

**REPORT ON
PREPAREDNESS OF THE EMERGENCY DEPARTMENT
FOR THE CARE OF CHILDREN**

**Prepared by
The Pediatric Emergency Medicine Committee
American College of Emergency Physicians
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INTRODUCTION

Nearly thirty percent of all patients seen in Emergency Departments today are children. Over eighty percent of the children receiving emergency medical care will receive this attention in community Emergency Departments rather than specialized Pediatric Emergency Departments. It is the goal of the Pediatric Emergency Medicine Committee, through the statements within this text to facilitate the development of high quality, "user-friendly" departments for the care of children.

GOALS AND STATEMENT OF PURPOSE:

1. Emergency Physicians are dedicated to providing acute care to patients of any age, with any disease process or injury presenting at any time for emergency care.
2. Pediatric patient populations, just like other patient populations seen in the Emergency Department (i.e., Geriatrics, AIDS patients) have unique needs and require specialized resources.
3. Given that the majority of acute pediatric care is delivered in community Emergency Departments, Emergency Physicians should be knowledgeable about specific resources available to provide quality emergency care.

DESIGN AND ENVIRONMENTAL RECOMMENDATIONS:

The hospital should provide a physical environment conducive to efficient, effective yet compassionate health care delivery. The physical environment within the Emergency Department should consider the special needs of children and adolescents whenever practical. The environment should have an area which is comforting to a child and its family. In low patient volume Emergency Departments, adjustments would be made to provide for space and budget limitations. Specific areas to be addressed include the following:

1. Patient Flow Recommendations:
 - Acute vs. ambulatory entrances
 - Waiting/play area
 - Infectious vs. non-infectious zones
 - Accommodations for ambulance/helicopter arrival and personnel
 - Triage positioning, timing, and type
 - Timing and position (i.e., desk location, bedside, or both)
 - Isolation of patients with potentially contagious infectious diseases (i.e. common exanthems)
2. Interior Space Considerations:
 - Traffic Flow
 - Patient volume, turn-around times, and staffing patterns
 - Patients
 - Families
 - Acuity and relation to length of stay
 - Hospital Staff
 - Visibility of hospital staff (restricted passageways)

- Procedure room
- Safety and childproofing
- Area mapping and sizing
- Atmosphere, themes, furniture colors, and patterns
- Configuration

STAFFING RECOMMENDATIONS:

Emergency Departments should maintain a staff knowledgeable in assessing and initiating the treatment for any child presenting to their facility. The evaluation and management provided a pediatric patient is a function of the level of pediatric expertise of the Emergency Department staff, hospital location, regional practices and personnel available. In Emergency Departments with minimal pediatric resources, care may be limited to recognition of a serious problem, resuscitation, stabilization and transport to a referral center.

The credentialing of physicians who practice within general Emergency Departments is a function which is not within the scope of activities that pertains to the College. Each Emergency Department should have a physician director who oversees credential review, quality assurance issues, clinical standards, and completes assessment of performance capabilities of each member of their department. The following recommendations address minimal cognitive and procedural requirements pertaining to the care of pediatric emergency patients:

Physician:

1. Knowledge of basic pediatric physiology and pathophysiology.
2. Knowledge of pediatric assessment including signs, symptoms and management of:
 - a. Sepsis
 - b. Meningitis
 - c. Hypovolemia
 - d. Respiratory distress
 - e. Seizures/status epilepticus
 - f. Significant Trauma
 - g. Child abuse/neglect
 - h. Toxicology
3. Knowledge of techniques of pediatric intervention including:
 - a. Airway support:
 - Bag-valve-mask ventilation
 - Endotracheal/nasotracheal intubation
 - b. Vascular/intraosseous access
 - c. Pediatric cardiopulmonary resuscitation
4. Knowledge of or access to information on:
 - a. Fluid management
 - b. Medication dosages

c. Pediatric procedures

5. Knowledge of or access to emergent transfer procedures for children in need of consultative services and health care not available within the initial Emergency Department.

Board certification or preparation in either Emergency Medicine or Pediatric Emergency Medicine should satisfy qualifications for all of the recommendations mentioned. For other physicians, the Medical Director can request documentation of advanced education and completions of appropriate programs.

