no evaluation of competence, and possible Hawthorne bias.

63 Defibrillate, Cardiovert, Pace! Translating Skills from Simulated to Real Equipment

Diana Labrada, Steven Chapman, Jonathan Bronner, Ryan Hunton, Josh Karsner, John Reitnauer

Background: Our institution switched to Stryker LifePak 15 defibrillators in 2023. It was imperative that junior learners be trained to operate the new defibrillators prior to using it on patients.

Objectives: To determine if skills including rhythm identification, mode selection (defibrillation, cardioversion, and transcutaneous pacing), and electricity delivery learned on a simulated defibrillator translate to correct use on a real defibrillator.

Methods: This was an observational prospective study that included a convenience sample of EM interns, 4th-year medical students, EM Physician Assistants (PA), and 3rd-year PA students. Data collection ran from June 28 - July 23, 2024. Inclusion criteria included being a University of Kentucky EM intern, medical student, PA, or PA student voluntarily present during a didactic day. Exclusion criteria included those who did not desire to complete the survey. The study was completed in three phases. Phase 1 included a one-hour training on arrhythmias and defibrillator functions as well as hands-on practice with a simulated defibrillator. Phase 2 occurred 24 hours after and included three randomized simulation cases that assessed the learners' ability to recognize the correct rhythm and manually operate the simulated defibrillator. Phase 3 occurred 2-3 weeks after Phase 1 and also included three randomized cases where learners had to operate a live defibrillator.

Task (N = 32 Learners)	Completion (%)[f]	Accuracy (1-3 scale)[f]	Timing (seconds)[f]
Defib: Turn on defib	100 (100, 100)	2.99 (2.83, 3.00)	0.0 (0.0, 0.0)
Defib: ID rhythm	96.9 (16.7, 100)	2.83 (1.33, 3.00)	9.2 (5.2, 29.4)
Defib: Choose modality	99.5 (83.3, 100)	2.91 (2.00, 3.00)	13.2 (7.8, 39.5)
Defib: Choose energy	100 (100, 100)	2.80 (1.83, 3.00)	19.1 (9.8, 63.7)
Defib: Charge defib	100 (100, 100)	2.94 (2.33, 3.00)	23.0 (12.2, 73.0)
Defib: Deliver electricity	100 (100, 100)	2.94 (2.33, 3.00)	29.2 (19.2, 78.7)
Cardio: Turn on defib	100 (100, 100)	3.00 (3.00, 3.00)	0.0 (0.0, 0.0)
Cardio: ID rhythm	98.4 (83.3, 100)	2.74 (1.20, 3.00)	9.4 (5.3, 29.2)
Cardio: Choose modality	100 (100, 100)	2.93 (2.67, 3.00)	13.6 (8.8, 29.3)
Cardio: Choose energy	100 (100, 100)	2.86 (1.83, 3.00)	24.4 (15.3, 45.8)
Cardio: Synchronize	96.4 (0.0, 100)	2.94 (2.40, 3.00)	17.0 (9.5, 49.2)
Cardio: Charge defib	100 (100, 100)	2.93 (2.00, 3.00)	30.6 (19.5, 79.3)
Cardio: Hold button	99.5 (83.3, 100)	2.77 (1.60, 3.00)	37.9 (24.8, 108.2)
Pacing: Turn on defib	100 (100, 100)	3.00 (3.00, 3.00)	0.0 (0.0, 0.0)
Pacing: ID rhythm	96.9 (16.7, 100)	2.94 (2.60, 3.00)	9.3 (5.3, 40.4)
Pacing: Choose modality	100 (100, 100)	2.94 (2.00, 3.00)	12.7 (3.2, 22.2)
Pacing: Select rate	97.9 (33.3, 100)	2.72 (2.00, 3.00)	24.0 (11.5, 53.5)
Pacing: Select current	99.0 (66.7, 100)	2.50 (1.25, 3.00)	42.4 (21.5, 132.8)
Pacing: Achieve electrical capture	96.4 (0.0, 100)	2.48 (1.40, 3.00)	48.9 (23.7, 154.4)

[f] Mean (Min, Max); Learners first had their scores averaged across raters

FIgure 1. Learner performance at Phase 2 (N=32).

Results: The 32 participants included 13 EM interns, 9 medical students, 4 PAs, and 6 PA students. Phase 2 demonstrated near 100% completion across all tasks and rhythms. Accuracy was higher for defibrillation and cardioversion as compared to pacing. Defibrillation was the fastest task (mean 29.2 seconds; range: 19.2-78.7 seconds), and transcutaneous pacing was the slowest task (mean 48.9 second; range: 23.7-154.4 seconds). In Phase 3, the task times were significantly longer across every task.

Conclusion: Although task completion and accuracy remained mostly high on the live defibrillator at 2-3 weeks, each task took longer. This study demonstrated that learned skills on a simulated defibrillator can successfully translate to task completion and accuracy on a real defibrillator. However, because of possible skill erosion over time, re-training may be necessary at regular intervals.

64 The Dose Makes the Poison: Cultivating Knowledge of Toxins and Treatments on a Botanical Voyage

Jaydip Desai, Michael DiGaetano, Colleen Donovan, Denise Fernandez, James Luckey

Background: Toxic overdoses based on plant-derived toxins are uncommon presentations that can be difficult to recognize. Without prompt recognition, sequelae of toxic ingestion can rapidly result in death. Active learning through outdoor exposure may help reinforce knowledge of toxic principles. However, there is an overall lack of literature regarding the efficacy of deviating from the traditional lecture format to outdoor settings with active learner engagement.

