Emergency medical systems (EMS) in the US and Canada struggle to answer the question of whether a policy of intra-arrest transport (ie, scoop and run) is better or worse than a continued on-scene cardiopulmonary resuscitation (CPR) approach (ie, stay and play) for pediatric patients with active CPR during out-of-hospital cardiac arrest. For adults, there is some evidence, concern, and consensus about potential harm associated with intra-arrest transport during CPR.\(^1\) For children, there are few data and wide variability in EMS practice: one-third of policies specify on-scene CPR with transport only after successful return of circulation, one-tenth specify intra-arrest transport, and the majority do not specify when to initiate transport during active CPR.\(^2\) Prior pediatric studies are confounded by small numbers, before-and-after training methods confounded by secular changes over time,\(^3\) and potential confounding by indication (eg, definition of scene time not specific for ongoing CPR).\(^4\)

Thus, the important question of whether to initiate intra-arrest transport vs continuing on-scene CPR during pediatric events with ongoing CPR has not been specifically addressed.

Okubo et al\(^5\) conducted a retrospective cohort analysis of pediatric patients (aged <18 years) with out-of-hospital cardiac arrest using data from the robust 10-site Resuscitation Outcomes Consortium database from the US and Canada (December 1, 2005, to June 30, 2015). They first evaluated the associations of intra-arrest transport vs continued on-scene CPR with survival after pediatric out-of-hospital cardiac arrest. Subsequently, they evaluated whether this association differed according to the timing of intra-arrest transport. Among 2854 patients, 1892 (66.3%) were transported with active CPR in progress vs 962 (33.7%) who were treated with continued on-scene CPR until termination of resuscitation or return of circulation. The median (IQR) interval between EMS arrival and transport (for those transported during active CPR) was 15 (9-22) minutes. Using rigorous time-dependent propensity score and meticulous risk set matching analyses, they found no overall association between early intra-arrest transport and survival to hospital discharge, compared with continued on-scene CPR (87 of 1840 patients [4.7%] vs 95 of 1840 patients [5.2%]; risk ratio, 0.81; 95% CI, 0.59-1.10). However, among matched patients stratified by age younger than 1 year, intra-arrest transport during CPR was associated with lower survival (risk ratio, 0.52; 95% CI, 0.33-0.83). The time-dependent propensity score and risk-set matching analysis approach is important because it addresses the most critical resuscitation time bias, by matching patients who underwent intra-arrest transport with patients who were at risk of undergoing intra-arrest transport at the same total resuscitation time. Time-dependent propensity scores were comprehensive, including factors of patient demographics, arrest characteristics, and EMS interventions, with specific attention to subgroups dichotomized by age of 1 year.

Of course, we have to recognize that the current study was not designed as a definitive comparative effectiveness study of intra-arrest transport vs on-scene CPR policies. In fact, the median (IQR) intervals between EMS arrival and intra-arrest transport were 15 (9-22) minutes for transport vs 22 (16-31) minutes for those in the matched at-risk group, essentially a study of earlier vs later transport of those with refractory cardiac arrest. In addition to the potential confounding by indication based on nonrandomized decisions to transport by EMS personnel, the quality of CPR resuscitation on scene and during transport was not rigorously monitored or reported. Indeed, in the continued on-scene CPR group, only 602 patients (62.6%) received epinephrine and 426 (44.3%) underwent advanced airway management (eg, limited advanced life support basics) before...
transport, in spite of prolonged on-scene CPR. More recent studies⁶,⁷ suggest that CPR quality, coaching, and advanced life support interventions can be safely delivered during intrahospital transport. The authors appropriately acknowledge that transport has safety risks for EMS personnel, patients, and the broader communities.⁸ On the other hand, EMS personnel are uncomfortable and lack evidence guiding termination of resuscitative efforts in the field. Thus, these findings fit well with a pragmatic so-called Goldilocks approach, with a scene time that is not too short (<10 minutes) and not too long (>35 minutes).⁶ Perhaps the adage needs to evolve from scoop and run vs stay and play to scoop and run (not too soon) vs stay and play (not too long) for children in cardiac arrest.

REFERENCES