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Rapid Cycle Deliberate Practice vs Traditional Simulation Methods in Trauma Team Resuscitations

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prevention (TRVP) interventions at an urban Level 1 Pediatric Trauma Center and Emergency Department.

Methods: We surveyed 70 health providers working in a Level 1 pediatric emergency department over a 6-month period. All participants completed a 12-item survey to assess knowledge, usage, importance, and efficacy of TRVP resources (N=70). A psychometric 5-point scale was used to assess knowledge, usage, importance, and efficacy while free responses captured data on “existing resources, resource barriers, and TRVP areas of improvement”.

Results: The 70 participants consisted of 53 physicians, 12 nurses, 2 ED technicians, and 3 other staff. Of physicians, 74% were residents with 47% in EM residency and 47% in pediatrics. Participant awareness of existing TRVP resources was low, 80% scored a ≤ 3 (of 5). Overall, 67% of participants indicated a moderate to frequent use of TRVP resources. However, nearly 41% of participants reported feeling slightly to not at all confident in activating existing resources. Most participants (90%) agreed that providers should incorporate TRVP into standard youth medical care. Over 88% of participants identified resources as minimally effective at preventing reinjury.

Conclusion: Providers agree that TRVP use should be standard care of for assault injured youth. However, they have limited awareness of resources, low confidence in utilizing resources, and low efficacy rating for existing resources. Further work is needed to train providers on TRVP resources to improve provider utilization.

45 Rapid Cycle Deliberate Practice in Resuscitation: Time to Completion of Critical Actions

Jaron Raper, Katherine Griesmer, Andrew Bloom, Anderson Marshall, Ryan Kraemer, Zachary Pacheco, Stephanie Berger, Andres Viles, Charles Khoury

Background: Simulation training is often used in graduate and undergraduate medical education programs to teach procedural and clinical skills. Rapid cycle deliberate practice (RCDP) is a simulation strategy that utilizes iterative practice and immediate feedback to achieve skill mastery. The impact of RCDP training on adult resuscitation education has yet to be studied.

Objective: Compare the time to completion of advanced cardiovascular life support (ACLS) actions between trainees who have completed immersive sim vs. RCDP sim for ACLS.

Methods: This study was a prospective, randomized, controlled, curriculum evaluation in which 55 ACLS certified Internal Medicine and Emergency Medicine interns were randomized to either RCDP sim or immersive sim. Time to initiating critical ACLS actions was compared between groups. Metrics included time to first pulse check, first chest compression, backboard placement, first rhythm analysis,

first defibrillation, first epinephrine, pause duration, and amiodarone administration. Performance was evaluated and timestamps recorded during an additional immersive sim.

Results: Residents were randomized to instruction by RCDP sim (28) and immersive sim (27). Immersive vs. RCDP groups demonstrated seconds to first pulse check 5.6, 4 (p=0.09), first chest compression 15.2, 12.4 (p=.18), backboard placement 193.4, 40.4 (p=.14), pad placement 74.8, 66.4 (p=.46), initial rhythm analysis 111.2, 73.6 (p=.09), first defibrillation 150.6, 93 (p=.11), first epinephrine 158.2, 131.6 (p=.36), pause duration 14.2, 6.2 (p < 0.05), and amiodarone 376.6, 438.8 (p=.34), respectively.

Conclusions: RCDP learners trended towards earlier completion of ACLS actions compared to their immersive peers in all categories (Chart 1, 2), with a statistically significant reduction in pause duration. Results are limited by the sample size, but given the overall trend, RCDP-trained residents appear to complete ACLS actions more quickly than immersive trained peers.

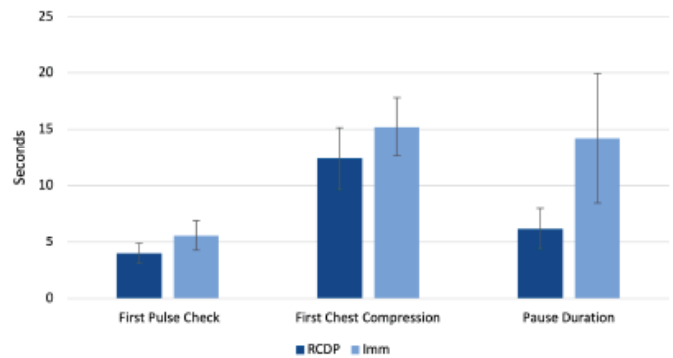


Figure 1. Chart 1: RCDP versus immersive time differences.