Education Objectives: Objectives included reinforcing identification and management of common plant-derived toxins, discussing pharmacology and physiology of medications derived from plants, and promoting wellness and creativity in core curricular content.

Curricular Design: The session involved a walking tour of a local botanical garden led by a toxicologist and pediatric EM attending with expertise in toxic plants in which learners identify plants and discuss the physiology of medications and toxins derived from them. Learners completed pre- and post-session surveys containing multiple choice questions related to plant identification, antidotes, and toxic effects, as well as self-reflection questions formatted as a Likert scale to assess comfort level and perceived understanding of toxicology.

Impact/Effectiveness: Of the eighteen participants, the percentage correct of toxicology principles increased to 87% from 47% based on pre- and post-assessments. There was also a 57% increase in confidence level upon completion of the exercise. This active didactic session on

toxic plants in their natural setting led to both increased comfort with identification of poisonous plants and toxin-mediated pathophysiology, as well as enhanced recall of knowledge regarding toxidromes. This session served as an effective and engaging learning experience that deviates from the traditional classroom setting. We hope that this project leads to further outdoor and hands-on didactic sessions in emergency medicine education.

65 Enhancing Resident Preparedness and Interest in Critical Access Hospital Emergency Departments through a Specialized Curriculum

Kjerstin Hensley, Sydney Miller, Robert Calleja, Bophal Hang

Background: Critical Access Hospitals (CAHs) face staffing shortages as most EM graduates pursue urban positions. A MedEd Portal review showed no standardized curriculum training residents for CAH roles. With saturated metropolitan EM job markets and ongoing CAH staffing needs, this study's rural-focused curriculum – including didactics, simulations, and procedural training – aimed to increase residents' interest and preparedness for CAH roles.

Objective: To assess whether a specialized curriculum improves resident preparedness and interest in critical access hospital EDs, we hypothesize that implementing such a curriculum will significantly enhance residents' preparedness and comfort in managing critically ill patients in these environments.

Methods: This prospective study between 2023-2024 included 29 residents in an urban, academic Level 1 Trauma center. The participants were surveyed on their comfort, experience, and interest in rural EM through pre- and post-surveys surrounding a novel 6-month curriculum. The curriculum included lectures on CAH foundations, EMTALA, pharmacology, and rare procedures, supplemented by a solo simulation and hands-on labs for limited-resource stabilization techniques. The training's impact was analyzed post-curriculum with paired t-tests and effect sizes via Cohen's d, with the Shapiro-Wilk test confirming normality and Bonferroni correction setting a 0.0125 threshold.

Results: Comfort in managing critically ill patients in both urban ($p < 0.001$, $d = 1.27$) and rural ($p < 0.001$, $d = 1.05$) settings improved significantly. An increase in comfort speaking with transfer centers ($p = 0.010$) was not significant after adjustment, though the medium effect size ($d = 0.61$) suggested practical relevance.

Conclusions: The curriculum enhanced residents' comfort in managing and stabilizing critically ill patients in urban and rural settings. Improvements in transfer center communication were observed but not statistically significant post-adjustment.

Table 1. Statistical analysis of interventions for critically ill patient management across different settings.

Variable	Mean Difference	t-Statistic	Unadjusted p-value	Adjusted p-value	Conclusion	Effect Size (Cohen's d)
Identifying Critically Ill Patients	0.52	2.166	0.042	0.168	Not Significant	0.47 (Medium)
Managing Critically Ill Patients in Urban Settings	1	5.831	<0.001	<0.001	Significant	1.27 (Large)
Stabilizing Critically Ill Patients in Low-Resource Settings	1.43	4.831	<0.001	<0.001	Significant	1.05 (Large)
Speaking with a Transfer Center	0.95	2.817	0.01	0.04	Not Significant	0.61 (Medium)

66 Crash Course – A Critical Care Curriculum for PGY-1 Emergency Medicine Residents

Tina Anjali Jagtiani, David Simon, Timothy Khowong, Kyle Vincent Soldevilla, Catherine De Guzman

Introduction: The hallmark ability of the Emergency Physician (EP) is to quickly assess a patient in extremis and deploy interventions to save lives. However, there is a lack of formal training in resuscitation for early trainees. To address this, we developed a structured, four-session curriculum with a combination of individualized interactive didactics and simulation to standardize resuscitation training for emergency medicine interns.

Educational Objectives: By the end of the course EM interns will:

1. Describe the pathophysiology of shock
2. Prescribe the correct hemodynamic agent for a patient in shock
3. Identify a physiologically difficult airway
4. Intubate a patient with normal airway anatomy
5. Describe the modes of invasive and non-invasive ventilation
6. Define reversible causes of cardiac arrest
7. Describe indications to cease a resuscitation
8. Conduct a basic goals of care discussion

Curricular Design: The curriculum consists of four 2-hour, 1-on-1 sessions. Prior to the course, interns take a pre-test with Likert scale and short-answer questions. Each session includes a 15-minute simulation followed by a 15-minute debrief, leading into a 90-minute interactive lecture related to the simulation topic. The remaining time is dedicated to supervised procedure practice and addressing questions. The 1-on-1 format promotes psychological safety for intensive learning, while the use of interactive didactics and simulation aligns with learner preferences in emergency medicine. The sequence of cases is scaffolded, building on knowledge from previous sessions. A post-test is administered immediately after the course.

Impact: The course effectively transferred the knowledge, skills, and attitudes needed for EPs in resuscitation, achieving success at Kirkpatrick Levels I and II. To date, 19 learners (n=19) have successfully completed the course. Pre- and post-test results show subjective confidence