It is important that hospital administrators and the chiefs of staff assure prompt and readily available pediatric specialty care for consultation, admissions or transfers. This care should be provided by primary care specialists, such as pediatricians and, in some communities, family practitioners. There must be an on-call roster of the specialists that are available to provide consultation and admission to the hospital of pediatric patients seen in those emergency departments. For larger hospitals, subspecialty care may be available. Those subspecialists must be available in an on-call basis to provide necessary consultative and admitting services for children.

Surgical services should be available in a comparable fashion. If present in the community, a list of surgeons with special expertise in the care of children, including trauma surgeons, pediatric surgeons, and surgical subspecialists, must be available for the emergency department. For special services that are not available at that hospital, the hospital administrator and chiefs of staff should provide the emergency physician with the regional availability of these specialists and have transfer agreements to expedite the transfer of patients from the local hospital to the specialized hospitals.

Nursing:

1. Knowledge of basics of pediatric nursing
2. Knowledge of pediatric assessment including signs, symptoms, and management of:
 - a. Sepsis
 - b. Hypovolemia
 - c. Meningitis
 - d. Respiratory distress
 - e. Seizures/status epilepticus
 - f. Significant Trauma
 - g. Child abuse/neglect
3. Knowledge of or access to information on:
 - a. Fluid management
 - b. Medication dosages
 - c. Pediatric procedures
4. Knowledge of or access to emergent transfer procedures for children needing care unavailable in that Emergency Department.

One of the most critical components involved in the training of nursing personnel is the establishment of

an effective triage system. Staff assigned to this function should receive additional training to properly identify serious illness or injury in the pediatric patient. Emergency Departments should encourage pediatric expertise. In some centers, depending on staffing and resources, an annual in-service should be provided to the nursing staff on essential pediatric topics. With regard to credentialing, the Emergency Nurses Association Certification as an Emergency Nurse (CEN) could serve as a qualification which could address all of the above recommendations. Nursing personnel should also avail themselves of continuing education opportunities.

EQUIPMENT NEEDS:

Children have specialized requirements with regard to the equipment necessary to provide optimal care. Some Emergency Departments need guidance in terms of acquisition and purchase of necessary equipment. The committee recommends the ACEP equipment list for Emergency Departments which is available from the College.

STANDARDIZED POLICIES/PROCEDURES/PROTOCOLS:

Pediatric preparedness helps one expeditiously manage the less common but more critically ill or injured and common conditions. This preparedness requires significant forethought, planning, and education since once the emergency presents itself in the ED, time is a most critical commodity. The following section serves as a guide for an Emergency Department to become better organized and prepared in its ability to deal with all types of pediatric emergencies.

1. The Emergency Department should be adequately staffed at all times for the needs of its practice. Current recommendations and requirements by the JCAHO would satisfy this component.
2. The Emergency Department should be prepared for the most common presenting pediatric chief complaints and diagnoses as noted within the literature.

Commonly encountered chief complaints include:

- All forms of multiple and single organ trauma
- Abdominal Pain
- Earache
- Diarrhea
- URI
- Sore Throat
- Fever
- Headaches
- Ingestion
- Rashes
- Respiratory Distress
- Seizures
- Vomiting

Commonly encountered disease processes include:

- Abdominal Pain
- Allergy
- Asthma

- Dermatitis
- Gastroenteritis
- URI, Otitis Media
- Viral Syndrome
- Other Infections
- Poisoning
- Seizure
- Child Abuse
- OBGYN Problems
- STD's
- Chronic Diseases
- Minor Trauma
- Major Trauma

4. Triage remains a critical component of pediatric patient management, and the nursing staff should address its educational and functional needs to match the list provided in (2). An example of major triage categories include the following:

Emergent Indicators:

- Abnormal vital signs
- Respirations (irregular, apneic, labored)
- Irregularities of pulse
- Altered mental state
- Cyanosis
- Status Epilepticus/ongoing seizure
- Major or multiple trauma
- Head injury with alteration of neurologic function or evidence of intracranial leak or compromise
- Neck or spinal injury
- Chest injury
- Abdominal injury
- Orthopedic insults of a complex nature (multiple long bone fractures, pelvic fractures, potential neurovascular compromise, amputation)
- Major burn
- Acute and significant bleeding

Urgent Indicators:

- Abuse
- Acute symptoms in child less than 2 months
- Bite, poisonous snake
- Dehydration
- Eye
- GI hemorrhage
- Hypertension
- Hypo and Hyperthermia
- Pain
- Rash
- Behavior alteration

