Is Your Trauma Center Peds Ready?

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If a 1-year-old child with a viral illness presents to a community emergency department in a remote or rural area, chances are that they will still receive appropriate care for their condition, even if that emergency department rarely cares for children. But what if that 1-year-old child has instead been critically injured in a motor vehicle crash? Will their needs be met? Will the team who typically cares for adults recognize altered mental status in the young, nonverbal child? Will the department have a pediatric intraosseous device to use to provide life-saving fluids or blood if intravenous access attempts are unsuccessful? Will the nurse who must draw up weight-based medications during resuscitation have access to the necessary tools to help prevent the medication errors that can be so easy to make in stressful, unexpected situations, especially when caring for patients who are much smaller than the patients typically treated?

The purpose of this editorial is to update readers regarding the results of some of the most recent data regarding the links between pediatric readiness and pediatric morbidity and mortality in United States emergency departments. A secondary goal is to introduce the readers to some of the major resources and tools available thanks to the National Pediatric Readiness Project (NPRP). Taking advantage of these resources can not only improve an emergency department’s readiness to care for ill and injured children, but can also help prepare an emergency department for regulatory and accreditation visits.1

Linking Pediatric Readiness to Pediatric Outcomes: What the Data Tell Us

Being prepared for pediatric emergencies can be very challenging when you have very limited exposure to pediatric patients. Nevertheless, emergency departments and emergency professionals have both a professional and ethical duty to be prepared to deliver life- and limb-saving care to pediatric patients just as they do for adults.2 The reality is that the vast majority of critically ill and injured children are initially brought to community emergency departments for stabilizing care rather than to a facility with pediatric specialization or expertise.3 This underscores the importance of having standardized national guidelines for pediatric preparedness. A study published in 2019 by Ames et al4 sought to link pediatric preparedness to outcomes. This study was based on the 2013 NPRP Assessment and examined outcomes for over 20 000 critically ill children who presented to 426 US hospitals. Results confirmed that after adjusting for age, chronic complex conditions, and illness severity, presentation to a hospital in the highest NPRP pediatric readiness quartile was associated with decreased odds of in-hospital mortality (adjusted odds ratio compared with the lowest quartile: 0.25; 95% confidence interval: 0.18–0.37; P < .001).

Injury remains the leading cause of death for children age 1 to 18 years, yet the initial care of most injured children also takes place in emergency departments primarily designed and equipped to treat adults.5 The results of recent studies have shown that even trauma centers are inconsistent in their level of readiness to care for children.6,7 For example, while the majority of trauma centers have a tool to use for precalculated pediatric drug dosing, many lack other important parameters such as recording pediatric weights in kilograms only and the presence of a quality improvement process that includes pediatric-specific metrics.6

A recently published study of injured children brought to 832 emergency departments in US trauma centers was the first to dig deeper and evaluate the association between
pediatric readiness of emergency departments verified as trauma centers (as per the 2013 NPRP nationwide assessment), in-hospital mortality, and in-hospital complications.7 In the study of over 372,000 injured children, receiving initial care in an emergency department that had a pediatric readiness score within the highest quartile of readiness was associated with 42% lower odds of death. The authors concluded that if all the children included in the study had been treated in emergency departments in the highest quartile of readiness, an additional 126 lives (95% confidence interval 97-154 lives) might have been saved in each of the 6 years for which data were collected.7 That is over 700 children’s lives that might have been saved if the trauma centers had all invested the time and resources required to better prepare for stabilizing pediatric emergency care! On the basis of the results of the 2013 NPRP national assessment survey, we learned that many US emergency departments were not adequately prepared to quickly stabilize critically ill or injured children.8 Now we also know that just because an emergency department is a verified trauma center doesn’t mean that it is adequately prepared to stabilize critically ill and injured children. Not surprisingly, we’ve learned through our professional networks that leaders in several states are considering incorporating the NPRP assessment or significant NPRP criteria as they revise their trauma rules used for verification.

Even in the absence of pediatric specialists, general or mixed age emergency departments, including low patient volume departments in remote or rural areas, can help ensure more equitable care for ill and injured children by taking advantage of the many resources that have been created by the NPRP. Recommended measures include establishing a nurse and physician pediatric emergency care coordinator (PECC), being proactive in providing pediatric emergency nursing education, stocking specific, potentially life-saving pediatric equipment, and participating in pediatric-specific quality improvement initiatives.7 What role can emergency nurses play? Perhaps one of the most important ones. The presence of a PECC has been identified as the single most important factor that influences the readiness of any emergency department that cares for pediatric patients.10 The 2018 American Academy of Pediatrics Committee on Pediatric Emergency Medicine and Section on Surgery, American College of Emergency Physicians Pediatric Emergency Medicine Committee, and Emergency Nurses Association Pediatric Committee Joint Policy Statement, “Pediatric Readiness in the Emergency Department,”9 identified the presence of 2 PECCs, one a physician and one a nurse, as central to the readiness of any emergency department that cares for children. Guidance for the recommended qualifications and responsibilities of PECCs are included in this joint statement. An Internet link for this Joint Statement can be found in the resource list for this article. Depending on an emergency department’s pediatric volume, a PECC may not require a full-time equivalent and may even be shared through formal agreements with other emergency departments.