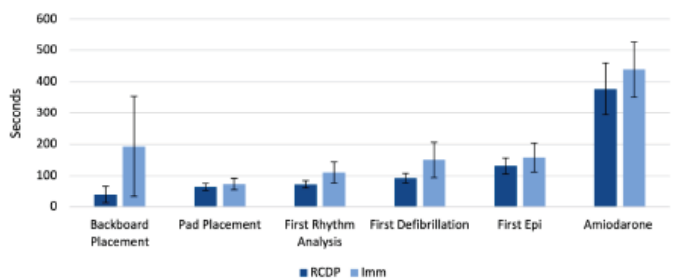


Figure 2. Chart 2: RCDP versus immersive time differences.

46 Rapid Cycle Deliberate Practice vs Traditional Simulation Methods in Trauma Team Resuscitations

Jessica Parsons, Richard Tumminello, Deborah Pierce, Anthony Sielicki, Jacqueline Dash, Chad Siewers

Background: Rapid cycle deliberate practice (RCDP)

is a method in SIM that pauses a scenario for immediate feedback and then rewinds to allow for repetitive practice. It has been shown to improve technical and non-technical skills (NTS), but direct comparisons of RCDP with traditional SIM techniques are lacking.

Objectives: The purpose of this investigation is to compare the efficacy of RCDP versus traditional SIM methods in team trauma resuscitations. We hypothesize that teams who participate in RCDP will display stronger NTS than teams who participate in a traditional SIM session.

Methods: The participants were convenience cohorts of PGY1-4 EM residents who were divided into twelve teams of five. During December 2021 and January 2022, six teams had a trauma scenario followed by a traditional post-scenario debrief and six teams had RCDP of a similar trauma scenario. Participants were surveyed on their perceptions of the SIM experience. Four days later, all teams participated in a video-recorded trauma scenario. NTS displayed by the teams were measured by two independent blinded raters using the non-technical skills scale for trauma (T-NOTECHS).

Results: Sixty residents participated in the SIM sessions and 57 completed the survey. The performance of only four of the RCDP teams and three of the traditional SIM teams were analyzed due to video technical errors. Interrater reliability was good with an intraclass correlation coefficient of 0.69 (95%CI 0.39-0.84). The T-NOTECHS scores had no statistically significant difference between the two types of SIM ($p < 0.18$), however the resident survey responses did favor RCDP over traditional SIM.

Conclusions: There was no significant difference in NTS displayed by teams who underwent RCDP versus traditional SIM. An underpowered sample size likely contributed to these results. Based on resident perceptions, the RCDP had more positive feedback than the traditional SIM approach.

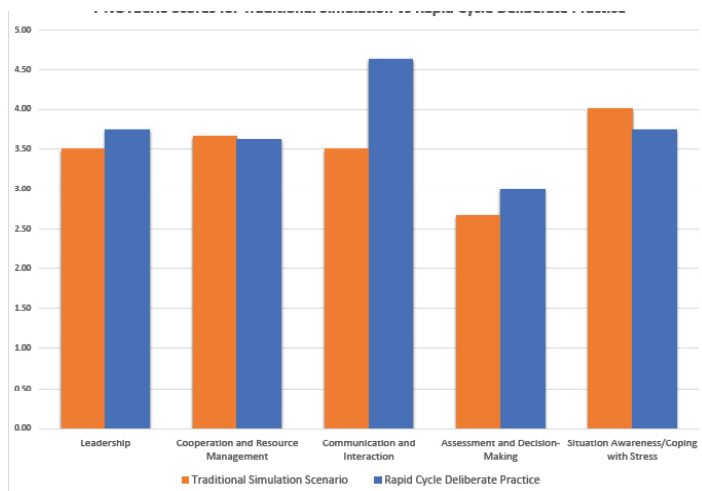


Figure. T-NOTECHS scores for traditional simulation versus rapid cycle deliberate practice.

47 Redesigning Video Laryngoscope Equipment to Improve Preparedness for 1st Pass Intubation Attempts

Marika Kachman, Nathan Olson

Background: Intubation remains a common and critical procedure practiced by EM providers (Stevenson et al. 2007). Several studies have examined how human

Figure 1. Stages of VL tower airway box design.