- Moderate bleeding
 - Near drowning
 - Headache
 - Neck pain or stiffness
 - Poisoning
 - Aborted or near SIDS
 - Apneic/choking episode
4. Emergency Departments should have protocols and guidelines developed for emergencies which require prompt intervention. Adherence to JCAHO requirements and guidelines could, in most cases, satisfy this necessity. Specific considerations for the management and care of these patients include the following questions:
- a. Where will the patient be physically placed within the Emergency Department?
 - b. Will the patient need isolation?
 - c. How will the patient be monitored?
 - d. Will the patient require one-on-one nursing and/or undivided physician attention?
 - e. Will the patient need to be accompanied by a nurse or physician for special studies or transport?

The following are examples of specific conditions where treatment protocols may be helpful for preparedness as outlined previously:

- a. Abuse: Sexual and physical
- b. Acute upper airway obstruction
- c. Acutely raised intracranial pressure/head injury
- d. Adrenal crisis
- e. Anaphylaxis
- f. Asthma
- g. Cardiopulmonary arrest
- h. Death of a child in the Emergency Department
- i. Diabetic ketoacidosis
- j. Envenomations
- k. Fractures
- l. Hemorrhagic and other hypovolemic states
- m. Meningitis/Sepsis
- n. Poisonings
- o. Seizures
- p. Septic Shock
- q. Major trauma/burns
- r. Volume depletion/dehydration

Quality Improvement

One should develop an evaluation system for pediatric patients based on a Continuous Quality Improvement model (See Appendix). An Emergency Department can develop indicators and review mechanisms for those areas of highest risk for morbidity and mortality to children. The examples below demonstrate presenting complaints and diagnoses that may serve as indicators for use in CQI for the pediatric patient. The Appendix has additional information and examples for quality improvement.

- Fever greater than 104
- Fever under 2 months of age
- Fractures
- Returns within 72 hours
- Meningitis
- Positive blood cultures
- Ear pain/otitis
- Burns
- Foreign body ingestion
- Pharyngitis
- Asthma
- Abuse or neglect
- Eye irritation
- Major trauma
- Ingestions
- ICU admissions
- Transfers
- Deaths
- Bronchiolitis
- Gastroenteritis
- Lacerations
- Animal/human bites
- Stridor

ANCILLARY SERVICES

The practice of Emergency Medicine is greatly enhanced by the development of pediatric capabilities within the following ancillary areas:

1. The development of hospital pharmacy procedures and processes which would meet specific pharmaceutical requirements necessary for the care of injured and ill children.
2. The availability of social services and their special skills for patients are needed within the Emergency Department. Enhanced awareness within the Emergency Department of physical and sexual abuse of the pediatric victim necessitates a strong liaison between Emergency Departments and social services.
3. A strong liaison must be maintained between the Emergency Department and the existing Emergency Medical Service (EMS) providers. An optimal arrangement would include the provision of pediatric prehospital protocols which are reviewed by the Director of the EMS system within each region.
4. Emergency Department personnel should be familiar with pediatric sub-specialists available for consultation within their region. This would include not only specific sub-groups of pediatric care but the development of a strong liaison with pediatric referral centers.

SUMMARY:

The purpose of this document is to promote excellence in the care of sick and injured children in the Emergency Department. The Pediatric Emergency Medicine Committee provides these recommendations that are both reasonable and applicable to even the smallest community Emergency

Departments in practice today. The committee in no way wishes to promote "credentialing" of Emergency Departments or appoint itself the designator of "minimum vs. maximal" requirements for pediatric emergency care. By disseminating the above information to Emergency Departments, credibility and support for quality pediatric emergency practice would be greatly enhanced within each Emergency Department.

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QUALITY MANAGEMENT/QUALITY INDICATORS

In the health care system, Quality Assurance or Quality Management is a process in which effectiveness, efficiency and quality of patient care is evaluated. Quality Assurance dates back to 1854 when Florence Nightingale maintained mortality statistics of British soldiers. She produced many studies describing the quality of hospital care available in the British Army. Quality of health care, however, is very difficult to quantify. As a result, there remains no consistent method to measure and document the quality of care on a national basis. Quality Care Management and various methods are outlined below.

