

Training Matters! How Utah Improved the Documentation of Pre-Hospital Pediatric Vital Signs

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Introduction

Pediatric patients make up approximately 10% of EMS transports across the country, and 12% in Utah. Previous studies have demonstrated pediatric patients often do not have vital signs such as blood pressure (BP) and pulse oximetry (PO) consistently obtained in the pre-hospital setting¹. In certain conditions, such as traumatic head injury and shock, unrecognized hypotension and/or hypoxia have been linked to increased morbidity and mortality^{2,3}. Retrospective Utah EMS data revealed that up to 70% of children, especially infants and toddlers, did not have a blood pressure obtained in the pre-hospital setting. As part of a combined State Trauma and EMS performance improvement project, we monitored how often EMS providers documented four critical pediatric vital signs (BP, heart rate [HR], PO, respiratory rate [RR]) over an 8 year period.

Objective

To evaluate the effect of educational outreach on pre-hospital pediatric vital signs reporting.

Methods

The percentage for captured vital signs was calculated using the total number of patient care reports for pediatric patients with at least one vital sign recorded as the numerator and the total number of patient care reports for pediatric patients as the denominator.

The Bureau of EMS and Preparedness implemented educational outreach interventions to encourage EMS providers to obtain vital signs on pediatric patients. Beginning in June 2010, presentations were delivered to the State EMS for Children (EMSC) coordinators. Additionally, 15 short lectures at other venues across the state emphasizing the importance of monitoring pediatric vital signs were presented by the Bureau's Medical Director. Throughout 2013, a 6-hour training program (including information on performance improvement, the importance of pediatric vital signs, and hands-on practice with helpful ways to obtain vital signs in young patients) was given directly to state EMS providers.

Results

The documentation of the four critical vital signs increased by double digits in all four categories. Measurement of PO increased most consistently across all age groups over time, and providers obtained RR and HR near 90% of the time across all age groups after the educational training. However, blood pressure remained the most inconsistently obtained vital sign, especially in younger pediatric patients, with children <3 years of age having a documented BP in <50% of transports.

Conclusion

In conclusion, EMS providers in the state of Utah improved their practice of documenting four pediatric vital signs between 2007 and 2014. However, obtaining a blood pressure, especially in younger children, continues to be a challenge. Two educational interventions designed to encourage EMS providers to obtain vital signs resulted in an increase in the percentage of pediatric transports with partial vital signs documented. More work remains to reach the State goal of documenting all four vital signs in >90% of pediatric transports.

References

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