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Comparison of the Efficacy of High-Fidelity Patient Simulation Versus Traditional Lecturebased Didactics in Emergency Medicine Toxicology Education

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#### **Authors**

Leduc, J  
Tolova, V  
Boroughf, W  
[et al.](#)

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average scores than those in the non-pimping group (59.6% compared with 52.9%).

**Conclusions:** Despite the practice of “pimping” falling somewhat out of favor, our data indicates that residents have a favorable view towards this educational modality and most would use it as a teaching strategy. Although a difference in knowledge retention between the two groups was not demonstrated, larger studies are needed to evaluate the value of Socratic instruction.

## 9 Career Satisfaction and Continued Educational Experiences

*Sudario G, Hahn C, Juhn P / UCSF-SFGH Emergency Medicine Residency, San Francisco, CA; Highland General Hospital, Oakland, CA; Hippo EM, Burbank, CA*

**Background:** Despite increasing popularity as a specialty choice, emergency medicine (EM) continues to have problems with physician burnout. A recent Medscape survey placed EM as the specialty with highest number of physicians reporting burnout (51%). Many factors have been associated with burnout/career satisfaction, but there is little data on how continued educational experiences affect these outcomes.

**Objectives:** To assess career satisfaction and factors affecting career satisfaction in a group of community emergency physicians attending an international educational conference.

**Methods:** A mobile app survey using CrowdCompass was administered in October 2015, during a large international conference (Essentials of Emergency Medicine) asking the following two questions: “On a scale of 1-5, how satisfied are you with Emergency Medicine as your medical specialty?” and the free response question: “What have you done and/or what can be done to improve your career satisfaction?”. Concept codes were developed with an inductive approach and each response was coded based on the concepts present. If a response contained multiple concepts, it was coded once for each concept it contained.

**Results:** Of 1753 conference attendees, 391 responses were collected for the question asking respondents to rate his/her career satisfaction. There were 348 respondents (89%) who rated her career satisfaction as a 4 or 5 on the Likert scale (satisfied or very satisfied respectively). For the free response question, 219 responses were obtained. The top three most coded concepts were shifts/scheduling (45, 21%), work-life balance (38, 17%) and continued medical education/conference attendance (21, 10%).

**Conclusions:** Community emergency physicians who attended a large international educational conference have high rates of career satisfaction. This is higher than the 65.2% reported to have “high satisfaction in a previous study. Top contributors to career satisfaction are scheduling/shift burden, work-life balance, and continuing medical

education. Although previous studies have shown lack of opportunity to attend conferences to be associated with burnout, our qualitative data shows that participating in educational conferences is a top contributor to increased career satisfaction.

**On a scale of 1-5, how satisfied are you with Emergency Medicine as your medical specialty?**

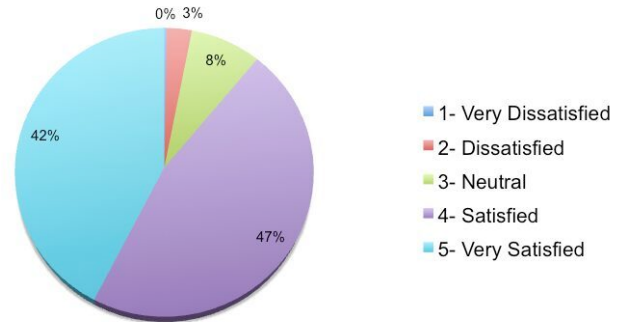


Figure 1.

Table 1.

Concept Codes	Frequency Coded	Percentage of Responses
Shift burden/Scheduling	45	20.5%
Work-Life Balance	38	17.4%
Conferences/Medical Education	21	9.6%
Administrative Burden	17	7.8%
Clinical Support	13	5.9%
Teaching/Academics	11	5.0%
Diverse Work Environments	8	3.7%
Positive Thinking	7	3.2%
Systems Issues	6	2.7%
Sense of Community	6	2.7%
Respect/Autonomy	6	2.7%
Complete change in work environment	3	1.4%
Salary/Compensation	3	1.4%
Litigation/Malpractice	2	0.9%

## 10 Comparison of the Efficacy of High-Fidelity Patient Simulation Versus Traditional Lecture-based Didactics in Emergency Medicine Toxicology Education

*Leduc J, Tolova V, Boroughf W, Bassett R, Kowalski J / Einstein Medical Center Philadelphia, Philadelphia, PA; Centura Health, Denver, CO; Kennedy University Hospital/ Rowan University School of Osteopathic Medicine, Stratford, NJ*

**Background:** High fidelity patient simulation (SIM) has been gaining widespread use in medical education. Evidence regarding advantages in both knowledge retention and learner satisfaction is growing. There is scant data pertaining to instruction in toxicology, where SIM is particularly appealing.

**Objectives:** We compared two models of toxicology education - one involving simulated toxicology cases, and the

other using a more traditional, lecture-based approach, with an effort to determine the efficacy of patient simulation in Emergency Medicine Toxicology education.

