

Title: Is Rapid Cycle Deliberate Practice a Superior Teaching Technique for Retention of Basic Resuscitation Knowledge and Skills for Pediatric Interns?

Background: Rapid Cycle Deliberate Practice (RCDP) is a form of simulation debriefing that incorporates repeated cycles of hands-on practice, characterized by within-simulation directed feedback and repeated practice with the goal of mastering a skill. RCDP debriefing has been shown to improve immediate performance, but retention of skills is unknown.

Objectives: To compare RCDP and traditional debriefing for retention of knowledge and skills of basic resuscitation at 3 months after simulation.

Design: All residents underwent two scenarios focusing on basic airway and cardiac arrest management. First year residents were randomized to either the RCDP or the traditional debriefing arm. Knowledge was assessed in a pre/post format at time 0 and at 3 months using a multiple-choice quiz. Skills were assessed via a video recorded simulated scenario prior to an initial simulation session (RCDP vs traditional debriefing) at time 0 and 3 months later. Videos were scored by two Pediatric Emergency Medicine physicians using a resuscitation skills assessment tool including two questions regarding Entrustable Professional Activities, (EPAs). A portion of interns received a “refresher” educational session at 3 months, remaining in their RCDP or traditional debriefing arm. Their skills were assessed again via a video recorded individual simulation scenario and scored using the simulation assessment form before and after the “refresher” session.

Results: There was no statistical difference in knowledge immediately after the simulation, however knowledge retention was statistically higher (3.1%) in the traditional arm compared with RCDP. Baseline skill assessments prior to the simulation was an average score of 18.9/39, or 48.4%. At 3 months skills improved by 17% in the RCDP group and by 7.6% in the traditional group. There was a statistical improvement in “trust” to perform compressions at 3 months in the entire cohort however no statistical change in EPA scores for BMV or difference in EPA scores between the RCDP and traditional groups. In the portion of interns that participated in the 3-month refresher session those in the RCDP group showed greater improvement in skills scores, (15.8%), when compared to the traditional arm, (7.6%).

Conclusion. At 3 months RCDP demonstrates improved retention of skills when compared to the traditional group, however this did not extend to retention of knowledge. The extent of that retention throughout the year and the ideal timing for a “refresher” session remains unknown.