Pediatric READINESS IMPLEMENTATION GUIDE

Version 3 – July 2024

WISCONSIN
Emergency Medical Services for Children
Children's Health Alliance of Wisconsin

www.chawisconsin.org

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Wisconsin Emergency Medical Services for Children (WI EMSC)

Children are not just small adults! They are anatomically and physiologically different, requiring specialized equipment and training for their emergency care. The National Emergency Medical Services for Children (WI EMSC) program is the only federal program focused on improving the quality of emergency care for children. It focuses on reducing child and youth mortality and morbidity resulting from severe illness or trauma. In 2013, the Wisconsin Department of Health Services called upon Children's Health Alliance of Wisconsin to lead the EMSC state partnership program in Wisconsin. We work to meet the national EMSC performance measures related to improving pre-hospital and emergency care for kids.

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Pediatric Readiness

What is the National Pediatric Readiness Program (NPRP)?

Most sick and injured children (82.2% of children in 2016[1]) seek initial emergency care at the community emergency department (ED) in closest proximity to where they live. Because of this, it is critical that all EDs have the appropriate resources, capacity and trained staff to provide effective emergency care for children. Is your department pediatric ready?

The National Pediatric Readiness Program (NPRP) assessment is a tool your ED can use to measure your level of pediatric readiness and to aid in identifying gaps that may exist in your preparation to provide pediatric emergency care. The assessment addresses essential domains of preparedness identified by the 2018 American Academy of Pediatrics Policy Statement – Pediatric Readiness in the Emergency Department. These domains include:

- Administration and Coordination of Care of Children
- Physicians, Nurses and Other ED Staff
- Quality Improvement
- Pediatric Patient Safety in the ED
- Policies and Procedures
- Equipment and Supplies Management

While a total of 100 points are available, the questions are not weighted equally; readiness factors felt by expert consensus to be more impactful in a facility were assigned a larger point value.

From May 1, 2021 – Aug. 31, 2021, the National EMS for Children Data Analysis Resource Center (NEDARC) conducted a nationwide effort to assess each EDs pediatric score. Your ED nurse manager, or alternative ED staff person, received an invitation to complete an online version of the NPRP assessment. Following assessment completion, your ED received a Weighted Pediatric Readiness Score and a Gap Analysis Report. These reports provide an understanding of the ways in which your department meets and falls short of the nationally recommended guidelines necessary to care for injured or ill children of all ages.

How do we take the NPRP assessment?

The 2021 NPRP assessment period has closed. However, you can download a sample PDF version of the assessment to identify and review gaps in pediatric readiness for your ED. Please note the following about this version:

- It parallels the questions from the 2021 assessment
- It shows point totals for those questions that determine your readiness score
- It can help you to generate your ED's readiness score for your own records and purposes
- It **cannot** be submitted to the NPRP for scoring or comparison to previous assessments

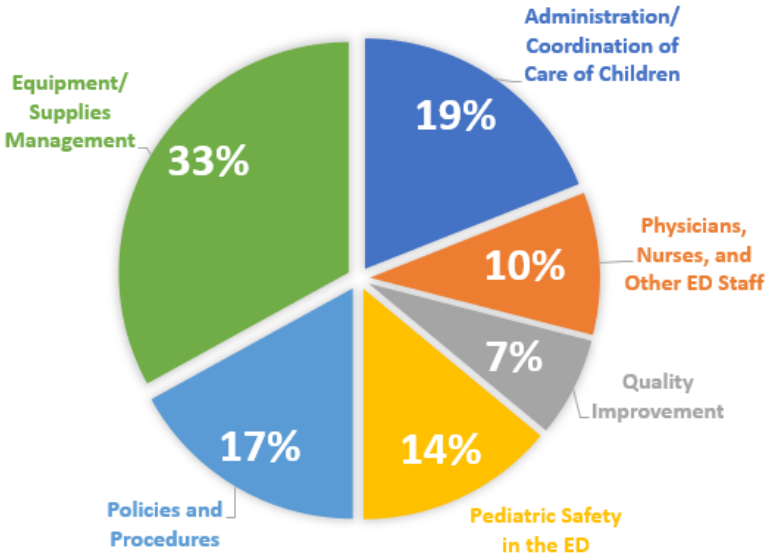
How is our NPRP score determined?

An individual EDs NPRP score is determined by the total score achieved on the assessment across all domains of preparedness. The total possible score is 100. The relative contribution of each preparedness domain to the total score is described in Figure 1.

What does our score mean?

Your EDs Weight Pediatric Readiness Score is a raw value representing the total score achieved out of the 100 points possible based on your responses to the NPRP assessment questions. This provides an objective and measurable snapshot of your department's state of readiness to provide emergency care for children.

FIGURE 1: BREAKDOWN OF NPRP SCORE TOTAL BY SECTION



You will receive a Pediatric Readiness Assessment Gap Report detailing your raw score, the national average of departments with similar pediatric volumes, the overall national average score and an analysis of all questions by section. Table 1 shows an example of Weight Pediatric Readiness Scores (WPRS) for EDs who responded to the NPRP assessment.

TABLE 1: Example of Weight Pediatric Readiness Scores: Overall and by Pediatric Volume

	OVERALL (N=170)	LOW PEDS VOLUME (N=63)	MEDIUM PEDS VOLUME (N=56)	MEDIUM-HIGH PEDS VOLUME (N=28)	HIGH PEDS VOLUME (N=23)
MEAN	71.8	70.1	72.8	77.6	88.9
MEDIAN	89.3	67.5	76.4	78.5	90.5

Outcomes from Improved Pediatric Readiness

Since 2020, there have been multiple publications that have demonstrated the benefits of improved pediatric readiness in many domains including medical, trauma and even disparity.

https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2807059?resultClick=1

Emergency Department Pediatric Readiness and Disparities in Mortality Based on Race and Ethnicity | Equity, Diversity, and Inclusion | JAMA Network Open | JAMA Network

https://journals.lww.com/annalsofsurgery/abstract/9900/the_association_between_pediatric_readiness_and.671.aspx

https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2800400

https://jamanetwork.com/journals/jamasurgery/fullarticle/2788568

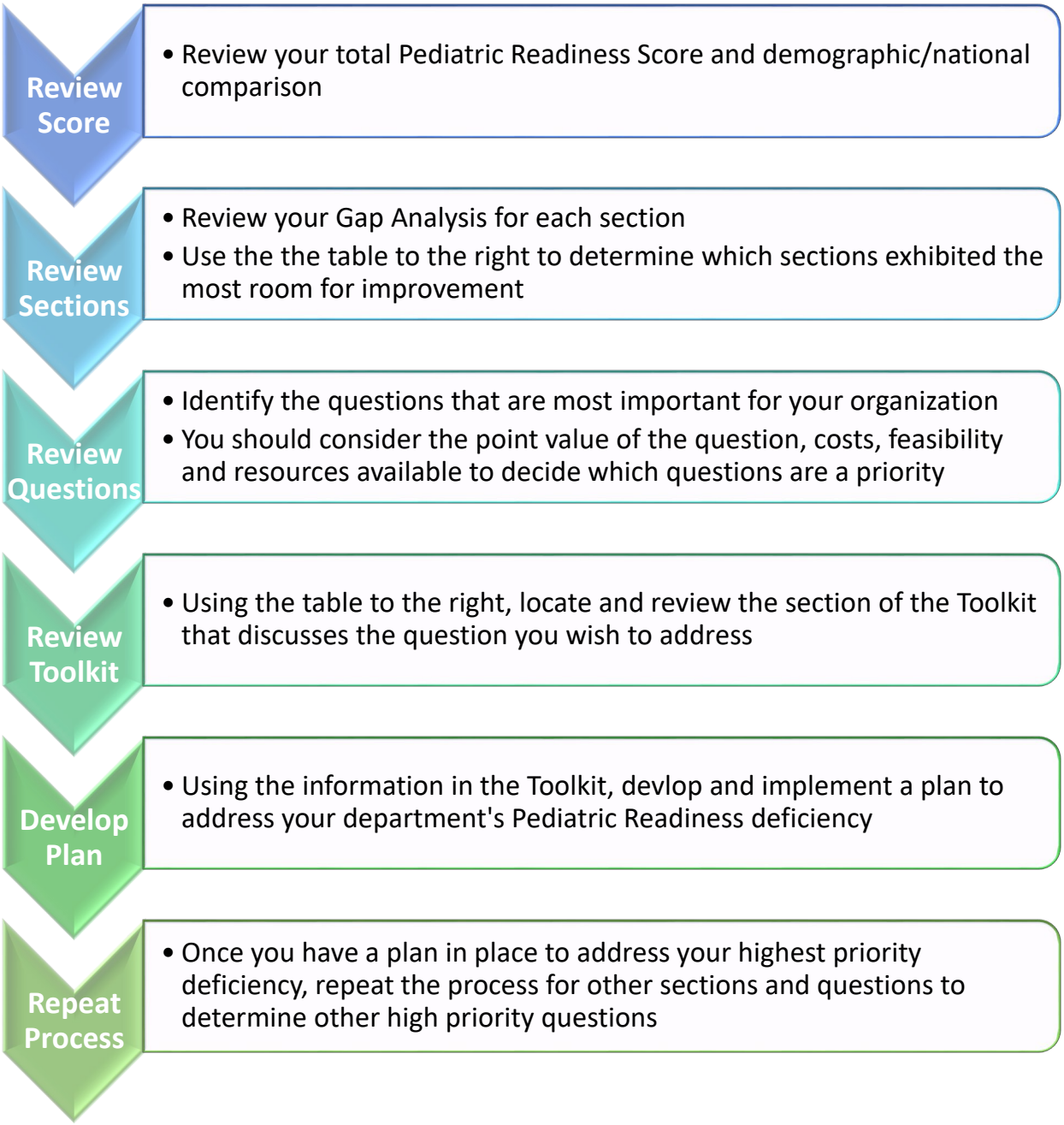
https://jamanetwork.com/journals/jamapediatrics/fullarticle/2780353

How do you use this Toolkit?

This Toolkit is intended to be a question-by-question reference, organized in the same manner as the Pediatric Readiness assessment. It is not meant to be read from beginning to end. Instead, it is organized so that you may review the sections and questions that are most important for you and your department, to address and maximize your NPRP score and pediatric preparedness.

For each NPRP question, there is a corresponding one- or two-page description in the Toolkit. Each page restates the NPRP question, provides the rationale behind the question and indicates essential and supplemental activities that will satisfy the question's requirements. Additional resources such as policy statements, sample policies and procedure descriptions, along with evidence-based research, are included at the conclusion of each section.

To use this Toolkit, please follow these instructions.



Administration and Coordination of Care

This section contains resources regarding qualifications and responsibilities for the physician and nursing Pediatric Emergency Care Coordinator (PECC) staffing your Emergency Department (ED).

This section is worth a total of 19 points

9.5 points if a pediatric physician coordinator is established

9.5 points if a pediatric nurse coordinator is established

NPRP Questions #22-#24 (9.5 points) – Pediatric Physician Coordinator

22. Does your Emergency Department (ED) have a physician coordinator- sometimes referred to as a pediatric emergency care coordinator (PECC) or pediatric champion – who is assigned the role of overseeing various administrative aspects of pediatric emergency care (e.g. oversees quality improvement, collaborates with nursing, ensures pediatric skills of staff, develops and periodically reviews policies)?

