Abstract:
Unwanted variation in care is a challenge to high-quality care delivery in any health-care system. Across the Emergency Medical Services for Children (EMSC) continuum, there is wide variation in care delivery for which best practices have demonstrated opportunities to minimize that variation through clinical standards (evidence-based pathways, protocols, and guidelines for care). A model of development of clinical standards is delineated and tools used in that process are described. Implementation strategies for improving utilization are also described with clinical decision support tools being a promising strategy for accelerating uptake of guidelines. Critical to implementing guidelines through improvement science strategies is the ability to make iterative improvements directed by data and analytics. The progression of sophistication in a system's informatics and analytics capabilities is driven by a maturity of data reporting to analytics that drives decision support for implementing clinical standards. Integration of financial data into the clinical standards processes and analytics platforms is necessary to determine value of the work. Within the EMSC continuum, a number of initiatives will drive national clinical standards activities and are fueled by current pockets of successful development and implementation activities within organizations and systems.

Keywords:
Health care; evidence-based; quality; value

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Delivering Value Through Evidence-Based Practice

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Health care organizations and our health care system as a whole should be striving towards achieving high value. All stakeholders in health care delivery systems benefit from increased value including patients, providers, payers, and suppliers who reap benefit from a stable and well-supported system. As value is defined by outputs, measurement and outcomes are critical to demonstrating increased value and driving iterative improvement to achieve even greater value. The relationship of outcomes relative to cost may define value, and this has been popularized as a value equation where value is equal to quality over cost (dollars spent).[1,2]

Quality itself has been defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge."[3] Professional knowledge implies consideration for the best evidence to inform clinical decision-making based on studies and scientific literature with a goal of provision of the right care to the right child at the right time. Evidence-based practice should not be construed to imply that published or high quality scientific evidence is available to inform all clinical questions, rather, that an evidence-based model of care includes consideration for scientific evidence, physician clinical expertise, patient and family values and preferences, clinician preferences, and available resources contextualized to the specific clinical care question for which a recommendation will be derived.[4]

VARIATION AND THE EMERGENCY MEDICAL SERVICES FOR CHILDREN CONTINUUM

The Institute for Healthcare Improvement has suggested a triple aim framework for optimizing health system performance: (1) a better overall patient experience, (2) improving the health of a population, and (3) delivering care at a better value.[5] Application of the triple aim would be relevant for care delivered across the pediatric emergency medicine (emergency medical services for children or EMSC) care continuum. Although thought of as beginning in prehospital or hospital care, the EMSC continuum begins with an incident and involves potentially multiple care venues and providers with ultimate return of the patient to the community and their medical home (Figure 1).

Health care has become increasingly complex, and variation in care delivery has contributed to that complexity and potential gaps in quality. The understanding that unwanted variation is the enemy of quality has been attributed to W. Edwards Deming, statistician, professor, and expert in quality management,[6] and can be applied to any type of care delivery, including that within the EMSC continuum of care. Unwanted variation in health care can contribute to waste, inefficiency and ineffectiveness in providing diagnostic accuracy and therapeutic reliability. Several studies across the pediatric emergency care continuum have described wide variations in practice. In prehospital care, Shah and colleagues described the prehospital transport of 250 actively seizing children to 10 urban EDs in which a wide variation in delivery of medication routes for midazolam were noted with approximately half resulting in dosing errors.[7] Similar variation also has been noted in utilization patterns for trauma specialty care for children with moderate and severe injuries.[8] Although variation in care delivery for children treated in EDs has been well described,[4] the association between this variation with cost and quality is becoming increasingly highlighted. Data from the Pediatric Health Information System, a comparative pediatric database housed in the Children's Hospital Association, was used to assess the management of 3 pediatric conditions treated in 21 hospital EDs (ie, gastroenteritis, asthma, and simple febrile seizures). While wide variation in care was noted, higher costs were not associated with better quality.[9] ED based care also has implications on the quality of care delivered in inpatient settings. One study of children treated on inpatient units for bronchiolitis noted variations in diagnostic testing and management among 16 US hospitals that was unrelated to patient demographics or severity of illness.[10]

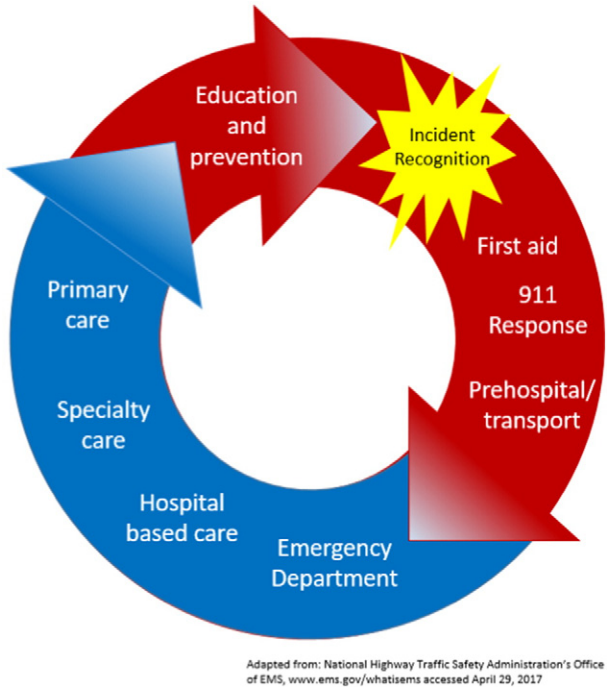

Figure 1. Emergency Medical Services for Children continuum of care.

CLINICAL STANDARDS IN EMSC

Because unwanted variation can exist anywhere in the continuum, a gap in quality can have the net effect of less than optimal outcomes for the child. Aligning care with clinical standards supported by systematic approaches to guideline development will improve the probability that patient populations will receive care based on the most current professional knowledge. Clinical guidelines serve to synthesize available evidence and bridge the gap between science and clinical practice; not through rigid protocol adherence but by a framework for care delivery, thus contributing to efficiency, cost containment, and improved patient outcomes.[11] Clinical standards may refer to pathways, protocols, evidence-based summaries, or full guidelines, and ideally are developed in a patient-/family- centric manner in order to address care across the continuum.

National attention for the need for evidence-based clinical standards for prehospital care has been growing despite the limited research on the direct benefits of existing prehospital evidence-based guidelines (EBGs), mostly because of the wealth of evidence to illustrate their contributions to