

no evaluation of competence, and possible Hawthorne bias.

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

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**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.

**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

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**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

Task (N = 32 Learners)	Completion (%)	Accuracy (1-3 scale)	Timing (seconds)
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)

\* Mean (Min, Max); Learners first had their scores averaged across raters

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