Rationale: Importance of the ED Physician Coordinator

An analysis of the 2013 National Pediatric Readiness Program (NPRP) Assessment found that EDs with a designated physician coordinator were more 'ready' than those EDs who did not have one identified. Based on the 2013 assessment, 47.5% of all EDs have a physician coordinator and 59.3% have a nurse coordinator. The presence of both nurse and physician coordinators is strongly correlated with improved pediatric readiness, independent of other factors.[1]

Defining, identifying and supporting a physician to specifically oversee pediatric care in your department is key in improving your Pediatric Readiness. This is one of the more important areas of the Readiness Assessment.

This coordinator does not need to be an individual dedicated solely to this role, although he/she **could** be, if your ED has a high pediatric volume. Many EDs have identified a physician with a special interest in care of children to assume this role as a part of their existing duties. In the Resources section below, you'll find documents outlining Roles and Responsibilities for physician coordinators. These responsibilities were taken from the 2018 Joint Policy Statement – Pediatric Readiness in the Emergency Department.[2] The role responsibility documents can be crafted into simple role guidelines or formal job descriptions, depending on the needs of your ED.

Essential Requirements

To fulfill this question, your department must have an identified pediatric physician coordinator. While establishing this role within a department requires time and effort, it can return big dividends in both pediatric readiness scores as well as in clinical outcomes. It is important to recognize that this role is heavily weighted (i.e., almost 10% of the total score) in the NPRP. Departments without an existing physician coordinator can raise their readiness score considerably by defining, establishing and staffing this position. A sample description of a pediatric physician coordinator can be found in the Resources section below.

Supplemental Information (NPRP Questions #23 and #24)

While not required by the NPRP (i.e., no points are awarded for these questions), questions #23 and #24 address both the professional time allotted to physician coordinators to accomplish tasks specific to this responsibility and the departments. It stands to reason that physician coordinators who are provided with professional time to coordinate the pediatric efforts of the department will be more effective in this role and we advocate this model wherever possible. Physician coordinators may supervise the pediatric efforts of a single ED, or they may be given that responsibility for several departments within a given health system or geographic area to take advantage of economies of scale. Should a physician coordinator supervise more than one department, it is essential that he/she has an understanding of the specific challenges of pediatric emergency care, the pediatric capacity and the knowledge and skills of providers in each individual department, so that planned approaches are appropriate for each ED.

Resources

Emergency Medical Services for Children Innovation and Improvement Center (EIIC) ED NPRP Toolkit

How to Initiate the Conversation on Acquiring a Pediatric Champion

Sample Pediatric Coordinator Job Description

Citations

1. Gausche Hill M, Ely M, Schmuhl P, Telford R, Remick K, Edgerton E, Olson L. *National Assessment of Pediatric Readiness of Emergency Departments*. JAMA Pediatrics. 2015 Jun; 169(6): 527-34.
2. American College of Emergency Physicians; Emergency Nurses Association; American Academy of Pediatrics Joint Policy Statement, "Pediatric Readiness in the Emergency Department." 2018.

NPRP Questions #25-#27 (9.5 points) – Pediatric Nurse Coordinator

25. Does your Emergency Department (ED) have a nurse coordinator—sometimes referred to as a pediatric emergency care coordinator (PECC) or pediatric champion—who is assigned the role of overseeing various administrative aspects of pediatric emergency care (e.g., facilitates continuing education, facilitates quality improvement activities, ensures pediatric specific elements are included in orientation of staff)?

Rationale: Importance of the ED Nurse Coordinator

The Institute of Medicine (IOM) recommends regionalized systems of care and that hospitals and EMS systems appoint qualified coordinators for pediatric emergency care.[1] EDs that appoint these positions tend to be in better compliance with pediatric emergency care guidelines published by the American College of Emergency Physicians (ACEP) and American Academy of Pediatrics (AAP) and the Emergency Nurses Association (ENA).[2] The 2019 policy statement by ENA entitled, "The Emergency Nurse's Role in Supporting Pediatric Readiness in the Emergency Department," states that identification of a pediatric nurse coordinator is central to the readiness of any ED that cares for pediatric patients.[3]

Defining, identifying and supporting a nurse to specifically oversee pediatric care in your department, is key to improving your Pediatric Readiness. This is one of the more important areas of the Readiness Assessment.

This coordinator does not need to be an individual dedicated solely to this role, although he/she **could** be, if your ED has a high pediatric volume. Many EDs have identified a nurse with a special interest in care of children to assume this role as part of their existing duties. In the Resources section below, you'll find documents outlining Roles and Responsibilities for nurse coordinators.

Essential Requirements

To fulfill this question, your department must have an identified pediatric nurse coordinator. The role may be filled by either a Registered Nurse (RN) or Nurse Practitioner (NP). While establishing this role within a department requires time and effort, it can return big dividends in both Pediatric Readiness scores as well as in clinical outcomes. It is important to recognize that this role is heavily weighted (i.e., almost 10% of the total score) in the NPRP. Departments without an existing nurse coordinator can raise their readiness score considerably by defining, establishing and staffing this position. A sample description of a pediatric nurse coordinator can be found below in the Resources section.

Supplemental Information (NPRP Questions #26 and #27)

While not required by the NPRP (i.e., no points are awarded for these questions), questions #26 and #27 address both the professional time allotted to nurse coordinators to accomplish tasks specific to this responsibility and the departments. It stands to reason that nurse coordinators who are provided with professional time to coordinate the pediatric efforts of the department, will be more effective in this role and we advocate this model wherever possible. Nurse coordinators may supervise the pediatric efforts of a single emergency department or they may be given that responsibility for several departments within a given health system or geographic area to take advantage of economies of scale. Should a nurse coordinator supervise more than one department, it is essential that he/she should have an understanding of the specific challenges of pediatric emergency care, the pediatric capacity and the knowledge and skills of providers in each individual department, so that planned approaches are appropriate for each ED.

Resources

Emergency Medical Services for Children Innovation and Improvement Center (EIIC) ED NPRP Toolkit

How to Initiate the Conversation on Acquiring a Pediatric Champion

Sample Pediatric Coordinator Job Description

Sample Pediatric Nurse Coordinator Job Description (Appendix A)

Citations

1. Institute of Medicine, "Committee of the Future of Emergency Care in the US Health System. Emergency Care for Children: Growing Pains." Washington, DC: National Academies Press; 2006.
2. American College of Emergency Physicians; Emergency Nurses Association; American Academy of Pediatrics Joint Policy Statement, "Pediatric Readiness in the Emergency Department." 2018.
3. Emergency Nurses Association Position Statement, "The Emergency Nurse's Role in Supporting Pediatric Readiness in the Emergency Department." 2019.

Physicians, Advanced Practice Providers (APPs), Nurses and Other Emergency Department (ED) Health Care Providers

This section contains resources regarding the necessary skills, knowledge and training in emergency evaluation and treatment of children of all ages among staff in your ED

<u>This section is worth a total of 10 points</u>

2.5 points for pediatric competencies in physician credentialing
2.5 points for maintenance of certification in physician credentialing
2.5 points for pediatric competencies in ED nurse credentialing
2.5 points for maintenance of specialty certification for ED nurses

NPRP Questions #28-#33 (5 points) - Physicians

30. Does your hospital have a policy for physician credentialing that requires pediatric-specific competencies for working in the ED (e.g., continuing education requirements, maintenance of board certification, hospital specific competency evaluations)?

32. [Is] maintenance of board certification [required]?

Rationale: Importance of the Pediatric-Specific Competencies in Physician Credentialing

As team leaders, ED physicians play a critical role in ED team performance and patient care. While it may be unrealistic to staff your ED 24/7 with physicians who are board certified in Pediatric Emergency Medicine, there are optional approaches to ensure the highest level of pediatric emergency care with available resources. Alternative to board certification in pediatric emergency medicine, physicians in your ED may be board-eligible or board-certified in Emergency Medicine, Pediatrics, Family Medicine or other specialized training which prepares physicians to provide pediatric care. Another critical element is presence of a policy for physician credentialing which requires pediatric-specific competencies for working in the ED – specifically continuing education requirements, maintenance of board certification and hospital-specific competency evaluations, such as those required for sedation and analgesia privileges.

While physicians from many different specialties can competently practice in your department, it is essential that those who manage pediatric emergencies obtain and maintain ongoing pediatric-specific competencies as part of hospital credentialing.

Essential Requirements

To fulfill both these requirements, your department must incorporate pediatric-specific competencies into your hospital credentialing for physicians who work in the ED **and** maintenance of specialty certification must be a requirement for credentialing. Specific pediatric competencies are not stipulated and you may decide which to include in their credentialing process. Examples of pediatric-specific competencies may include pediatric continuing education requirements, maintenance of certification, or pediatric competency evaluations. To fulfill the maintenance of certification requirement, you must include ongoing certification of each physician's primary specialty board in the credentialing for all ED physicians.

Supplemental Information (NPRP Questions #28, #29, #31, #33)

While not required by the NPRP, an ED staffed 24/7 by board-certified physicians who maintain pediatric competencies (regardless of primary specialty) will have improved pediatric readiness and capability to care for ill and injured children. If 24/7 physician coverage is not practical for your department, we heavily recommend physician coverage that aligns with days and times in which pediatric visits are concentrated based on your department's census patterns(typically evenings and weekends).

Additionally, while the NPRP does not specify which pediatric competencies hospitals are to include as part of their ED physician credentialing, you may consider the pediatric-specific training certifications in the following resource section that are recommended for ED physicians without primary certification in emergency medicine.

Resources

Pediatric Basic Life Support (PBLS)

Pediatric Advanced Life Support (PALS)

Advanced Pediatric Life Support (APLS)

Neonatal Resuscitation Program (NRP)

International Trauma Life Support (ITLS) (formerly Basic Trauma Life Support)

Advanced Trauma Life Support (ATLS)

NPRP Questions #34-#37 (5 points) – Registered Nurses

34. Does your hospital have a policy for nurse credentialing that requires pediatric-specific competencies for working in the ED (e.g., continuing education requirements, maintenance of specialty certifications, hospital specific competency evaluations)?

36. Does your hospital require maintenance of specialty certification for nurse credentialing (e.g., CEN, CPEN)?

Rationale: Importance of the Pediatric-Specific Competencies in Nurse Credentialing

Nurses are critical members of the ED team and must have current knowledge in pediatric emergency care to respond to emergencies in children. A critical element in preparing nurses to care for children is the presence of a policy for nurse credentialing that requires pediatric-specific competencies for working in the ED, specifically continuing education requirements, maintenance of specialty certification and hospital-specific competency evaluations. Nurses who receive and maintain training specific to the care of ill and injured children, contribute to a department that is better prepared to respond to pediatric emergencies. Incorporating those trainings and/or continuing education into your hospital credentialing requirements, will ensure that essential nurses maintain the knowledge and skills required for pediatric emergency care.

While registered nurses can competently practice in your department, it is essential that those who manage pediatric emergencies obtain and maintain ongoing pediatric-specific competencies as part of hospital credentialing.

