Medication Errors in Pediatric Patients After Implementation of a Field Guide With Volume Based Dosing.

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Limited data on pediatric medication administration by EMS paramedics suggest significant error rates. Reported error rates for all medications is greater than 30%. In 2015, our hospital-based urban EMS system introduced the Handtevy field guide that provides precalculated pediatric doses in milliliters (mL) by patient age. We hypothesized that implementation of a field guild would reduce pediatric medication errors to less than 15%. We performed a single-center retrospective cohort study of our EMS electronic health reporting software from July 2017 – June 2019. All medications administered to patients ≤ 13 years of age were queried. Our primary outcome was medication error rate defined as administering a dose that differed from the predetermined correct dose by age by greater than 20%. We had a total of 483 drug administrations in 375 patients. Our overall rate of appropriate medication administration rate was 89.4%. 68.5% of doses were perfect doses as dictated by the guide. The 10.6% error rate consisted of 4.3% overdoses and 6.2% underdoes. The following medications had 100% appropriate dosing: epinephrine 1:10,000, adenosine, dextrose 10%, diphenhydramine IM, glucagon, and ODT ondansetron. Fentanyl was dosed correctly in 82.9% (IN) and 87.1% (IV). After implementation of a precalculated mL dose system by patient age for EMS providers, pediatric medications were more frequently administered within the appropriate dose range compared to historical data. Strategies to reduce pediatric medication dosing errors by EMS providers are essential to improving the care of critically ill and injured children.