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Enhancement of Cricothyroidotomy Procedural Competency using Cadaver Autograft

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attention at two large music festivals. One music festival, Festival2015A, was an EDMF while the other music festival, Festival2015B, featured an assorted array of music genres. The main medical tent was staffed with two EM physicians, two EM nurses, in addition to eight paramedics and 52 EMTs. A physician performed a history and physical exam, and data were recorded by medical volunteers (figure 1). Data were then analyzed for differences between the two festivals.

**Results:** Festival2015A had a three-day attendance of >75,000 with a PPR of 2.3 per 1000 attendees. Festival2015B had a three-day attendance of >120,000 with a PPR of 1.1 per 1000 attendees. Festival2015A patients were more likely to have dilated pupils, diaphoretic skin and consumed more water. Alcohol and recreational drugs were more commonly abused at Festival2015A. The most common drug abused was MDMA (figure 2). There were no deaths at either event. Transport to hospital rates (TTHR) did not differ significantly (figure 3).

**Conclusions:** Despite a 62.5% greater attendance level at Festival2015B, there were more hospital transports at Festival2015A. While this study is consistent with previous data showing that crowd mood is correlates with PPR, it also suggests that crowd size may be less predictive of PPR. Although the patients at Festival2015A presented with more toxidromes, the TTHR did not differ, supporting the emerging notion that an adequately staffed medical tents can reduce over-burdening the local healthcare system.

Figure 1. Type of Drug Use Festival A.

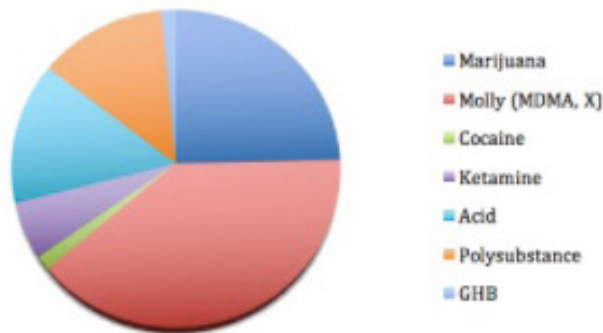


Figure 2. Type of Drug Use Festival A.

	FESTIVAL A	FESTIVAL B	
TOTAL ATTENDANCE			
TOTAL PATIENTS	173	126	
AGE	22	21	
MALE	91	36	< .0001
SYSTOLIC BLOOD PRESSURE	125	118	< .01
PULSE RATE	100	90	< .05
RESPIRATORY RATE	16	16	
WATER CONSUMPTION (OZ)	24	12	< .05
DILATED PUPILS	44	25	< .05
SKIN EXAM	46	13	< .0001
ALCOHOL	132	97	< .01
DRUGS	67	42	< .05
TRANSPORT RATES	8	4	
DEATHS	0	0	

## 25 Engaging the Audience During Medical Simulation

Cline C, Heitz C, Fortuna T / Virginia Tech Carilion School of Medicine, Roanoke, VA

**Background:** Today’s medical students rely on smartphones, tablets and various apps to enhance their individual knowledge. During medical simulation, the audience often passively observes team performance. While much research exists on enhancing simulation performance, little is known about audience learning methods and outcomes. Interactive software could engage observers, providing increased knowledge and skill to all participants.

**Objectives:** To evaluate the effect of using interactive software as a teaching tool for a simulation audience.

**Methods:** Early in their EM clerkship, students participated in a DKA simulation case. One student was team leader, while the others (up to 6) were observers. Students were randomized to one of two groups: Nearpod or control. Nearpod is web or app-based software which allows delivery of interactive content to learners. Students in group 1 used a web-connected device to receive questions and prompts, through the Nearpod software, during the case. Students in group 2 simply observed. All students were debriefed together. 2-3 weeks later, a 2nd DKA sim case was administered. Comparison was made between groups on performance of 7 DKA- specific critical actions. Evaluators were blinded as to group allocation. Goal recruitment is 40 students.

**Results:** To date, 28 students have completed the protocol. Sixteen students have been randomized to Nearpod, 12 to control. Students who used Nearpod accomplished on average 5.06 of the 7 (SD 1.4, 72.3 %) critical actions successfully vs 5.42 out of 7 (SD 1.4, 77.4 %) critical actions for those in the control group. There is no significant difference between groups (p=0.5).

**Conclusions:** Based on the current data, the use of interactive software to engage students during audience observation of high fidelity simulation did not result in increase performance of critical actions during a later simulation case. Further study may reveal ideal learning strategies to enhance observer education.