Essential Requirements

To fulfill both these requirements, your department must incorporate pediatric-specific competencies into your hospital credentialing for nurses who work in the ED ***and*** maintenance of specialty certification must be a requirement for credentialing. Specific pediatric competencies are not stipulated and you may decide which to include in your credentialing process. Examples of pediatric-specific competencies may include pediatric continuing education requirements, maintenance of specialty certification, or pediatric competency evaluations. Your nurse credentialing process must include a maintenance of specialty certification component to fulfill the NPRP requirement.

Supplemental Information (NPRP Questions #35, #37)

While the NPRP does not specify the specialty certification or the pediatric competencies hospitals are required to include as part of their ED nurse credentialing, you may consider the following emergency- or pediatric-specific training certifications that are recommended for ED nurses without primary certification in emergency medicine:

1. Maintenance of Specialty Certification
    a. Certification of Emergency Nursing (CEN)
    b. Certification of Pediatric Emergency Nursing (CPEN)
2. Pediatric-Specific Training Certifications
    a. Emergency Nurses Pediatric Course
    b. Pediatric Basic Life Support (PBLS) (e.g., Healthcare Provider CPR certification or Basic Life Support)
    c. Pediatric Advanced Life Support (PALS) or
    d. Advanced Pediatric Life Support (APLS)

   e. Neonatal Resuscitation Program (NRP)
   f. International Trauma Life Support (ITLS) (formerly Basic Trauma Life Support)
   g. Advanced Trauma Life Support (ATLS)
   h. Pediatric-specific continuing medical education
3. Examples of Hospital-Specific Competency Evaluations
   a. Pediatric triage
   b. Pediatric assessment

NPRP Questions #38-42 (0 Points) – Advanced Practice Providers

Rationale: Importance of the Pediatric-Specific Competencies in Advanced Practice Providers

Advanced Practice Providers (APP) have recently become critical members of the care team for many EDs and must possess current knowledge in pediatric emergency care. A critical element in preparing APPs to care for children is the presence of a policy for credentialing that requires pediatric-specific competencies for working in the ED - specifically continuing education requirements, maintenance of specialty certification and hospital-specific competency evaluations. APPs who receive and maintain training specific to the care of ill and injured children contribute to a department that is better prepared to respond to pediatric emergencies. Incorporating those trainings and/or continuing education into your hospital credentialing requirements, will ensure that essential APPs maintain the knowledge and skills required for pediatric emergency care.

Essential Requirements

None. While APPs provide a valuable service in the ED, they do not have a required role in the NPRP.

Supplemental Information (NPRP Questions #38-42)

While the NPRP does not specify the national specialty certification or the pediatric competencies you are required to include as part of APP credentialing, you may consider the following emergency- or pediatric-specific training certifications that are recommended for APPs without primary certification in emergency medicine:

1. Maintenance of National Specialty Certification
    a. Emergency Certificate of Added Qualifications (CAQ) Physician Assistant
    b. Pediatric CAQ Physician Assistant
    c. Acute Care Nurse Practitioner
    d. Emergency Nurse Practitioner
    e. Pediatric Nurse Practitioner
2. Pediatric-Specific Training Certifications
    a. Pediatric Basic Life Support (PBLS) (e.g., Healthcare Provider CPR certification or Basic Life Support)
    b. Pediatric Advanced Life Support (PALS) or
    c. Advanced Pediatric Life Support (APLS)
    d. Neonatal Resuscitation Program (NRP)
    e. International Trauma Life Support (ITLS) (formerly Basic Trauma Life Support)
    f. Advanced Trauma Life Support (ATLS)
    g. Pediatric-specific continuing medical education

Quality Improvement

This section contains resources regarding the integration of pediatric patient care-review processes into the Quality Improvement (QI)/Performance Improvement (PI) plan of your Emergency Department (ED).

This section is worth a total of 7 points

1.4 points for each of the following:

- Patient care review process
- Identification of quality indicators for children
- Collection of pediatric emergency care data
- Improvement plans for pediatric emergency care
- Using outcome-based measures

NPRP Questions #43-44 (7 points) – Quality Improvement

43. Does your ED have a Quality Improvement/Performance Improvement Plan for pediatric patients? (e.g., chart review, collection of pediatric emergency care data, development of a plan to improve pediatric emergency care)

44. If yes, are each of the following components included in the Quality Improvement/Performance Improvement Plan?

a. Patient care review process (i.e., chart review) (1.4 points)
b. Identification of quality indicators for children (1.4 points)
c. Collection and analysis of pediatric emergency care data (1.4 points)
d. Development of a plan for improvement in pediatric emergency care (1.4 points)
e. Re-evaluation of performance using outcomes-based measures (1.4 points)

Rationale: Importance of Quality Improvement in Pediatric Emergency Care

Quality Improvement (QI) is a process in which pediatric coordinators and department leadership undertake systematic and continuous action intended to lead to measurable improvements in healthcare services (processes) and health status (outcomes).[1] Employing QI methods to address necessary improvements in pediatric care within your ED and documenting its impact, are essential in developing pediatric readiness.

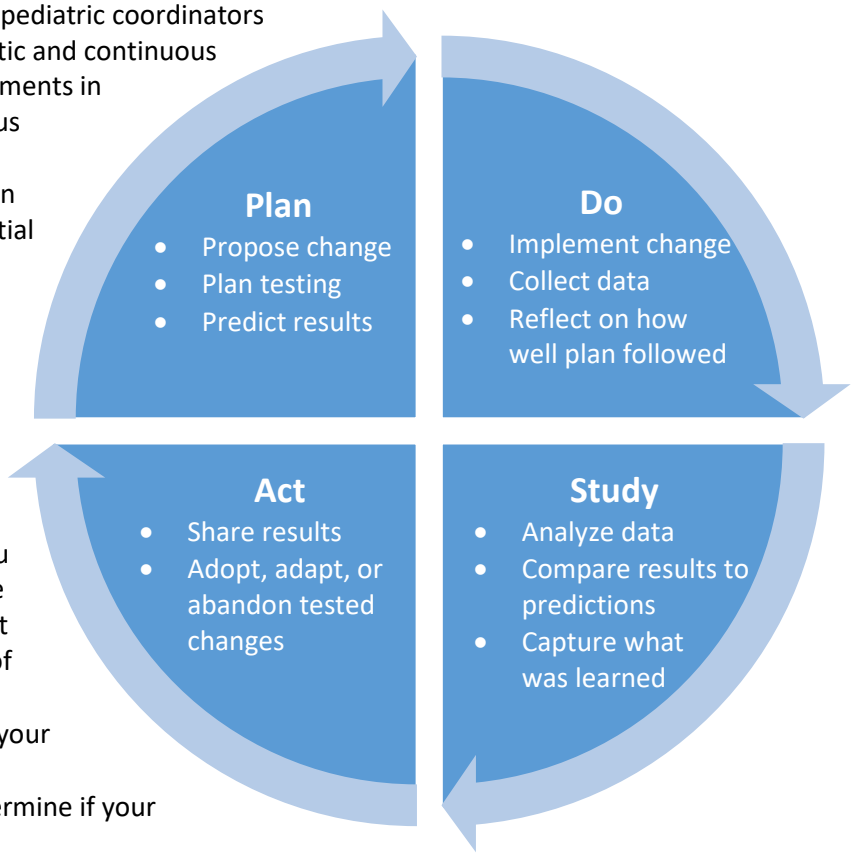


Figure 1 The PDSA Cycle

Initiating QI processes may seem daunting, however, it is possible to begin quality work with a small amount of effort. At the heart of QI methods, is the PDSA cycle (Plan-Do-Study-Act, Figure 1).

- The process begins by identifying an aspect of pediatric emergency care that you would like to improve and selecting a single change in your department's processes that plausibly will improve the selected aspect of care. (i.e., Plan)
- Then you implement the change and track your desired outcomes (i.e., Do)
- Next you analyze the data collected to determine if your change had the desired impact. (i.e., Study)
- Finally, you decide to permanently adopt your change, adapt or make modifications to your change, or to abandon the change altogether based on your observed results (i.e., Act)

Once a PDSA cycle is complete, you may make another change to improve your selected outcome or choose a different outcome.

Basic QI methodology and practices can dramatically improve pediatric emergency care. The Institute of Healthcare Improvement (www.ihi.org) offers a variety of training and courses for those interested in improving their QI capacities.

Essential Requirements

For the NPRP, the first requirement is to have a QI plan in place. While there are no points awarded for this question, it is a prerequisite to the follow-up questions that constitute all the points for this section. Those follow-up questions include the essential components of a QI plan for pediatric emergency care. To be awarded all possible points, your QI plan must include: 1) a care review process, 2) identified pediatric-specific quality indicators, 3) ongoing collection and analysis of pediatric-specific quality data, 4) pediatric-specific QI plan and 5) ongoing re-evaluation based on observed data.

Supplemental Information

High-yield, pediatric-specific, quality improvement plans that you may consider implementing in your department include:

- Measuring and documenting weight in kilograms for patients < 18 years of age
- Instituting a method to identify age-based abnormal pediatric vital signs
- Ensuring necessary pediatric equipment is stocked and maintained
- Supporting the role of on-site pediatric coordinator
- Improving parent/caregiver understanding of discharge instructions
- Decreasing door to provider time
- Decreasing total length of stay time
- Reducing pain in children with acute fractures
- Reducing the number of children with minor head trauma who receive a head CT
- Instituting a protocol for suspected child maltreatment
- Improving the use of systemic corticosteroids in children with acute asthma exacerbation
- Implementing an evidence-based management plan for bronchiolitis
- Reducing the use of antibiotics in children with viral illnesses
- Reducing return visits within 48 hours resulting in admission
- Reducing medication error rates

Resources

Webinar: Pediatric Readiness Data: An Opportunity to Improve Quality of Care in Your Emergency Department

White Paper: Quality Improvement in Emergency Medical Services for Children

Emergency Department Pediatric Performance Measures Toolkit

Pediatric Patient Safety in the Emergency Department

This section contains resources for process needed to maintain pediatric patient safety in your Emergency Department (ED)

This section is worth a total of 14 points

Weighing all children only in kilograms (1.5 points)
Recording all weights in kilograms (1.5 points)
Obtaining standard vital signs in all patients (1 point)
Obtaining other vital signs based on severity of illness (2.5 points)
Process to notify abnormal vital signs to physicians (3 points)
Process for the use of pre-calculated drug dosing (3 points)
24/7 interpreter service (0.5 points)
Assessing mental status and pain in all children (1 point)

NPRP Questions #45 and #46 (3 points) – Weighing in Kilograms

45. Are all children seen in the ED weighed in kilograms (without conversion from pounds)? (1.5 points)

46. Are all children's weights recorded in the ED medical record in kilograms only? (1.5 points)

Rationale: Importance of Weighing all Pediatric Patients in Kilograms

The medication error rate in pediatric patients is estimated to be as much as three times the rate in adult patients. Clear strategies are essential in reducing these preventable adverse events, especially in a high-risk ED setting. Main causative factors include lack of standard pediatric drug dosing and formulations, weight-based dosing, a hectic environment with frequent interruptions, a lack of clinical pharmacists on the ED care team, the use of information technology systems that lack pediatric safety features and numerous transitions in care. Only 10%-13% of medication errors are reported in a pediatric EDs with 13% of these causing patient harm. At four rural EDs in northern California, they found pediatric med error at a rate of 39%, with 16% of these errors having the potential to cause harm.

