UC Irvine
Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health

Title

Rapid Cycle Deliberate Practice Simulation of Cardiac Arrest Resuscitation as a Single Provider

Permalink

https://escholarship.org/uc/item/1273z9jz

Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 25(3.1)

ISSN

1936-900X

Authors

Polley, Shayne

Iannantone, Ashley

Hase, Travis

et al.

Publication Date

2024-03-24

DOI

10.5811/westjem.20515

Supplemental Material

https://escholarship.org/uc/item/1273z9jz#supplemental

clinical leadership. 3. Equip prospective facilitators with the tools for tailored implementation of the CLC to their programs while ensuring the fidelity of the curriculum.

Design: Our CLC features 10 monthly 1-hour clinical leadership modules and provides facilitator training. Sessions are structured as peer-to-peer discussions during didactics' lunchtime. Facilitators have access to a guide and information for each session (Figure 1), thus reducing preparation efforts and ensuring the fidelity of the CLC delivery. We expanded the curriculum's reach to include EM residents at all postgraduate year levels, transitioned from lengthier end-of-curriculum assessment surveys to shorter ones for each session and have effectively adapted this CLC to an EM audience.

Impact: Data from our assessment surveys reveal positive feedback. Through addressing an important training gap and its ease of implementation, this CLC has gained national traction and is being adopted by an increasing number of programs in various specialties (Figure 2). We remain committed to data collection to assess if any further adjustments are necessary.
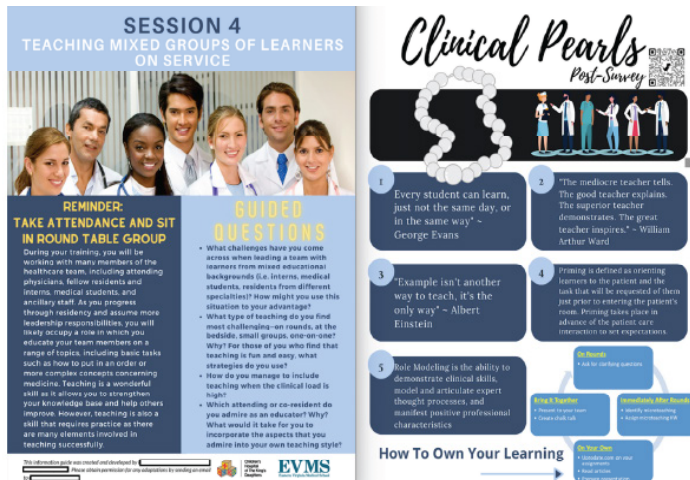

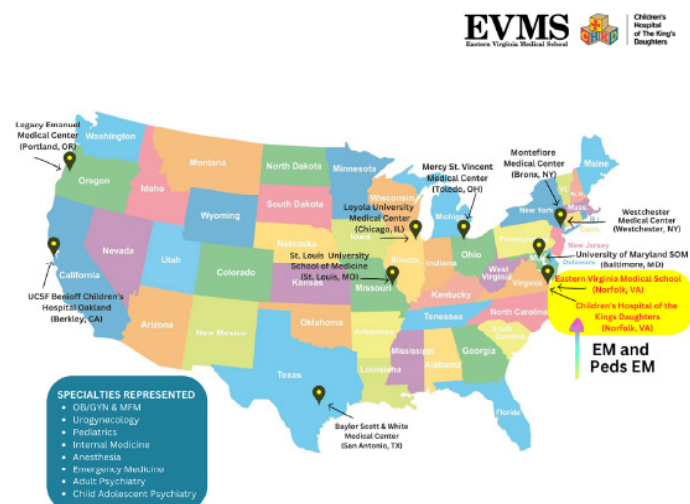**Figure 1**. Facilitator guide example.

Figure 2.

27 Take 5 – Enhancing Education with a Tool for Timely Teaching

Kimberly Alford, Jeremiah Ojha, Allison Schiller

Background: Providing focused and structured teaching for the revolving door of learners in a busy emergency department poses many challenges, most importantly lack of time. Academic attendings have been reported to spend an average of 6% of their shift time teaching, however, with the myriad of other responsibilities, teaching can get lost. While medical students are focused on learning the art of medicine on shift, the reinforcement of core EM concepts is also vital.

Educational Objective: Our project aims to provide and standardize on-shift teaching of core content for medical students using a tangible educational tool. The goal is to improve performance on gastrointestinal (GI) system topics with intent to improve National Board of Medical Examiners (NBME) EM shelf exam scores.

Curricular Design: In 2022 we noted an increase in NBME EM shelf exam failures. Targeting the lower performing subject areas on the exam, Take 5 was developed to deliver high yield content in 5 minutes. We focused on the CDEM curriculum and the EM model of clinical practice. Each card set consisted of 5 cards targeted to one disease process. The cards served as an on-shift aid utilized on the established teaching rotation. The teaching resident began each shift using the cards to guide students through 6 disease processes. The card sets remained in the clinical space and were available for self-directed learning throughout their rotation.

