EMSC
Emergency Medical Services for Children SM

EMERGENCY DEPARTMENTS: PEDIATRIC PREPARED

Ohio EMS for Children Program

- Background
- History
- Performance Measures

Joseph Stack

EMS for Children Coordinator

Ohio Safe Kids Coordinator

Ohio EMS for Children Program

- Started as Emergency Care Committee under Ohio Chapter of the American Academy of Pediatrics in 1979
- Joined with Maternal and Child Health Division of the Ohio Department of Health in 1986
- Strategic plan completed in 1989
  - Ongoing training programs
  - Linkages between rural hospitals and pediatric centers
  - Community support for pediatric programs

Ohio EMS for Children Program

- Demonstration grant from ODH for rural development in 1989
- SB98 moved most state EMS functions to Ohio Department of Public Safety in 1992
- EMSC moved to ODPS in 1992 with other EMS functions to create Division of Emergency Medical Services

Ohio EMSC Achievements

- Dedicated EMSC personnel and funding from the Division of EMS
- Establishment of a formalized state EMSC Advisory Committee which reports to the state EMS Board
- Pediatric Representation on the State EMS Board, State Trauma Committee and Regional Physician Advisory Boards
- Pediatric continuing education at all pre-hospital levels

EMSC Performance Measures

- EMSC is funded through Federal Health Resources & Services Administration
- Performance Measures Implemented by HRSA in 2005
  - Method of measuring progress of grantees
  - Method of reporting to Congress on progress of grantees
  - Measures include pre-hospital, hospital, education, and systemic initiatives

EMSC Performance Measures

- Medical Direction
  - On-line pediatric direction
  - Off-line pediatric direction
- Pre-hospital Equipment
  - List updated in 2009
  - 32% of BLS units, 24% of ALS units carry all items
- Hospital Transfers
  - Written inter-facility guidelines/protocols
  - Written inter-facility agreements
- Pediatric Pre-hospital Education for Recertification

EMSC Performance Measures

- Establishing Permanence of EMSC Program
  - EMSC Committee
    - Required members on EMSC Committee
    - EMSC Committee meets at least 4 times per year
  - EMS Board mandates pediatric representation
  - Full-time EMSC Program Manager
  - Incorporate EMSC priorities (i.e., all the previous Performance Measures) into EMS or hospital statutes or regulations

EMSC Performance Measures

- Performance Measure #74:
  - The percent of hospitals recognized through a statewide, territorial or regional standardized system that are able to stabilize and/or manage pediatric **medical** emergencies.
- Performance Measure #75:
  - The percent of hospitals recognized through a statewide, territorial or regional standardized system that are able to stabilize and/or manage pediatric **traumatic** emergencies.

Consensus of Studies

- Access to pediatric emergency care needs improvement
- Quality of pediatric emergency care needs improvement
- Integration of pediatric emergency care into the overall EMS system needs improvement
- This is where we come in

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Emergency Department:

Pediatric Preparedness

12 Annual Trauma Symposium

August 16, 2011

- Recall studies of Pediatric Care in Emergency Departments
- Guidelines for Pediatric ED Preparedness
- EMS-C initiatives to Bridge the Gap

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FACTS

- 89% of pediatric ED visits occur in general ED
  - -50% of these see less than 10 children/day
- Essential resuscitation equipment is unavailable in EDs
  - -peds IO 16%;
  - -infant blood pressure cuff 15%
  - -peds defibrillator pads 10.5%

- 50% of EDs had >85% of essential supplies but only 6% had all supplies

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FACTS

- Only 50% of EDs have pediatric QI/PI plan
- Of 1st year EM attendings
  - -84% felt adequate with peds cardiopulmonary arrest
  - -96% with adult cardiopulmonary arrest
- Pediatric preparedness of community EDs was strongly linked to
  - -Pediatric volume
  - -Teaching hospital status
  - -Geographic region
  - -Per capita income

Community hospitals vary drastically in capabilities to care for pediatric emergencies

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IOM Report 2006

One word to describe pediatric emergency care is **UNEVEN**.

- Safety

  -Pediatric patients treated at peds hospitals have lower mortality, length of stay, and charges

  -Children are at higher threat to safety issues by physical and developmental vulnerabilities

  -Written transfer agreements only exist at 50% of hospitals that lack ability to care for pediatric trauma patients

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IOM Report 2006

- Timeliness
  - Only 50% of children in moderate to severe pain were offered analgesics
- Training
  - Only 38% of ED physicians are trained and board certified in EM
  - Pediatric skills deteriorate rapidly without practice

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IOM Report 2006

- Guidelines
  - -Use of guidelines has been shown to improve quality of care
- Coordinator
  - -Training and guidelines are useless without someone to ensure and coordinate continuing medical education needs within an institute

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IOM Report 2006

- These shortcomings are often exacerbated in rural areas, where dedicated, well-intentioned prehospital and ED providers often make do without the specialized pediatric training and resources that most of us would expect to be in place.

