

## Taking a Second to Improve Where Seconds Matter

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John M. Morrison, MD, PhD, Pediatric Hospitalist

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Hoehn and colleagues share their success with reducing the duration of interrupted cardiopulmonary resuscitation (CPR) for children transitioning to the pediatric emergency department (PED) after experiencing an out-of-hospital cardiac arrest (OHCA).

This quality improvement (QI) initiative focused on two areas thought to cause interruptions in the administration of CPR: transition of chest compressions between care teams and the placement of defibrillator pads. Based on baseline data from their institution, Hoehn et al found that chest compressions were discontinued for an average of 17 seconds during the initial two minutes post-transfer of care. The QI team set out to reduce the duration of interruptions in chest compressions to 10 seconds as recommended by the AHA.<sup>1</sup> Secondary outcome measures for the initiative included reducing the longest pause off-chest to 10 seconds or less and the time to defibrillator pad placement to <120 seconds. All resuscitations were video recorded per intuitional protocol and the outcomes metrics were extracted by review of these videos.

Using QI principles, Hoehn and colleagues identified that, among the 10 or more members of the PED resuscitation team, the efforts of patient care assistants (PCAs) performing compressions and paramedics placing the defibrillation pads should be prioritized to minimize interruptions. To accomplish this goal, the intervention, co-led by PCAs and paramedics, focused on: 1) choreographing specific tasks and interactions among the care team during transition, 2) educating PED care team members on the proposed choreography and standardization and 3) training providers on the new process via simulation of the initial two minutes of CPR after transition.

Over the course of 17 months, Hoehn et al measured a decrease of total interruption in chest compressions to 12 seconds in the initial two minutes of CPR after transfer from a baseline of 17 seconds. Although not quite at goal, the QI initiative was also successful at reducing the longest interruption of chest compressions from 14 to 7 seconds. And while the mean time to placement of defibrillator pads remained unchanged during the initiative, the variability in time-to-placement was reduced and occasions with placement occurring after 120 seconds became less frequent suggesting that the process was more standardized as intended. Taken together, these findings suggest that choreographing the transition of CPR from emergency providers outside the hospital to the PED care team can improve the quality of resuscitative care. But like most QI initiatives, the impact of this work extends beyond the outcomes to helping us understand just how one healthcare system addressed a problem that likely other institutions experience. The prioritization of chest compressions and defibrillation for cardiac arrest, as intuitive as it may seem, proves difficult when assuming care for a child arriving to the emergency room. Ensuring these critical actions continue with minimal interruption and prioritizing the input and actions of individuals responsible for these lifesaving tasks is an important step in improving CPR-related outcomes. See for yourself how the success of Dr. Hoehn and colleagues could be implemented at your own institution!

**Reference:**

1. Atkins DL, Berger S, Duff JP, et al. Part 11: Pediatric Basic Life Support and Cardiopulmonary Resuscitation Quality: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (Reprint). *Pediatrics* 2015;136 Suppl 2:S167-75.

- [2019 American Heart Association Focused Update on Neonatal Resuscitation: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care](#)
- [2019 American Heart Association Focused Update on Pediatric Basic Life Support: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care](#)
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