Impact: Take 5 provides a structured educational format that can be used to promote learning, whether guided or self-directed. While the goal was to improve shelf scores, Take 5 was noted to positively impact student and teaching resident perception of education on the rotation. The overall shelf scores did not show statistical improvement, but when Take 5 was used an improvement was seen in the GI subject content area of the exam. Future plans include expanding Take 5 content as well as comparing the effectiveness of guided vs self-directed learning.

28 Rapid Cycle Deliberate Practice Simulation of Cardiac Arrest Resuscitation as a Single Provider

Shayne Polley, Ashley Iannantone, Travis Hase, Matthew Aronson, Ryan McKillip

Introduction: The resuscitation of an acutely ill patient often requires an emergency physician to perform multiple lifesaving interventions while maintaining cognitive focus.

In academic training centers, these responsibilities are frequently divided among multiple medical providers on a team. Yet many residents go on to practice at smaller EDs where they will manage resuscitations as a single provider (SP), creating an important training gap.
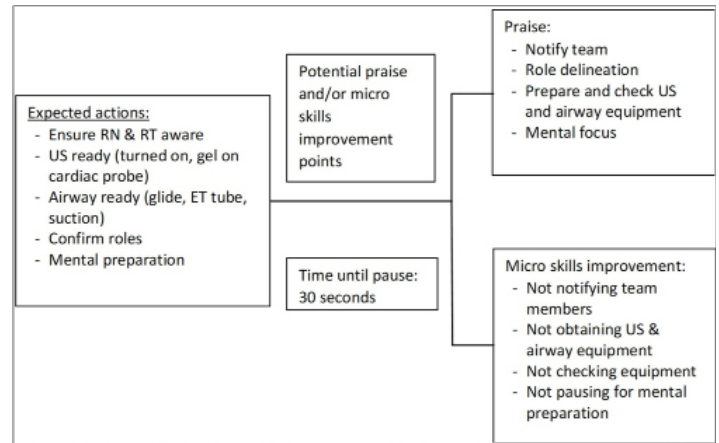
Educational Objectives: Teach residents a systematic approach to cardiac arrest resuscitation as a SP. Residents will use this approach to efficiently obtain a history, examine the patient, assess airway and CPR, and perform ultrasound, all while directing the code.

Curricular Design: We developed a rapid cycle deliberate practice (RCDP) simulation of an adult patient who arrives at the ED in cardiac arrest with pulseless electrical activity. A week before the simulation, the resident is provided an outline for a stepwise approach to managing a cardiac arrest case as a SP (Figure 1). During the simulation, the resident can access U/S and airway equipment. An EM faculty member and a simulation specialist act as supporting ED staff. The case uses a high-fidelity mannequin, a mechanical CPR device, and speakers to simulate the sound of alarms and CPR. Consistent with RCDP technique, portions of the case may be repeated until the resident achieves predefined objectives (Figure 2). A second EM faculty member observes and provides direct feedback throughout the case. After implementation, a didactic on evidence-based cardiac arrest management was added prior to the simulation to aid in focusing the learning during RCDP on the specific mechanics of leading the code.

Impact: Written resident feedback has described the curriculum as a high yield experience which should be offered to all residents before graduation. The RCDP format allows the resident to actively incorporate constructive feedback from faculty in an iterative fashion.

Figure 2. Example RCDP simulation pause point after the first pulse and rhythm check of the case.

Figure 1. A selected portion of the systematic approach to the resuscitation, which is provided as sudy material to each resident prior to the simulation.

29 Validity of a Novel Entrustable Professional Activities Based End of Shift Assessment

Dima Jaber, Elise Lovell, Ryan Tabor, Ravi Chacko, Ryan McKillip

Background: Entrustable professional activities (EPAs) are being introduced in GME as a means for translating ACGME Milestones into clinical practice. To ensure a valid framework for decisions regarding resident advancement, it is critical that EPAs accurately reflect resident competency.

Objectives: Determine if an EPA based assessment of EM residents provides sufficient validity to support its utility for ACGME reporting.

Design: A novel end of shift assessment system was implemented using a set of 22 EM EPAs. Faculty members assessed level of required supervision (entrustment) on a scale of 1 to 5, from "I had to do it" to "I did not need to be there at all," and provided written feedback. Two elements of Messick's validity framework, relations to other variables and internal structure, were used to assess validity. For relations to other variables, mean entrustment levels were compared between PGY classes. Analysis of variance was used to determine if differences in entrustment between classes were significant and demonstrated logical progression. To validate internal structure, because residents were assessed in unequal frequencies across EPAs, data were applied to an unbalanced random-effects model with expected phi-coefficient > 0.3. At the end of the biannual assessment cycle, EPA results were mapped to ACGME Milestones to yield reportable data.

Impact: From February 15 to October 31, 2023, 2,151 assessments were completed by 51 faculty members: 549 for PGY1, 631 for PGY2, and 971 for PGY3 residents. Positive feedback averaged 21.1 words and constructive feedback 16.6. Mean entrustment levels were 3.1 (SD 0.90), 3.8 (SD