## 26 Enhancement of Cricothyroidotomy Procedural Competency using Cadaver Autograft

Chandler I, Coughlin R, Binford J, Bonz J, Hile D / Yale-New Haven Hospital, New Haven, CT

**Background:** Cricothyroidotomy is a rare but life-saving procedure required in up to 2% of emergent airways. Emergency medicine residencies frequently instruct this procedure via cadaver training, but cadaver cost and availability

limits the opportunity for all trainees to perform the critical initial skin incision. Cadaveric autografting is a novel way to simulate all steps of the cricothyroidotomy procedure.

**Objectives:** To determine if cadaver tissue autografted to simulate native neck tissue improved perceived competency of cricothyroidotomy. The investigators hypothesized that autografted cadaver tissue would improve participants' self-assessment of competency.

**Methods:** In this prospective crossover study, volunteers were randomized to perform cricothyroidotomy initially on previously incised native neck tissue or on grafted tissue, then vice-versa. A board-certified emergency physician instructed all participants in cricothyroidotomy. The autograft consisted of cadaveric iliotibial band covered with lateral thigh skin to simulate cricothyroid membrane and native anterior neck anatomy (Figures 1 and 2). Volunteers met inclusion criteria if they were currently in residency training or participating in an emergency medicine sub-internship and had not performed a cricothyroidotomy on the study day. Twenty-seven residents and nine students participated. Outcomes were evaluated via Likert scale.

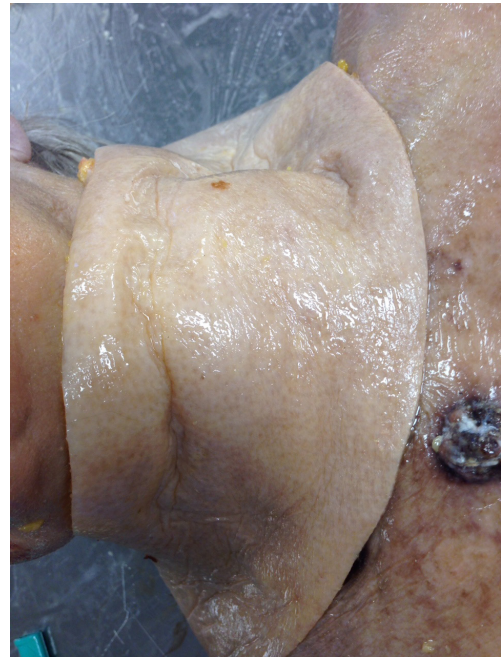
**Results:** Thirty of 36 (83%) of participants agreed or strongly agreed that they preferred cadaver grafting over previously incised native tissue. Thirty-two of 36 (89%) agreed or strongly agreed that performing cricothyroidotomy with a cadaver graft was useful, versus 23/36 (64%) who felt similarly regarding previously incised native tissue ( $p = .001$ ). Twenty-six of 36 (72%) felt more comfortable with cricothyroidotomy in the emergency department after using cadaveric grafting versus 19/36 (53%) who felt more comfortable after using the native tissue ( $p = .003$ ).

**Conclusions:** Grafted cadaveric tissue maximizes the educational potential of each cadaver by allowing multiple participants to perform cricothyroidotomy from start to finish and appears to be a useful training adjunct in this rare but essential emergency procedure.

Figure 1.



Figure 2.



## 27 Evaluating Resident Transitions of Care in the Emergency Department

Pierce D, Zadzilka N, Domingo G / Albert Einstein Medical Center, Philadelphia, PA

**Background:** Transition of care of patients between residents at change of shift happens multiple times per day in the emergency department. There are many opportunities for error in patient care to occur when there is handoff to a new team, as pertinent information may be lost. According to Kessler et al (2013 survey of program directors) effectively communicating patient care handoffs is not formally taught to most EM residents. Consequently, there are many variations in transition of care. Sinha et al (2007) suggested that a standardized sign out tool would more effectively communicate pertinent information to the next team of providers.

**Objectives:** Our goal was to determine the methods most frequently used in patient care handoffs at shift change and the information most frequently lost in transitioning care to a new team. Also, to assess resident's perception of safety and effectiveness of signout.

**Methods:** 122 residents representing 7 different Emergency Medicine residency programs in eastern Pennsylvania were surveyed while together in a conference at Einstein Medical Center. The survey data was collected anonymously, then correlated and analyzed using Excel.

**Results:** Figure 1 represents the range of sign out modalities reported to be used. 88% of programs use a verbal signout - either 1 to 1, group, or both. 4% use paper, and 6% do walking rounds. Figure 2 represents the residents' sense of