**Methods:** DESIGN - Prospective, randomized study comparing performance on pre- and post-test within a specific education modality. A satisfaction survey was used to assess the participants' subjective experience with the SIM cases. SETTING -The study was conducted at a large academic institution with a Toxicology consult service. PARTICIPANTS - Residents and medical students rotating through the toxicology department at a single academic institution, over one academic year.

INTERVENTIONS/OBSERVATIONS - Three toxicology cases were presented during a month-long rotation using either the SIM- or lecture-based format. For each case, participants were randomized to one of two learner groups, varying by the teaching modality applied. Knowledge gained was quantified by comparing their performance on pre- and post-test written assessments. Improvements in scores of the SIM group were compared to those of the lecture group. A survey assessing the participants' subjective experience in the SIM cases was sent.

**Results:** A total of 22 rotators participated in the learning modules, of which 14b completed the pre-and post-tests for data collection. There was no statistical difference in pre-test scores (mean 2.62 points, p=0.43, 95% CI of -9.35 to 4.11) amongst the 2 groups. There was significant improvement in scores after both learning modalities (SIM: mean 17.21, p=0.0016, 95% CI of 7.3-27.08; Lecture: mean 9.72, p=0.0016, 95%CI of 3.9-15.5). The SIM group experienced a higher jump in their scores, compared to the lecture group (mean 10.08, p=0.0057, 95% CI 3.27-16.9). Five participants responded to the satisfaction survey and all felt that participation in SIM improved their confidence, engagement, and clinical knowledge.

**Conclusions:** While both the SIM- and lecture-based format improved toxicology knowledge, the SIM modality was more effective. This pilot study suggests that SIM can be a useful educational tool in toxicology education.

## 11 CPR Education in Schools: A Novel Approach to Bystander CPR Disparities

Louderback R, Sasson C, Bell-Haggard W, Rene R, Engeln J, Johnson B / University of Colorado, Aurora, CO; University of Colorado, American Heart Association, Aurora, CO; American Heart Association, Aurora, CO

**Background:** Community CPR initiatives represent an important mechanism for increasing CPR awareness, particularly in lower-income areas which tend to have a higher incidence of out-of-hospital cardiac arrest coupled with lower rates of bystander CPR. CPR education within school systems remains a

novel approach to address these bystander CPR disparities.

**Objectives:** Implement a sustainable Hands-Only CPR education program in Denver and Aurora middle schools with a focus on schools in lower-income areas, and evaluate the effect of the intervention on student CPR knowledge and comfort.

**Methods:** Participants: Over 30 middle schools (grades 6-8) in the Denver and Aurora school system were offered the opportunity to participate during the 2014 calendar year based on location and proportion of lower-income population, and 16 of them agreed.

Intervention: Participants completed a pre-test survey prior to the intervention consisting of 5 questions to assess baseline CPR knowledge and a 6th question to assess overall comfort performing CPR. The classroom teacher then initiated the standardized Hands-Only CPR training session using the CPR in Schools Training Kit™, which includes an instructional DVD, 10 inflatable manikins, and additional resources for the facilitator. Participants then completed a post-test knowledge and comfort survey, identical to the pre-test survey.

Data Analysis: A McNemar's test was performed on all aggregate paired pre-/post-test data, and chi square and unmatched pairs t-tests were performed on any aggregate unpaired data.

**Results:** Among the 16 participating sites, 12 (75%) returned training data, resulting in 1884 students trained. Analysis of pre- and post-test data demonstrated an increase in the mean number of CPR knowledge questions answered correctly from 2.22 to 4.1 (out of 5) (p<0.001). The majority of students (80.7%) felt comfortable performing Hands-Only CPR after the intervention.

**Conclusions:** Middle school students in the Denver and Aurora school system demonstrated increased knowledge and comfort with Hands-Only CPR following standardized instruction with CPR in schools training kits. Thus, a CPR education program for students is a novel yet promising way of increasing CPR awareness in areas with high incidence of out-of-hospital cardiac arrest yet low rates of bystander CPR.

Table 1. Pre-/Post-test Survey Results.

Topic Tested	Correct on Pre-Test (N=1,679)		Correct on Post-Test (N=1,679)	
	n	(%)	n	(%)
Compression rate	273	(16.3)	1,041	(62.0)*
When to stop CPR	838	(49.9)	1,520	(90.5)*
Depth of compressions	789	(46.9)	1,553	(92.5)*
What an AED does	934	(55.6)	1,387	(82.6)*
Correct steps of HOCPR	894	(53.3)	1,403	(83.6)*
Comfort performing HOCPR ‡	932	(55.5)	1,355	(80.7)*
Mean Score (Questions 1-5)	2.22	(44)	4.1	(82.2)*

\*p<0.001

‡ Pre-Test n=1,679, Post-Test n=1,679