The majority of medical errors in pediatric care are drug dosing errors. Ensuring that weights for all children are obtained and recorded *only* in kilograms is essential to reducing medication dosing errors.

Pediatric patient medication is weight-based, making accurate weight measurement and documentation a critical first step in avoiding dosing errors. Majority of weight measurements are obtained in pounds and converted to kilograms prior to documentation. In addition, all medication doses must undergo weight based calculation and conversion to volume. Due to errors associated with this calculation, pediatric medication errors tend be 2-100 times more than the correct dose. The highest risks for medication errors occur during pediatric resuscitations. Data suggest 25% of errors are due to "confusion between pounds and kilograms; and simply having the option to weigh in either unit contributed to wrong weight entries." A single incorrect weight or conversion error may lead to multiple medication dosing errors. Therefore, weighing and documenting only in kilograms should be the standard method.

Essential Requirements

To fulfill this requirement, your ED must have a process to ensure that all pediatric patient weights are **measured** and **recorded** in kilograms only. The requirement is direct measurement in kilograms, not to measure in pounds and convert to kilograms. This is important, if not the most critical step, in the reduction of medication dosing errors in pediatric patients in the ED. Transition to kilograms may be a difficult culture change, however, it is the single most evidence based change your ED can make to enhance medication safety for pediatric patients.

Supplemental Information

There are a handful of approaches to address this challenge. Recommended interventions and strategies, shared by summit presenters, include:

- Leadership and medical staff buy-in is integral
- Collect and track weight-based errors via an incident reporting system
- An organizational guideline specific to weighing patients in kilograms needs to be developed and communicated
- Educate all clinical staff, patients and families

- Change all scales' default settings to kilograms; disable pounds/ounces
- Replace scales that do not weigh in kilograms
- Maintain scales and make sure they are calibrated correctly
- Post laminate conversion charts for sharing weight in pounds to patients
- Change paper forms from pounds to kilograms
- Different electronic health record (EHR) systems throughout the organization make standardization difficult; one integrated system helps put the patient first

During critical situations where weighing patients may be difficult, a weight estimate system may be utilized. There are a handful of available methods including Mercy and PAWPER, but Broselow and parental estimates are most commonly used.

Beyond only using kilograms as the standard measurement, there are other interventions recommended to ensure medication safety in children. They include optimization of Computerized Physician Order Entry (CPOE) by using clinical decision support, electronic processes to check dose, dosage schedule, drug interactions, allergies and duplicate therapies, along with embedding templates or clinical pathway order sets with alert systems.

Resources

American Academy of Pediatrics Statement of Endorsement: Weighing All Patients in Kilograms

National Pediatric Readiness Project Key Points on Medication Errors

Emergency Nurses Association Position Statement: Weighing All Patients in Kilograms

The Joint Commission – A Best Practice in Kilograms

Wells M, Goldstein LN, Bentley A. The accuracy of emergency weight estimation systems in children-a systematic review and meta-analysis. *Int J Emerg Med*. 2017;10(1):29.

NPRP Questions #47, #48, #49, and #50 (3.5 points) – Vital Signs

47. Are temperature, heart rate, and respiratory rate recorded on all children? (1 point)

48. Is blood pressure monitoring available for children of all ages based on severity of illness? (1 point)

49. Is pulse oximetry monitoring available for children of all ages based on severity of illness? (1 point)

50. Is end tidal CO2 monitoring available for children of all ages based on severity of illness? (0.5 points)

Rationale: Importance of Obtaining Complete Vital Signs in All Children

Obtaining, interpreting and acting on pediatric vital signs (VS) present challenges to care teams tending to pediatric patients. As a result, accurate measure and effective use of VS in children may be lacking in certain care settings. The first of the many challenges is obtaining accurate VS from a child, especially infants and toddlers. These include selection of an appropriately sized blood pressure cuff and the knowledge and skill to obtain an accurate respiratory rate (a full minute endeavor to account for an infant's periodic breathing tendency). Second, skillful soothing of irritable or frightened children is necessary to obtain an accurate and reliable initial triage assessment. Third, interpretation of vital signs in children is complex. Again, highlighted by our youngest children, small changes in age will have profound influence on the acceptable range of a child's normal vital sign values - reflecting the rapidly changing physiology from infancy through adolescence. Fourth, the developmental limitations of patients make both core vital signs and key triage data points such as a pediatric patient's pain assessment or mental status a challenge to obtain and interpret.

Normal ranges for pediatric vital signs differ from those of adults. Having policies and procedures in place to identify and alert physicians of abnormal vital signs in children is essential to rapidly identify children at risk for physiologic deterioration.

Essential Requirements

To fulfill this requirement, your ED must have policy or guidelines in obtaining a full set of VS including heart rate, respiratory rate and temperature on all patients. There must also be policy or guidelines on obtaining blood pressure, pulse oximetry reading and end tidal CO2 measurements as clinically indicated.

Supplemental Information

In addition to obtaining full vital signs, knowing the normal range of vitals for different sizes and ages of children is crucial. Your ED should have (and routinely use) established normal VS ranges for children.

	Infant (0-12 months)	Toddler (1-2 years)	Preschool (3-5 years)	School (6-11 years)	Adolescent (12-18 years)
Pulse	110-165	100-140	80-125	70-110	60-100
Respiratory Rate	30-60	35-45	20-30	16-25	12-20
Systolic Blood Pressure	70-100	85-105	90-110	95-115	100-120
Temperature (Celsius)	36-38	36-38	36-38	36-38	36-38
Temperature (Fahrenheit)	96.8-100.4	96.8-101	96.8-101	96.8-101	96.8-102
Pulse Oximeter	>95%	>95%	>95%	>95%	>95%

While not required by NPRP, utilization of the Emergency Severity Intervention (ESI) score is recommended in addition to a patient's chief complaint, which incorporates VS in a patient's triage level. This score both predicts the level of intervention a patient may require and has shown to predict the ultimate disposition of the patient.

Obtaining, interpreting and acting on pediatric VS may present challenges. As a result, accurate measure and effective use of VS in children may be lacking in certain care settings. In order to obtain accurate VS from a child, your ED staff should be familiar with selection of appropriately sized blood pressure cuffs. They should also possess knowledge and skill to obtain an accurate respiratory rate for an infant's periodic breathing tendency. They should also be skilled in soothing irritable or frightened children. In addition, they should understand the developmental limitations of patients – making both core vital signs and key triage data points such as a mental status and pain assessment.

Resources

Validity of Different Pediatric Early Warning Scores in the Emergency Department

Sample Template for Measurement of Vital Signs in the Emergency Department

Emergency Nurses Association Non-Invasive Blood Pressure Measurement

Emergency Nurses Association Non-Invasive Temperature Measurement

Emergency Nurses Association Synopsis of Non-Invasive Blood Pressure Measurement: Description of Decision Options/Interventions and the Level of Recommendation

NPRP Question #51 (3 points) - Notification of Abnormal Vital Signs

51. Is there a process in place for notification of physicians when abnormal vital signs are found? (3 points)

Rationale: Awareness of Abnormal Pediatric Vital Signs

Even when abnormal VS are recognized, delays in intervention may occur due to several factors.[1] For example, provider knowledge gaps in the importance of tachycardia in predicting a child's decompensation from septic shock, the difficulty in obtaining IV access in sick children, the lack of a patient's cooperation, or the need to provide family centered care. A process that consistently and reliably informs abnormal VS to the providers is critical. Finally, a child's state can change rapidly, underscoring the importance of a prompt reassessment of this challenge. As such, recognition, notification and intervention of abnormal VS are a crucial element of emergency care of children in the ED setting.

Normal ranges for pediatric vital signs differ from those of adults. Having policies and procedures in place to identify and alert physicians of abnormal vital signs in children is essential to rapidly identify children at risk for physiologic deterioration.

Essential Requirements

To fulfill this requirement, your ED must have set normal parameters for all VS based on age. When abnormal VS are obtained, there must be a consistent and reliable notification process to the providers in a timely fashion for immediate interventions.

Supplemental Information

Although not specified by NPRP, once abnormal VS are recognized, there are a handful of methods that can be utilized to notify providers. Manual notification of the physician by the ED tech or nurse may be used, or the process can be automated using electronic medical records software to notify the physician as soon as the VS are deemed abnormal. A prime example is an electronic sepsis alert which monitors for tachycardia, hypotension, fever and hypothermia – it then triggers a Best Practice Advisory (BPA) for providers to intervene.

	Infant (0-12 months)	Toddler (1-2 years)	Preschool (3-5 years)	School (6-11 years)	Adolescent (12-18 years)
Pulse	110-165	100-140	80-125	70-110	60-100
Respiratory Rate	30-60	35-45	20-30	16-25	12-20
Systolic Blood Pressure	70-100	85-105	90-110	95-115	100-120
Temperature (Celsius)	36-38	36-38	36-38	36-38	36-38
Temperature (Fahrenheit)	96.8-100.4	96.8-101	96.8-101	96.8-101	96.8-102
Pulse Oximeter	>95%	>95%	>95%	>95%	>95%

Resources

Emergency Department Triage of Patients

Validity of Different Pediatric Early Warning Scores

Citations

1. Valentino K, Campos GJ, Acker KA, Dolan P. Abnormal Vital Sign Recognition and Provider Notification in the Pediatric Emergency Department. J Pediatr Health Care. 2020 Nov-Dec;34(6):522-534.

NPRP Question #52 (3 points) – Pre-calculated Medication Dosing

52. Is a process in place for the use of pre-calculated drug dosing in all children? (3 points)

Rationale: Safety of Pre-Calculated Medication Dosing for Children

As mentioned above in questions 45 and 46, reducing medication errors in children starts with weighing and documenting in kilograms, but it requires much more. Medication dosing for children varies greatly between medications and it requires calculation for each medication to be administered. This calculation is a great source of potential medication error, especially in critical clinical situations in the ED setting. Therefore, development and utilization of pre-calculated dosing of medication based on weight, not only is simple and reduces stress, but significantly reduces dosing errors. In addition, adding a pharmacist with pediatric competency to the ED team (especially in large EDs), during times of higher volume, is a great measure in reducing medication errors in children.

Medication dosing must be based on a child's weight (in kilograms). Pre-calculated medication dosing tools that present the volume of medication to be given based on a given weight, remove the possibility of calculation errors and lead to accurate dosing in a larger proportion of children.

Essential Requirements

To fulfill this requirement, your ED must have weight based or color based pre-calculated medication dosing guidelines/references, especially when caring for critically ill pediatric patients.

Supplemental Information

The most common method used to estimate weight of a child and dosing medication is Broselow Pediatric Resuscitation system that utilizes color-coded assigned weight categories to simplify dosing calculations. The 2019 version has specific dosing in **volume** for most emergent medications to eliminate any weight-based calculations. The Broselow system is now available in electronic format as eBroselow.

