Learning retention will be assessed during the follow up skill session. Given the variety of joints designed, we divided sessions to include 1-2 joints at a time. This allowed for more focus on specific joints as well as space repetition across multiple sessions throughout the academic year.

Impact/Effectiveness: The current set of data strongly supports the utilization and integration of 3D models into the education of emergency medicine residents in joint dislocation reductions. The vast majority of resident learners found benefit in the inclusion of 3D printed joint models. Although most learners preferred the 3D printed models compared to traditional teaching methods, we advocate for an integrated teaching model rather than choosing only one teaching technique.

Image 1.

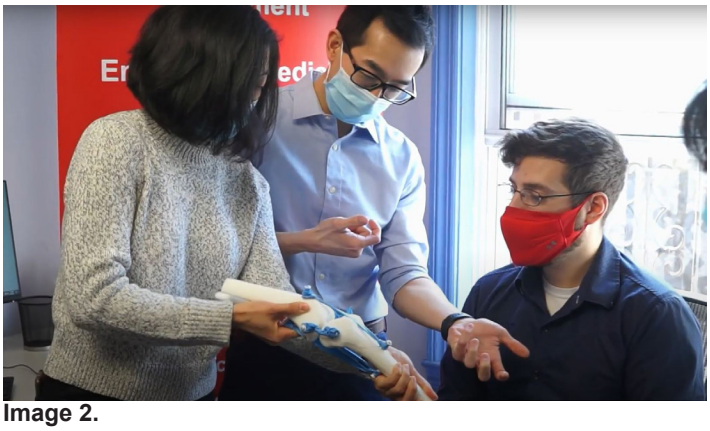

Image 2.