Navigating the NPRP Resources

In case you have not discovered them yet or, like me, you sometimes find all the acronyms associated with the NPRP a bit confusing, let me recommend 2 valuable, free resources available to all emergency departments. The NPRP ED checklist, a tool that can be used for improving your emergency department’s pediatric preparedness, and the National Pediatric Readiness Quality Initiative platform (NPRQI) can be found at the corresponding Internet link in the reference list.1,11 See the Box for additional resources. The NPRQI was created with a focus on community and rural emergency departments. It represents the implementation arm of the NPRP and is designed to allow individual emergency departments, regardless of size, to participate in larger quality improvement initiatives with evidence-based pediatric-specific metrics. Emergency departments that participate in the NPRQI can enjoy many benefits, including the following:

- Assessment of current pediatric emergency care delivery and tracking performance over time
- Ability to assess performance across 28 standardized pediatric quality measures (system and clinical conditions)
- Benchmarking performance with similar hospitals
- Optimization of care on the basis of current available resources
- Annual reports to share with hospital/ED leadership regarding quality, patient safety, and risk mitigation
- Fulfilling requirements for Pediatric Medical Recognition in your state/territory
- Accreditation by state/regulatory agencies
- Value-based care reimbursement and reporting.1

A Shout Out for Pediatric Preparedness During the Pandemic

Being prepared for pediatric patients can be challenging, but it becomes an even greater challenge when faced with a global pandemic. I would like to give kudos to emergency departments such as the one at Boston Children’s Hospital for their excellent work to meet the unique needs of their
pediatric patients and staff during the coronavirus disease 2019 (COVID-19) pandemic. The more prepared an emergency department is at usual or normal operational levels (if there is such a thing), the more prepared they will be when the unexpected occurs, whether that be a natural disaster, a school shooting, or a global pandemic. “Implementing a Novel Nursing Site Manager Role in the Pediatric Emergency Department for Patient and Staff Safety during the COVID-19 Pandemic,” published in this current issue of the Journal of Emergency Nursing (JEN) described the way the Boston Children’s Hospital emergency department pivoted quickly at the onset of the pandemic to meet the specialized needs of their multidisciplinary staff during this time, while ultimately also benefiting their pediatric patients.

Many infants and young children will not tolerate a face mask and will touch everything in reach, regardless of whether they are sick or not. To put it mildly, young children rarely understand, care about, or cooperate with infection control, and during the pandemic, everyone, of every age, was suddenly a possible vector for COVID-19. Developmentally appropriate behavior as an infection control risk represented major challenges to emergency departments that cared for pediatric patients during the pandemic, when having patients wear masks and cleaning all surfaces well between patients became higher priorities for all patients (not just those on isolation) than in any other time in recent history. This emergency department, already well-prepared to care for pediatric patients in normal noncrisis operations, was able to focus their attention and resources on meeting the educational, safety-related, and psychosocial needs of their staff during this unique time. This is exceptional as many emergency departments were in full crisis mode, forgoing any quality improvement initiatives. Schmid and Downey’s results demonstrated an instance wherein caring for staff was also doing what was best for patients. It ultimately resulted in more effective, patient-centered, and safe patient care during an unprecedented time in health care.

Closing Thoughts

Widely adopted standards for stroke and ST-segment elevation myocardial infarction care have decreased morbidity and mortality for those conditions, just as the development of trauma centers has significantly reduced preventable deaths caused by injury. Unfortunately, national standards do not exist for pediatric emergency care, and pediatric preparedness among US emergency departments is uneven as a result. Because injury is the leading cause of death for children aged 1 to 18 years, increasing the pediatric readiness of our nation’s trauma centers can play a major role in the effort to improve the outcomes of injured pediatric patients. The infographic included within this editorial (Appendix), “Improve Your ED’s Readiness to Care for Children,” was developed by the Emergency Nurses Association to serve as a visual summarizing key points for emergency departments that seek to ensure that they are prepared for children regardless of how infrequently those children present for care and regardless of where they are located.

Resources


REFERENCES


Appendix

Improve Your ED’s Readiness to Care for Children*

Competency in Pediatric Care
Ensure members of the healthcare team have the skills and knowledge to treat children of all ages and developmental stages:
- Periodically evaluate pediatric-specific competencies, including triage, medication administration, procedures, disaster preparedness, and handoff communication
- Use observation, written tests, and/or chart reviews
- Emergency Medicine or Pediatric Emergency Medicine board certification and pediatric emergency nursing certification is strongly encouraged

Quality and Performance Improvement (QI/P)
Implement a QI/P plan that includes monitoring of outcomes-based pediatric-specific indicators:
- Integrate multidisciplinary QI/P activities with:
  - Prehospital agencies
  - Inpatient pediatrics
  - Trauma/injury prevention programs
  - Pediatric critical care
- Use the Plan, Do, Study, Act method:
  - Systematically review, identify, and mitigate variances in pediatric emergency care

Administration and Coordination for Care of Children
Identify Pediatric Emergency Care Coordinators (PECCs) to coordinate delivery and evaluation of pediatric care in the ED:
An emergency physician and emergency nurse with demonstrated clinical competence and expertise in pediatric emergency care

Support Services for the ED
Ancillary services should have skills, equipment, and capability to provide care to pediatric patients:
- Radiology departments
  - Develop protocols based on age and size of patients to reduce radiation exposure
- Clinical laboratories
  - Facilitate testing for all ages of patients
  - Ensure availability of microtechnology for small and limited samples
  - Have transfer protocols for pediatric patients who exceed laboratory capabilities

Pediatric Patient and Medication Safety
Establish a culture of safety and educate staff in pediatric-specific safety considerations:
- Weigh all patients in kilograms, ideally with scales locked in kilograms
- Take full set of vital signs
- Use weight-based dosing
- Provide for cultural sensitivities, interpreter services, and family-centered care
- Implement patient identification policies
- Monitor/evaluate patient safety events

* Based on the 2018 AAP/ACEP/ENA Joint Policy Statement, “Pediatric Readiness in the Emergency Department.”

Available at https://d1w2w5dpzdk1u.cloudfront.net/pdf/a54dc899-4ca2-4f58-95e6-090570002295.pdf