Other measures include adding a pharmacist with pediatric competency to the ED team, especially in large EDs, during times of higher volume. Comprehensive measures should include:

- Identifying the administration phase as a high-risk practice (e.g., the simple misplacement of a decimal point can result in a 10-fold medication error)
- Promote distraction-free zones for medication preparation
- Implement computerized physician order entry and clinical decision support
- Kilogram-only dosing rules
- Including upper dosing limits within ED information systems
- Automated allergy alerts for all prescribed medications
- Development of standardized order sets for high-risk medications (opioids and antibiotics)
- Implement an independent 2-provider, cross-check process for high-alert medications
- Create a standard formulary for pediatric high-risk and commonly used medications
- Standardize concentrations of high-risk medications
- Reduce the number of available concentrations to the smallest possible number

Resources

Medication Emergency Dosing and Intervention Cards

Sample Pediatric Quick Dosing Reference

SafeDose Tool for Eliminating Errors in Medication Administration

NPRP Question #53 (0.5 points) – 24/7 Interpreter Service

53. Is process in place that allows for 24/7 access to interpreter services in the ED? (0.5 points)

Rationale: The Need for Interpreter Services in Pediatric Care

All healthcare services should integrate health literacy concepts and skills, including the use of plain language, the teach-back method, pictograms and lower-literacy instructions. During acute care or life-threatening situations in the ED, the need for clear communication between patient/family and providers is critical in providing basic lifesaving interventions. This requires 24/7 resource availability for language interpreter services, in-person or virtually. In addition, all services provided should be culturally and linguistically appropriate and the ED should provide an environment that is safe for children and supports patient- and family-centered care. Navigating health care events with linguistic and literacy limitations is very stressful. With this resource in place, families can be informed of patients' rights and responsibilities from the perspective of safety. The utilization of bilingual relatives or friends as interpreters is not recommended.

Language barriers provide the same challenges when caring for children and their families as in adult patients. Having access to interpretative services for those who lack English proficiency is essential to providing the best and safest care.

Essential Requirements

To fulfill this requirement, your ED should have 24/7 interpreter services available, utilizing in-person or telehealth options.

Supplemental Information

Although not required by NPRP, your ED should have a policy or guideline that integrates health literacy concepts and skills, including the use of plain language, the teach-back method, pictograms and lower-literacy instructions. This clear communication between patent, family and providers is not only necessary for appropriate medical care, but it fosters a safe environment that supports patient- and family-centered care – allowing a shared decision making process for those who have linguistic and literacy limitations.

Resources

Medical Language Access Solutions for Care Delivery, EMSC Innovation and Improvement Center

NPRP Question #54 and #55 (1 point) – Other Vital Information

54. Is level of consciousness (e.g., AVPU or GCS) assessed in all children? (0.5 points)

55. Is level of pain assessed in all children? (0.5 points)

Rationale: Assessment of Pediatric Mental Status

Evaluation of mental status is the first of the three components in the pediatric assessment triangle and is the first step in initial evaluation of any critically ill or sick patients in emergency settings. This assessment is recognized in every emergency training including BLS, PALS, NRP and ATLS. However, mental status assessment and documentation are often not required elements of standardized initial assessment such as VS. Recognition of altered mental status in an ill child can have a profound impact on the timing of interventions in the ED and outcome of the patient.

Assessment of mental status and pain severity in children is important in their emergency care. Policies that address these assessments are an essential part of Pediatric Readiness.

Additionally, pediatric pain assessment has been a challenge for a long time due to its difficulties and lack of priority. Despite recent onslaught of evidence, the barrier to appropriate pediatric pain assessment and management remains. Pain assessment is a recommended element of initial assessment of all patients and should be included in the initial assessment of all children seen in emergency settings.

Essential Requirement

To fulfill this requirement, your ED must have a policy requiring assessment of mental status as initial assessment during triage phase. In addition, this policy should also include pain assessment to be a part of any triage or initial assessment.

Supplemental Information

Common triage systems such as the Emergency Severity Index (ESI), or the Canadian or Australian Triage system have mental status or level consciousness components within their criteria. However, these triage systems do not specifically require documentation of mental status assessment. In addition to vital signs, specific documentation of mental status should be in place using the Glasgow Coma Scale (GCS) or Alert, Voice Pain, Unresponsive (AVPU) system in every patient.

Pain assessment is often a challenge and requires education along with specific guidelines in pain assessment methods. Pain is, by nature, a subjective experience making clinical standard for pain assessment a self-report scale. Simple numerical scales, such as verbally grading pain from 0 to 10, are often used with adults, but this technique may be accurate in older children with moderate to severe pain. Children as young as 3 years are able to report their own pain level and the revised FACES pain scale, the Wong-Baker Faces scale and the 10-cm Visual Analog Scale can be used. For those who are unable to use self-report scales, behavioral scales such as Face, Legs, Activity, Cry and Consolability (FLACC) or Neonatal Infant Pain Scale (NIPS) are recommended.

Resources

Behavioral Scale for Scoring Postoperative Pain in Young Children

FACES Pain Rating Scale

Pediatric Pain in the Emergency Department

Fein JA, Zempsky WT, Cravero JP, The Committee on Pediatric Emergency Medicine and Section on Anesthesiology and Pain Medicine, Shaw KN, Ackerman AD, Chun TH, Conners GP, Dudley NC, Fuchs SM, Moore BR, Selbst SM, Wright JL, Banninster CF, Tobias JD, Anderson CTM, Goldschneider KR, Koh JL, Polaner DM, Houck CS; Relief of Pain and Anxiety in Pediatric Patients in Emergency Medical Services. *Pediatrics.* 130(5): e1391-e1405; 2012 Nov.

Intravenous and Intraosseous Access in Infants and Children

- Peripheral Intravenous Line Placement video (OPENPediatrics)
- Infant IV (EMSC Innovation & Improvement Center) – Infant IV Placement
- Infant IV (EMSC Innovation & Improvement Center) – Four Steps to Owning the Infant
- Pediatric IV/IO (EMSC Innovation & Improvement Center)
- DIY: How to Create an IV/IO Training Model (EMSC Innovation & Improvement Center)
- Tips for Parent/Caregiver when a Child needs a Needle Poke (EMSC Innovation & Improvement Center)

Policies and Procedures

This section contains resources necessary to establish pediatric-specific policies and procedures in your Emergency Department (ED)

This section is worth a total of 17 points

Pediatric Triage Policy (2 points)
Pediatric Patient Assessment and Reassessment (1.5 points)
Immunization Assessment (1.5 points)
Child maltreatment (1.5 points)
Death of a Child in the ED (1.5 points)
Reduced-dose Radiation for CT and X-rays (1.5 points)
Behavioral Health Issues (1.5 points)
Family-Centered Care Policy (2 points)
Pediatric Disaster Preparedness (2 points)
Written Transfer Guidelines for Children (2 points)

NPRP Question #56 (2 points) – Pediatric Triage Policies

56. Does your ED have a triage policy that specifically addresses ill and injured children? (2 points)

Rationale: Importance of Pediatric-specific Triage Policies

Triage is a critical process in the ED. While there is definitely overlap in the emergency care of children and adults, pediatric patients will present your ED with chief complaints, pathophysiology and normal vital sign ranges that distinctly differ from adult patients. The Emergency Nursing Association endorses maintenance of qualifications and competency in patient triage that includes specific training and education in trauma, pediatrics and cardiac care triage. Being prepared to appropriately triage children of all ages, ensures that the severity of a child upon presentation to the ED will be accurately assessed and allows for prioritization of care to the sickest children first.

Emergency triage is the first opportunity for emergency providers to influence care. Those who triage children in the ED must be proficient at rapid identification of children at risk for rapid deterioration for acute illness or injury.

Essential Requirements

To fulfill this requirement, your ED must have a triage policy that utilizes a standard, valid and reliable system to identify patients at high risk, which is based on severity of illness and injury, physiologic state and the risk or suspicion of critical illness and injury. This policy must include pediatric complaints that would be considered high risk (e.g., neonatal fever) and account for normal Vital Sign (VS) parameters in children that may differ from adults.

Supplemental Information

Once a specific pediatric triage policy is established, it is important to train and maintain competencies in application of the policy. A valuable tool in the rapid assessment of children in the ED is the Pediatric Assessment Triangle (PAT) (Figure 2). This tool, developed by the American Academy of Pediatrics, relies on three easily observable physical exam elements that can assist in rapid identification of critically ill and injured children. The three components of the PAT are Appearance, Work of Breathing and Circulation. Signs of critical illness discernible on this rapid assessment may include: irritability, listlessness, or lethargy (Appearance); tachypnea, retractions, or grunting respirations (Work of Breathing); or mottling, pallor, or cyanosis (Circulation). Children with one or more of these physical findings should be triaged as higher acuity, regardless of their presenting chief complaint.

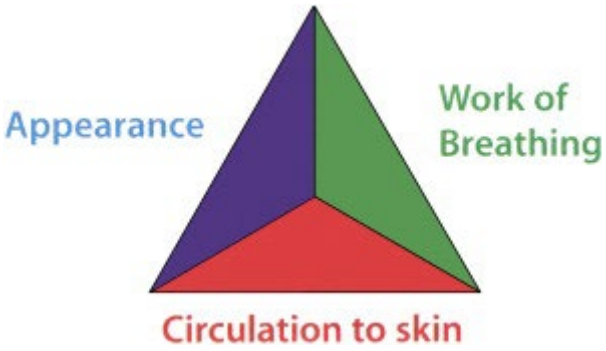


Figure 2 The Pediatric Assessment Triangle

Resources

Emergency Nurses Association Position Statement: Triage Qualifications and Competency

Accepted Normal Vital Sign Ranges by Age

	Infant (0-12 months)	Toddler (1-2 years)	Preschool (3-5 years)	School (6-11 years)	Adolescent (12-18 years)
Pulse	110-165	100-140	80-125	70-110	60-100
Respiratory Rate	30-60	35-45	20-30	16-25	12-20
Systolic Blood Pressure	70-100	85-105	90-110	95-115	100-120
Temperature (Celsius)	36-38	36-38	36-38	36-38	36-38
Temperature (Fahrenheit)	96.8-100.4	96.8-101	96.8-101	96.8-101	96.8-102
Pulse Oximeter	>95%	>95%	>95%	>95%	>95%

NPRP Question #57a (1.5 points) – Pediatric Assessment and Reassessment

57a. Does your ED have pediatric patient assessment and reassessment policies, procedures, and plans? (1.5 points)

Rationale: The Importance of Policies to Guide Assessment of Children in the ED

In the United States, millions of children require emergency care annually. The vast majority of these patients are seen in EDs not specialized in pediatric care and there exists variability in the skill, competency and comfort of medical professionals assessing and managing pediatric complaints in the general ED. Children present a unique assessment challenge. Their developing verbal skills, dependency on caregivers and their developmental capacity often make it difficult for emergency professionals to accurately assess the severity of a child's illness or injury. Established policies, procedures and plans will assist EDs in maintaining competencies in pediatric patient assessment.

The physiologic state of children can change during their emergency care. Ongoing and repeat assessments are necessary and crucial in pediatric care to identify children at risk of rapid deterioration for acute illness or injury.

Essential Requirements

To fulfill this requirement, your ED must have established written policies, procedures and plans that specifically address pediatric patient assessment and reassessment. These may be inclusive of your policies that guide assessment of adults, but should specifically address pediatric VS ranges, presence of caregivers and rapid physical assessment of a child. The need for frequent reassessments of children in the ED should also be included in your department's policies, procedures and plans.

Supplemental Information

To further improve your ED's pediatric preparedness and competency, you may also include policies on measurement of VS, pediatric pain assessment, accurate determination of patient weight with the use of tools such as the length-based tools and implementation of clinical scores such as the Pediatric Early Warning Score (PEWS) that can detect physiologic deterioration in pediatric patients. Well established policies in these areas will improve accuracy of pediatric assessment and may improve patient safety by reducing the likelihood for medical errors.