Quality Assurance is often conducted as a research process or program to secure the excellence of health care. Components include:

- 1) Standards or indicators which describe quality.
- 2) A system for collecting information about the degree of achievement of standards.
- 3) Actions to bring performance in line with the standards or to bring about change and improvement.

Quality Management refers to a team approach in evaluating indicators and results of patient care. There are two elements essential to quality management.

- 1) Accountability and reporting: The chief of the service is accountable for the quality of care and proper utilization of the facilities within each department.
- 2) A schedule must be kept to properly conduct timely reviews.

Quality Indicators are measurable and accountable items within the health care process that signal whether or not appropriate practitioner interventions were provided. These indicators are reviewed by management to evaluate and verify appropriate interventions.

Quality Improvement occurs after the evaluation process and provides for revision in the method of care or documentation. Re-evaluation must continue after the revision has taken place to insure continued improvement and compliance.

QUALITY MANAGEMENT AND QUALITY CARE PROGRAMS

It is important in any quality care program to include a representative sample of all patients. No segment of the population should be left out. This is especially pertinent in random screening. Outlined below are various methods used for Quality Management evaluation.

Retrospective Chart Review: Charts are randomly reviewed and deficiencies are reported and corrected. This type of review focuses more on the physician\patient process.

Quality Indicators: Identified items are monitored for compliance or outcome. For example, all children less than sixty days old with a fever over 100.5 may be reviewed for outcome.

System Monitors: This method evaluates how things are processed and how well the system is functioning. For example, was the delay in the laboratory responsible for prolonged patient stay or delay in definitive care?

Total Quality Management (Continuous Quality Improvement): This is the newest quality care program method and focuses more on the total process. Scientific data is collected and used to identify faults in the system. The focus is on building quality into the system model and making everyone involved accountable. The system is not designed to place blame, but to empower participants to improve their part in patient evaluation and care.

Quality Assurance in the Emergency Department and particularly the Pediatric Emergency Department is relatively new. Retrospective chart review is the most common method used for quality assurance and lacks uniformity. Indicators designed specifically for the pediatric population have not been fully evaluated and uniform indicators do not exist between institutions.

Gausche, et. al., demonstrated through a survey that many Emergency Departments continue to use the same adult quality indicators for pediatric patients. The same study demonstrated that only 61% of hospitals with "higher annual pediatric census" use specific pediatric quality indicators. Therefore, it would be difficult to recommend that a community hospital emergency department with average or lower pediatric census be held to the same standards as a children's hospital.

There are certain screens for quality that are appropriate and essential for pediatrics. These indicators include: Patient transfers, deaths, CPR, radiology report differing from Emergency Department physician finding, and patient return within forty-eight hours for a similar complaint. These indicators have also been recognized by JCAH. In addition, quality assurance programs, especially in the community Emergency Department should reflect the mix of patient population. For example, if an Emergency population consists of 25% geriatrics and 25% pediatrics, then the quality assurance chart review should consist of at least 20% of these respective patients. Possible reviews include: review of conscious sedation, rapid sequence intubation, fevers over 104, fever 100.6 in under two months old, closed head injuries with GCS of 12 or less, cardiopulmonary resuscitations, return within 72 hours, positive blood cultures, patients with meningitis, child abuse/neglect or sexual abuse, major trauma, intensive care admissions, and transfers.

ACEP encourages institutions to develop Quality Improvement Programs for pediatrics. Use of the common JCAH indicators can be utilized as guidelines, but each institution should evaluate and develop their own quality improvement programs to address the capabilities of their institution and how to access additional resources as needed.

Decision regarding the following should be addressed by individual institutions:

1. Whether to separate pediatric and adult population in patient audits.
2. A specific quality review program for pediatrics should be based on institutional needs and resources. These programs should undergo periodic review and adjustment as improvement or changes occur.
3. Assignment of an appropriate physician representative or physician coordinator to oversee pediatric quality management.

Conclusions:

1. The percentage of charts reviewed should reflect the respective adult and pediatric populations as well as a representative sample for specific diagnoses.
2. The Pediatric Emergency Medicine Committee believes that the information on quality management and quality indicators should be added to the preparedness document, however, no further development of quality indicators should be undertaken by this committee.
3. Institutions should be encouraged to develop a Quality Care Program that reflects its patient population and areas of expertise with regard to adult and pediatric patients.