Resources

Validity of Different Pediatric Early Warning Scores in the Emergency Department

Accepted Normal Vital Sign Ranges by Age

	Infant (0-12 months)	Toddler (1-2 years)	Preschool (3-5 years)	School (6-11 years)	Adolescent (12-18 years)
Pulse	110-165	100-140	80-125	70-110	60-100
Respiratory Rate	30-60	35-45	20-30	16-25	12-20
Systolic Blood Pressure	70-100	85-105	90-110	95-115	100-120
Temperature (Celsius)	36-38	36-38	36-38	36-38	36-38
Temperature (Fahrenheit)	96.8-100.4	96.8-101	96.8-101	96.8-101	96.8-102
Pulse Oximeter	>95%	>95%	>95%	>95%	>95%

NPRP Question #57b (1.5 points) – Immunizations

57b. Does your ED have immunization assessment and management of the under-immunized child policies, procedures, and plans? (1.5 points)

Rationale: The Importance of Understanding and Responding to Immunization Status in the ED

Immunizations are the most effective way to reduce morbidity and mortality in vaccine-preventable infectious diseases. Routine childhood immunizations have proven to significantly reduce or eliminate both common and life-threatening diseases. However, vaccine hesitancy (voluntarily delaying or refusing to receive vaccines) is not uncommon and some children presented to the ED will be unvaccinated or partially vaccinated against vaccine-preventable infections. In children, under-immunization increases the risk of less common infectious such as invasive *Haemophiles influenza, Streptococcal pneumaoniae, Clostridum tetani,* and *Varicella zoster*. Understanding the vaccine status of children in the ED is essential to enable the appropriate medical evaluation of children at higher risk for these diseases. Professional emergency organizations encourage emergency providers to be current in their understanding of recommended routine vaccines across all ages and to advocate the importance of vaccines to patients and families.

Emergency care decisions should be influenced by the immunization status of the child – especially within the first year of life. A policy to identify children who are under-immunized is essential in their emergency management.

Essential Requirements

To fulfill this requirement, your ED must have policy, procedures and plans to obtain and update the immunization status on all pediatric patients. This policy must include universal screening for vaccine deficiencies and clear documentation of vaccine status that are easily accessible by the medical provider.

Supplemental Information

Childhood immunizations do decrease morbidity and mortality from infectious diseases. Instituting policies to advocate for childhood immunizations in the ED are beneficial. Additionally, programs that encourage and provide influenza vaccination in the ED, have been successful across all ages.

Resources

Centers for Disease Control and Prevention Child and Adolescent Immunization Schedule

Immunizations and Responsibility of the Emergency Nurse

American Academy of Pediatrics Policy Statement – Increasing Immunization Coverage

NPRP Question #57c (1.5 points) – Children Maltreatment

57c. Does your ED have child maltreatment policies, procedures, and plans? (1.5 points)

Rationale: Need for Child Maltreatment Policies

Children who have been abused or neglected, frequently interact with the medical community in the ED. To prevent further injury and harm, all emergency providers must be competent at identifying and responding to signs of potential maltreatment.

Child maltreatment refers to physical, emotional, or sexual harm inflicted on a child and covers overt actions (such as a physical assault), but also includes the harm caused by neglect, or the failure of an individual to provide for a dependent's basic needs. Infants, children and adolescents represent a vulnerable population in that they lack the physical, developmental and emotional ability to adequately protect themselves from abusive actions of others.

Child physical abuse is an important cause of morbidity and mortality, contributing to significant physical and mental sequelae in survivors. Physical abuse should be considered in all children with signs of physical injury that are developmentally inappropriate (e.g., any bruising in a non-mobile child), are inconsistent with the mechanism of injury provided, or when a history consistent with abuse is given by the patient or a witness. Emergency medicine providers are in a unique position to identify physical abuse because they are the primary site of care sought for injury evaluation. The role of the emergency medicine provider may include management of the injuries, identification of suspicious cases, documentation of injuries, mandated report of concerns to social services, support of families of the victim, liaison with law enforcement and court testimony.

Child sexual abuse, results in harm to all types of communities, cultures and socioeconomic settings. The World Health Organization defines child sexual abuse as "the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, and for which the child is not developmentally prepared and cannot give consent." All sexual acts between an adult and an underage child – even with assent of the child – are, by definition, child sexual abuse. The responsibility of ED providers in identifying and managing child sexual abuse, include management of injuries including the empiric or prophylactic management of potential sexually transmitted infections, victim support, mandated reporting to social services, partnering with law enforcement and providing court testimony.

Written policies and procedures promote awareness, training and competency of child maltreatment among emergency providers.

Essential Requirements

To fulfill this requirement, your department must have a written policy that addresses the manner in which potential child maltreatment cases are identified and managed in your department. A sample policy is provided in the resource section below.

Supplemental Information

While the content of this policy is not prescribed by this pediatric readiness requirement, such a policy may include guidance on clinical clues that should increase the suspicion of child maltreatment, common physical findings of abuse, key points on documenting physical findings observed, how to report to local social services, how to liaison with law enforcement and resources to support victims and their families. This policy should contain guidance on behavior and findings that are concerning for human trafficking.

Resources

Sample Policy – Child Maltreatment

Evaluation of Suspected Child Physical Abuse

Murray LK, Nguyen A, Cohen JA. Child sexual abuse. Child Adolesc Psychiatr Clin N Am. 2014 Apr;23(2):321-37.

NPRP Question #57d (1.5 points) – Death of a Child

57d. Does your ED have death of the child in the ED policies, procedures, or plans? (1.5 points)

Rationale: Importance of Policies and Procedures that Address Activities Following the Death of a Child in the ED

The death of a child in the ED is an event with emotional, cultural, procedural and legal challenges. The infrequency of child death in the ED and the enormity of the tragedy magnify the challenges in simultaneously providing clinical care, holistic support for families and care of the team delivering care while attending to significant operational, legal, ethical and spiritual issues.

In order to maintain a safe environment and to address the social, emotional and psychological health of family members, departments should have policies in place to assist providers to respond to the death of a child in the ED.

Essential Requirements

To fulfill this requirement, your ED must have a policy or guideline for the ED team following a death of a child.

Supplemental Information

The American Academy of Pediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) support the following principles:

- The ED health care team uses a patient-centered, family-focused and team-oriented approach when a child dies in the ED
- The ED health care team provides personal, compassionate and individualized support to families while respecting social, spiritual and cultural diversity
- The ED health care team provides effective, timely, attentive and sensitive palliative care to patients with life span–limiting conditions and anticipated death presenting to the ED for end-of-life care
- The ED health care team clarifies with the family the child's medical home and promptly notifies the child's primary care provider and appropriate subspecialty providers of the death and, as appropriate, coordinates with the medical home and primary care provider in follow-up of any postmortem examination
- ED procedures provide a coordinated response to a child's death include written protocols for documentation of all necessary administrative information

Resources

Guidelines and Sample Policy for Death of a Child in the Emergency Department

Guidelines for Supporting the Family After the Death of a Child

NPRP Question #57e (1.5 points) – Radiation Dosing

57e. Does your ED have reduced-dose radiation for CT and x-ray imaging based on pediatric age or weight policies, procedures, or plans? (1.5 points)

Rationale: Reducing Diagnostic Radiation Through Pediatric Dosing Policies

Utilization of imaging is an important element of assessment and care of an acutely ill child. However, the risks from ionizing radiation often used in imaging studies, must be recognized and addressed at the organization level. Younger and small children are much more susceptible to ionizing radiation that is harmful to their growth and development. This detrimental effect can potentially lead to significant morbidity and mortality that we must make every attempt to reduce or avoid. The concept of "as low as reasonably achievable" (ALARA) has been accepted and implemented by many of the health care organizations and must be utilized consistently, especially in non-pediatric facilities. The radiology capability of hospitals may vary from one institution to another; however, every ED should promote various on-site radiology capabilities to meet the needs of children in the community.

Diagnostic radiation presents a potential threat to the long-term health of a child. It is essential that departments are cognizant of and have policies for reducing a child's exposure to diagnostic radiation as much as possible.

Essential Requirements

To fulfill this requirement, your ED must have a policy or guideline establishing age- or weight-appropriate dose reductions for children consistent with "as low as reasonably achievable" principles.

Supplemental Information

Not specifically required, however, your policy or guideline should include referral of children to appropriate facilities for radiologic procedures that exceed the capability of the hospital. A process should be in place for timely review and interpretation reporting by a qualified radiologist for medical imaging studies in children. When a patient is transferred from one facility to another, to avoid unnecessary radiation exposure, all efforts should be made to transfer completed images. New technology (e.g., Cloud file sharing or Health Insurance Portability and Accountability Act protection) may facilitate image sharing between facilities. WI State Trauma Advisory Council, in cooperation with pediatric trauma centers, have published 'State of Wisconsin Pediatric Trauma Imaging Guideline for Blunt Trauma.'

Resources

Sample Policy – Imaging and Radiology

Radiation Risk to Children from Computed Tomography

Optimal Emergency Department Management of Children with Minor Blunt Head Trauma

State of Wisconsin Pediatric Imaging Guidelines for Blunt Trauma

NPRP Question #57f (1.5 points) & Question #58 (0 points) – Behavioral Health

57f. Does your ED have behavioral health issues policies, procedures, or plans for children of all ages? (1.5 points)

58. Does your ED have a written guideline for the transfer of children with behavioral health issues out of your facility to an appropriate facility? (0 points)

Rationale: Importance of Pediatric Behavioral Health Policies

Nationally, there has been a dramatic increase in the number of ED visits by children seeking help for mental health disorders. Main complaints include deliberate self-harm, anxiety disorder, impulse disorder and substance use among most adolescents. Reports indicate that these visits increased significantly in all types of EDs, both metropolitan and non-metropolitan, but particularly in rural areas and those with low pediatric volumes (less than 4,000 children per year) and these EDs are significantly less prepared to treat children with mental disorders than larger, urban EDs.

In order to maintain a safe environment and to address the social, emotional and psychological health of patients, departments must have policies that address the specific mental health needs of children.

Survey found that only 47.2% of hospital EDs reported having a children's mental health policy and in rural areas, this drops to 33%. While over half of all EDs report having designated transfer guidelines for children with mental health issues, only 38% of rural EDs have such guidelines. The NPRP has also found that EDs seeing small numbers of children, are less likely to be prepared to treat children resulting in worse outcomes, including mortality.

Pediatric mental health emergencies are best managed by a skilled, multidisciplinary team approach, including specialized screening tools, pediatric-trained mental health consultants, the availability of pediatric psychiatric facilities when hospitalization is necessary and an outpatient infrastructure that supports pediatric mental health care This includes communication back to the primary care physician in addition to timely and appropriate ED referrals to mental health professionals.

Essential Requirements

To fulfill this requirement, your ED must have a policy or procedure that specifically addresses assessment, evaluation, management disposition and appropriate transfer of children with behavioral health complaints.

Supplemental Information

Although not required, we recommend your policy include a list of screening tools for suicidal ideation, behavioral disorders and self-harm. It is also recommended to include standardized patient search procedures ensuring an appropriate level of observation, enhanced environment and room safety and guidance for appropriate use of chemical and physical restraints. See sample policy below:

Resources

Pediatric Mental Health Care in the Emergency Department Toolkit

Elements of the National Alliance on Mental Illness's Compassionate Care in the Emergency Room

Substance Abuse and Mental Health Services Administration (SAMHSA) Guidance for a Trauma-Informed Care Approach to Caring for Children with Mental Disorders

Substance Abuse and Mental Health Services Administration (SAMHSA) Practitioner Training and Virtual Learning Labs for Mental Health

Guidance for Emergency Department Preparedness for Children Seeking Mental Health Care

American Psychological Association Guidance on Setting up Telepsychology Services

American Academy of Pediatrics and American College of Emergency Physicians Policy Statement – Pediatric Mental Health Emergencies in the Emergency Medical Services System

Technical Report – Pediatric and Adolescent Mental Health Emergencies in the Emergency Medical Services System

Executive Summary: Evaluation and Management of Children with Acute Mental Health or Behavioral Problems – Recognition of Clinically Challenging Mental Health Related Conditions Presenting with Medical or Uncertain Symptoms

NPRP Question #59 (0 points) – Social Services for All Ages

59. Does your ED have social services policies, procedures, or a plan for children of all ages? (0 points)

Social services plans and policies in the ED should address the unique needs of children.

Rationale: Need for Pediatric Social Services

Social workers provide valuable services to ED patients. The availability of social workers in the ED not only reduces the demands for emergency physicians and nurses in caring for children in need, but provide essential assessment, intervention and referral for many critical conditions including non-accidental trauma, sexual abuse, mental health needs, violence related visits, trauma, financial challenges, disposition/follow up navigation and emotional support among many. The complex social determinants of health and medical crisis in the ED, requires interdisciplinary approach that include social services.

Essential Requirements

Although there are no points allocated, availability of 24/7 social services in your ED is a significant resource that can assist with broad and specific needs of children and families.

Resources

Relationship between Emergency Medical Services Use and Social Service Needs in a Pediatric Emergency Department Population

NPRP Questions #60 and #61 (2 points) – Family-Centered Care

60. Does your ED have a policy for promoting family-centered care? (e.g., family presence, family involvement in clinical decision making) (0 points)

61. Does your ED's family-centered care policy include any of the following?

- *a. Involving families and caregivers in patient care decision-making? (0.4 points)*
- *b. Involving families and caregivers in medication safety processes? (0.4 points)*
- *c. Family and guardian presence during all aspects of emergency care, including resuscitation? (0.4 points)*
- *d. Education of the patient, family, and caregivers on treatment plan and disposition? (0.4 points)*
- e. *Bereavement counseling? (0.4 points)*

Rationale: Importance of Patient- and Family-Centered Care

Children typically arrive to the ED with family or caregivers. To promote increased safety, satisfaction and compliance, policies must be in place that promote a partnership with the family in medical decision about the child's care.

Accompanying a child to the ED for medical care is always a stressful event for parents and families. This is most evident when stabilizing or resuscitative care is necessary. While the primary focus of the emergency provider is the medical care of the child, there is mutual benefit to both medical team and family members in establishing and maintaining patient- and family-centered care (PFCC) even during ongoing resuscitations. PFCC is an "approach to the planning, delivery, and evaluation of health care that is grounded in a mutually beneficial partnership among patients, family, and health care professionals." (Institute for Patient- and Family-Centered Care Web site. Available at www.ipfcc.org. Accessed Feb. 25, 2022). While challenging in the emergency setting, PFCC improves health and well-being through a respectful partnership that honors strengths, cultures, traditions and expertise of both family and providers. PFCC supports concepts such as providing care for an individual, not a condition, while understanding a patient in the context of his/her values and the those of his/her family. These concepts will lead to better health care, improved patient safety and heightened patient satisfaction.

While it may be challenging to incorporate principles of PFCC in the ED, PFCC will promote patient safety, comfort and satisfaction. Efforts made to achieve excellence in this regard will improve pediatric care. Elements of PFCC that are essential during ED care, include family presence during pediatric resuscitation, partnering with caregivers in clinical decision making, timely communication with the patient's medical home and making family resources available for bereavement in the event of a child death in the ED.

Essential Requirements

To fulfill this requirement, you must first have a written policy that addresses family-center care in your ED **and** have essential elements of PFCC included in that policy. You will receive partial points for each of the five elements that are addressed in your policy. These include: involving families in care decisions and medication safety processes, presence of family during all aspects of care, family education and bereavement counseling. A sample policy is provided in the resource section below.

Supplemental Information

Successful implementation of PFCC processes may be particularly challenging in the ED and require an all-hands approach. All staff, nurses and emergency providers should be trained to involve family in decisions, comfortable with family presence during resuscitations and competent in comforting families following tragic outcomes.

Resources

Sample Policy – Family Presence during Invasive Procedure and Resuscitation

NPRP Questions #62-#66 (1.72 points) – Disaster Planning

62. Does your hospital disaster plan address issues specific to the care of children? (0 points)

63. If yes, does your hospital disaster plan include each of the following? (Check for each)

a. Does your hospital disaster plan include availability of medications, vaccines (e.g., tetanus and influenza), equipment, supplies, and appropriately trained providers for children in disasters? (0.29 points)

b. Does your hospital disaster plan include decontamination, isolation, and quarantine of families and children of all ages? (0.29 points)

c. Does your hospital disaster plan include minimization of parent-child separation and methods for reuniting separated children with their families? (0.29 points)

d. Does all your hospital disaster drills include pediatric patients? (0.29 points)

64. Does your hospital disaster plan include pediatric surge capacity for both injured and non-injured children? (0.28 points)

65. Does your hospital disaster plan include access to behavioral health resources for children in the event of a disaster? (0.28 points)

66. Does your hospital disaster plan include access to social services for children in the event of a disaster? (0 points)

Rationale: The Need to Include Children in Disaster Planning

Children have unique, often complex physiological, psychosocial and psychological needs that differ from adults, especially during disaster situations; and unfortunately children are often involved when disasters occur. Approximately half of hospitals reported lacking disaster plans (53.2%) that include specific care needs for children. Disaster preparedness is built on, and dependent upon, pediatric emergency systems of care that operate effectively day-to-day. Emergency care providers in both the prehospital and ED settings must have appropriate pediatric equipment and supplies, medical oversight, protocols and guidelines, and training in the care of children. Pediatric capabilities of EDs should be known and verified to facilitate initial transport or timely transfer to appropriate levels of care when needed along with presence of transfer guidelines and agreements.

Children are often overlooked in disaster planning. While they may represent the minority of patients in some disasters, their unique needs will always be exacerbated in the medically scarce environments caused by disasters or mass casualty events.

Essential Requirements

To fulfill this requirement, your hospital or ED disaster plan must address the following issues:

- Availability of medications, vaccines, equipment, supplies and appropriately trained providers for children in disasters
- Decontamination, isolation, quarantine of families and children of all ages along with minimization of parent-child separation and methods for reunification
- All disaster drills include pediatric patients and have a plan for pediatric surge capacity for both injured and non-injured children

- Access to behavioral health resources for children in the event of a disaster is another critical element

Supplemental Information

Although not required, access to social services for children in the event of a disaster is a necessary element in navigating the challenges in supporting children who are not self-sufficient.

Resources

Sample Checklist – Essential Pediatric Domains and Consideration

Emergency Nurses Association Topic Brief – Disaster Planning: Preparing for Pediatric Surges

Homeland Security Exercise and Evaluation Program (HSEEP)

Office of the Assistant Secretary for Preparedness and Response (ASPR) Technical Resource, Assistance Center, and Information Exchange

CDC Public Health Emergency Exercise Toolkit

FEMA Independent Study Courses

- An Introduction to Exercises (IS-0120.c)
- Exercise Design and Development (IS-0129.a)

Pediatric Disaster Simulation Resources

- Simulated airway drills as a tool to measure and guide improvements in endotracheal intubation preparation in the paediatric emergency department
- Pediatric Emergency Medicine Disaster Simulation Curriculum: The 5-Minute Trauma Assessment for Pediatric Residents (TRAP-5) - See Appendices at the end of the article

NPRP Question #67 (0.28 points) – Special Health Care Needs Child

67. Does your hospital disaster plan include care of children with special health care needs, including children with developmental disabilities? (0.28 points)

Rationale: Incorporating the Needs of Children with Special Health Care Needs

Children with disabilities have added challenges during an emergency situation compared to children without disabilities. For instance, children with disabilities may have a hard time moving from one location to another, have difficulty communicating, or have trouble adjusting to different situations. Additional preparation may be needed while planning for an emergency or disaster situation for children and youth with disabilities.

Like all children, the needs of those children with chronic medical conditions are exacerbated during disaster events. Including these children in your disaster planning is crucial to adequate preparation for all who may seek emergent care.

Essential Requirements

To fulfill this requirement, your ED must include care of children with special health care needs in the disaster plan.

Supplemental Information

While the specifics of what must be included in your plan are not stipulated, you may consider including contact information for pediatric subspecialists and/or pediatric subspecialty centers. In smaller communities where it is possible to identify the manner of the children with special health care needs who may seek care in your department, it may be possible to partner with the primary care physician and develop an individual emergency care plan that explains the child's chronic medical conditions, lists current medications and provides a recommended treatment plan for anticipated emergency complications of their conditions.

Resources

American Academy of Pediatrics and American College of Emergency Physicians Policy Statement – Emergency Information Forms and Emergency Preparedness for Children with Special Health Care Needs

NRNP Questions #68-#69 (2 points): Interfacility Transfer Guidelines

68. Does your hospital have written interfacility guidelines that outline procedural and administrative policies with other hospitals for the transfer of patients of all ages including children in need of care not available at your hospital? (2 points)

69. Please indicate whether the guidelines include the information specifically for the transfer of patients for each item below: (0 points)

- *a. Defined process for initiation of transfer, including the roles and responsibilities of the referring facility and referral center*
- *b. Process for selecting the appropriate care facility*
- *c. Process for selecting the appropriately staffed transport service to match the patient's acuity level*
- *d. Process for patient transfer*
- *e. Plan for transfer of copy of patient medical record*
- *f. Plan for transfer of a copy of the signed transport consent*
- *g. Plan for transfer of personal belongings with the patient*
- *h. Plan for provision of directions and referral institution information to the family*

Rationale: Need for Guidelines to Direct Interfacility Transfers for Children

To ensure the best possible health outcomes, critically ill and injured children should be treated at the facilities most prepared to address their needs. Often, however, children are treated at local community EDs where pediatric specialty services are not available (i.e., pediatric burn care). Therefore, healthcare facilities should have available written arrangements to formalize their procedures for transferring pediatric patients to specialized centers for optimal care.

Interfacility transfer guidelines are arranged between hospitals – including out of state/territory facilities and serve to outline procedural and administrative policies for transferring critically ill pediatric patients to facilities providing specialized pediatric care.

Establishing guidelines to determine the need for transfer of a child to the pediatric subspecialty center, will facilitate the rapid identification of these patients and promote a more efficient process to deliver them to the requisite medical care.

Essential Requirements

To fulfill this requirement, your hospital must have an interfacility transfer guideline.

Supplemental Information

Although not specifically required, your interfacility transfer guideline should include:

- Process for initiation of transfer
- Description of the roles and responsibilities of the referring facility and referral center
- Process for selecting the appropriate care facility
- Process for selecting the appropriately staffed transport service to match the patient's acuity level (e.g., level of care required by patient or equipment needed in transport)
- Process for patient transfer (including obtaining informed consent)
- Plan for transfer of copy of patient medical record
- Plan for transfer of a copy of the signed transport consent
- Plan for transfer of personal belongings of the patient

- Plan for provision of directions and referral institution information to family

Resources

Interfacility Transfer Toolkit, EMSC Innovation and Improvement Center

NRNP Question #70 (0 points): Interfacility Transfer Agreement

70. Does your hospital have written interfacility agreement(s) with other hospitals for the transfer of patients of all ages including children in need of care not available at your hospital? (0 points)

Rationale: The Need for Pediatric Interfacility Transfer Agreements

To ensure the best possible health outcomes, critically ill and injured children should be treated at the facilities most prepared to address their needs. Often, however, children are treated at local community EDs, where pediatric specialty services are not available (i.e., pediatric burn care). Therefore, health care facilities should have available written arrangements to formalize their procedures for transferring pediatric patients to specialized centers for optimal care.

Interfacility transfer agreements are written contracts between a referring facility (such as a community hospital) and a specialized pediatric center or a facility with a higher level of care and/or appropriate resources for the child. These agreements must formalize arrangements for consultation and transport of a pediatric patient to the higher level of care facility.

Defining, communicating and agreeing upon institutional responsibilities during the transfer of a child from your department to the pediatric subspecialty center, is essential to avoiding confusion and complications during the transfer of patients.

Essential Requirements

To fulfill this requirement, your hospital must have an interfacility transfer agreement with tertiary pediatric facility.

Resources

Interfacility Transfer Toolkit, EMSC Innovation and Improvement Center

Equipment and Supplies Management

This section contains the list of equipment and supplies and the associated pediatric sizes necessary to be pediatric ready.

This section is worth a total of 33 points
9 points for General Supplies Management
3 points for Monitoring Equipment
2 points for Resuscitation Equipment
19 points for Airway Equipment

NPRP Questions #71-73 (9 points) – Equipment and Supplies Management

71. Are all ED staff trained on the location of all pediatric equipment and medications?
Is there a daily method used to verify the proper location and stocking of pediatric equipment and supplies?
Is there a standardized chart or tool to estimate weight if resuscitation precludes the use of a weight scale (e.g., length-based tape)?

Rationale: Importance of Pediatric-sized Equipment and Supplies

Emergency management of children requires appropriately trained emergency providers with current and competent clinical skills, but even providers who are adequately prepared for emergency pediatric prepared care can struggle to provide appropriate care if pediatric-sized equipment and supplies are not stocked or maintained in the ED. To be available during emergency care, pediatric equipment, supplies and medications should be easily accessible, clearly labeled and organized.

Maintaining a stock of pediatric-sized equipment and supplies, confirming that stock daily and using a standardized tool to estimate weight in children, are all essential steps to ensuring competent and safe pediatric emergency care.

Essential Requirements

To fulfill this requirement, your department will need to confirm three things: 1) that all ED staff are trained on where to find and how to access pediatric equipment and supplies, 2) that those stocks are checked daily and 3) that a standardized tool (i.e., pre-made chart, length-based measuring system, etc.) for estimating weights in children is used. Examples of such tools follows in the resource section below. It does not matter if your pediatric equipment and supplies are stored with your adult-sized supplies or in a separate location, but it is essential that all know how to gain access to supplies for children and that the stocks are checked daily.

Supplemental Information

The importance of having a readily available and accurate standardized tool to estimate weights in children during resuscitation and other emergency care events is crucial to the safe care of children. Drug dosing errors comprise the majority of medical errors in children and standardized age-weight charts or systems that estimate weight based on the length of the child, do reduce medical errors and increase the safety of care children receive.

Resources

Remick K, Gausche-Hill M, Joseph MM, et al; American Academy of Pediatrics Committee on Pediatric Emergency Medicine and Section on Surgery, American College of Emergency Physicians Pediatric Emergency Medicine Committee, Emergency Nurses Association Pediatric Committee. Pediatric Readiness in the Emergency Department. *Peds.* 2019;143(3):e20183894.

Rappaport LD, Brou L, Givens T, Mandt M, Balakas A, Roswell K, Kotas J, Adelgais KM. Comparison of Errors Using Two Length-Based Tape Systems for Prehospital Care in Children. Prehosp Emerg Care. 2016 Jul-Aug;20(4):508-17.

NPRP Questions #74 (24 points) – Monitoring (3 points), Resuscitation (2 points) and Airway Equipment (19 points)

The remainder of the questions in this section all address specific equipment required to provide care to children. We present this section, therefore, in a list in aggregate on the opposite page rather than addressing each question individually.

Rationale: Importance of Appropriately Sized Equipment and Supplies

Nowhere is the difference between adults and children felt greater than in the need for variety sizes of resuscitative equipment and supplies. Children not only require smaller sizes of equipment compared to adult patients, but a larger variety of sizes is essential to care of children across all ages. Competent and successful pediatric resuscitations simply cannot be accomplished without equipment that is sized appropriately to the child.

Having the appropriate sizes of all essential resuscitation equipment and supplies is crucial in the emergency intervention for children with acute illness and injury.

Essential Requirements

To fulfill this requirement, you must maintain a stock of the proscribed sizes for all equipment items listed. While each individual item is worth approximately 0.5 points each, this number of essential items makes the total of this section the largest point value. If not already done, maintaining a stock of all items listed can boost your readiness score considerably. This will also ensure that your department is prepared to provide necessary emergent interventions to children of all sizes.

Supplemental Information

While it is extremely important to maintain equipment appropriate for children of all ages, it is difficult to ignore the capital costs associated with maintaining current stocks of infrequently used equipment. This, unfortunately, is a reality faced by general EDs who must be prepared for pediatric emergencies but see children relatively infrequently. We encourage you to look for creative ways to maintain your necessary pediatric supplies in as cost-conscious a manner as possible. Perhaps you may partner with a pediatric subspecialty center to exchange equipment that is within a year of expiration date and unlikely to be used in your department for equipment with a longer shelf life.

Monitoring Equipment	Resuscitation Equipment
(0.5 points each)	***(0.5 points each)***
☐ Neonatal blood pressure cuff	☐ 22-gauge catheter-over-the-needle
☐ Infant blood pressure cuff	☐ 24-gauge catheter-over-the-needle
☐ Child blood pressure cuff	☐ Pediatric intra-osseous needle
☐ Defibrillator with pediatric and adult capabilities including pads and/or paddles	☐ IV administration sets with calibrated chambers or an infusion pump with the ability to regulate rate and volume of infusate
☐ Pulse oximeter with pediatric and adult probes	
☐ Continuous end-tidal CO_2 monitoring device	

Airway Equipment	
(0.575 points each)	
☐ Endotracheal tubes: cuffed or uncuffed, 2.5mm	☐ Endotracheal tubes: cuffed or uncuffed, 3.0mm
☐ Endotracheal tubes: cuffed or uncuffed, 3.5mm	☐ Endotracheal tubes: cuffed or uncuffed, 4.0mm
☐ Endotracheal tubes: cuffed or uncuffed, 4.5mm	☐ Endotracheal tubes: cuffed or uncuffed, 5.0mm
☐ Endotracheal tubes: cuffed or uncuffed, 5.5mm	☐ Endotracheal tubes: cuffed or uncuffed, 6.0mm
(0.576 points each)	
☐ Laryngoscope blades: straight, size 0	☐ Laryngoscope blades: straight, size 1
☐ Laryngoscope blades: straight, size 2	☐ Laryngoscope blades: curved, size 2
☐ Pediatric-sized Magill forceps	
☐ Nasopharyngeal airways: infant-sized	☐ Nasopharyngeal airways: child-sized
☐ Oropharyngeal airways: size 0 (50mm)	☐ Oropharyngeal airways: size 1 (60mm)
☐ Oropharyngeal airways: size 2 (70mm)	☐ Oropharyngeal airways: size 3 (80mm)
☐ Stylets for pediatric/infant-sized endotracheal tubes	
☐ Bag-mask device, self-inflating (infant/child)	☐ Masks (neonatal size) to fit bag-mask device
☐ Masks (infant size) to fit bag-mask device	☐ Masks (child size) to fit bag-mask device
☐ Simple oxygen face masks: standard infant	☐ Clear oxygen masks: standard child
☐ Non-rebreather masks: infant-sized	☐ Non-rebreather masks: child-sized
☐ Nasal cannulas: infant	☐ Nasal cannulas: child
☐ Suction catheters: at least one in range 6-8F	☐ Suction catheters: at least one in range 10-12F
☐ Supplies/kit for pediatric patients with difficult airways (e.g., supraglottic airways, needle cricothyrotomy supplies, surgical cricothyrotomy kit, and/or video laryngoscopy)	

Appendix A

Pediatric Nurse Coordinator Description:

Primary Purpose:
Coordinates the care of pediatric patients and pediatric data abstraction. Collaborates with emergency department team to ensure quality of care and patient outcomes. Promote pediatric standards of care according to nationally accepted guidelines.

Major Responsibilities:
Collaborates with, and integrates hospital staff, administration, department heads, ancillary services, nursing personnel and family in all aspects of pediatric emergency department care.

Assists with the care of the pediatric patient in the Emergency Department as needed. Act as a liaison with the patient's family.

Participates in pediatric performance improvement activities though the development of performance improvement plans or projects.

Serves as a resource to nursing staff for issues related to pediatric care. Assists professional development generalist for nursing/technician education needs.

Assists trauma program coordinator with injury prevention and community outreach related to the pediatric population.

Assists with the development of pediatric guidelines, policies and protocols related to pediatric care.

Licensure, Registration and/or Certification Required:
Registered Nurse license issued by the state in which the team member practices, and
Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS)
Emergency Nurse Pediatric Course (ENPC)
4 hours continuing education related to pediatric annually

Experience Required:
Typically requires 1 year experience in the Emergency Room or Pediatric Setting

Appendix B

Additional Educational Resources

1. Simulation cases
   - https://www.mededportal.org/action/doSearch?AllField=pediatric+simulation
   - https://www.cureus.com/articles?q=pediaric&source=homeSearch&searched=true
2. IV placement resources
   - Peripheral Intravenous Line Placement video (OPENPediatrics) https://www.youtube.com/watch?v=W4_9louZ4OU
   - Infant IV (EMSC Innovation & Improvement Center)
     - https://emscimprovement.center/education-and-resources/peak/peak-pediatric-pain/infant-iv-placement/ and
     - https://www.ems1.com/ems-products/neonatal-pediatric/articles/4-steps-to-owning-the-infant-iv-YUi0wm598YlO4wvV/
   - Pediatric IV/IO (EMSC Innovation & Improvement Center) https://www.youtube.com/watch?v=-L6cX73P_R4
   - DIY: How to Create an IV/IO Training Model (EMSC Innovation & Improvement Center) – some easy models that could be made so staff can practice https://www.youtube.com/watch?v=GP43Qc15ilM
   - Tips for Parent/Caregiver when a Child needs a Needle Poke (EMSC Innovation & Improvement Center) https://www.youtube.com/watch?v=8_tz94-fOcg and http://needlepain.trekk.ca/