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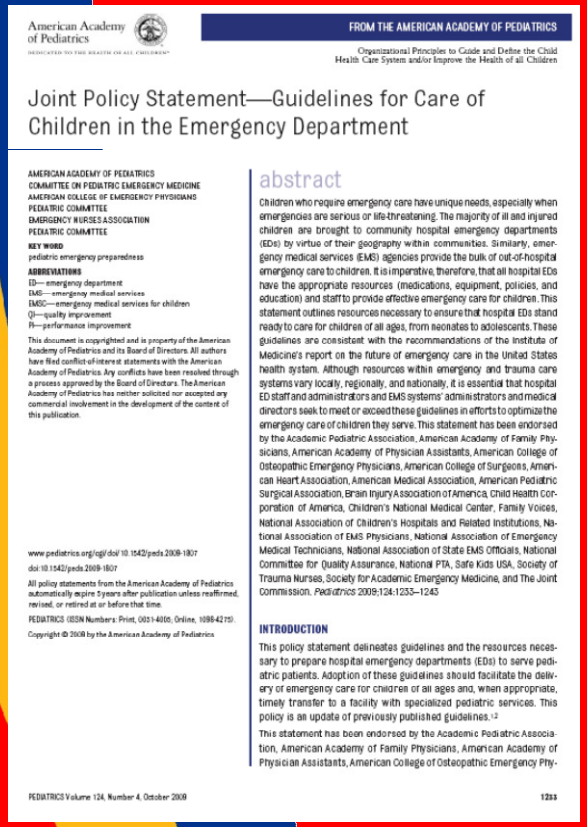
Joint Policy Statement



American Academy of Pediatrics

FROM THE AMERICAN ACADEMY OF PEDIATRICS

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

Joint Policy Statement—Guidelines for Care of Children in the Emergency Department

AMERICAN ACADEMY OF PEDIATRICS
COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE
AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
PEDIATRIC COMMITTEE
EMERGENCY NURSES ASSOCIATION
PEDIATRIC COMMITTEE

KEY WORD
pediatric emergency preparedness

ABBREVIATIONS
ED—emergency department
EMS—emergency medical services
EMSC—emergency medical services for children
QI—quality improvement
PI—performance improvement

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www.pediatrics.org/cgi/doi/10.1542/peds.2009-1807
doi:10.1542/peds.2009-1807

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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abstract

Children who require emergency care have unique needs, especially when emergencies are serious or life-threatening. The majority of ill and injured children are brought to community hospital emergency departments (EDs) by virtue of their geography within communities. Similarly, emergency medical services (EMS) agencies provide the bulk of out-of-hospital emergency care to children. It is imperative, therefore, that all hospital EDs have the appropriate resources (medications, equipment, policies, and education) and staff to provide effective emergency care for children. This statement outlines resources necessary to ensure that hospital EDs stand ready to care for children of all ages, from neonates to adolescents. These guidelines are consistent with the recommendations of the Institute of Medicine's report on the future of emergency care in the United States health system. Although resources within emergency and trauma care systems vary locally, regionally, and nationally, it is essential that hospital ED staff and administrators and EMS systems' administrators and medical directors seek to meet or exceed these guidelines in efforts to optimize the emergency care of children they serve. This statement has been endorsed by the Academic Pediatric Association, American Academy of Family Physicians, American Academy of Physician Assistants, American College of Osteopathic Emergency Physicians, American College of Surgeons, American Heart Association, American Medical Association, American Pediatric Surgical Association, Brain Injury Association of America, Child Health Corporation of America, Children's National Medical Center, Family Voices, National Association of Children's Hospitals and Related Institutions, National Association of EMS Physicians, National Association of Emergency Medical Technicians, National Association of State EMS Officials, National Committee for Quality Assurance, National PTA, Safe Kids USA, Society of Trauma Nurses, Society for Academic Emergency Medicine, and The Joint Commission. *Pediatrics* 2009;124:1233–1243

INTRODUCTION

This policy statement delineates guidelines and the resources necessary to prepare hospital emergency departments (EDs) to serve pediatric patients. Adoption of these guidelines should facilitate the delivery of emergency care for children of all ages and, when appropriate, timely transfer to a facility with specialized pediatric services. This policy is an update of previously published guidelines.[1,2]

This statement has been endorsed by the Academic Pediatric Association, American Academy of Family Physicians, American Academy of Physician Assistants, American College of Osteopathic Emergency Phy-

PEDIATRICS Volume 124, Number 4, October 2009 1233

- Joint Policy statement 2001, 2009
  - AAP/ACEP
  - Guidelines for the care of pediatric patients in the Emergency Department.
    - Care Coordinator
    - Staff training and competency in pediatrics
    - QI/PI guidelines
    - Patient safety
    - Policies, procedures and protocols
    - Supportive services (ie. Radiology)
    - Equipment and medications

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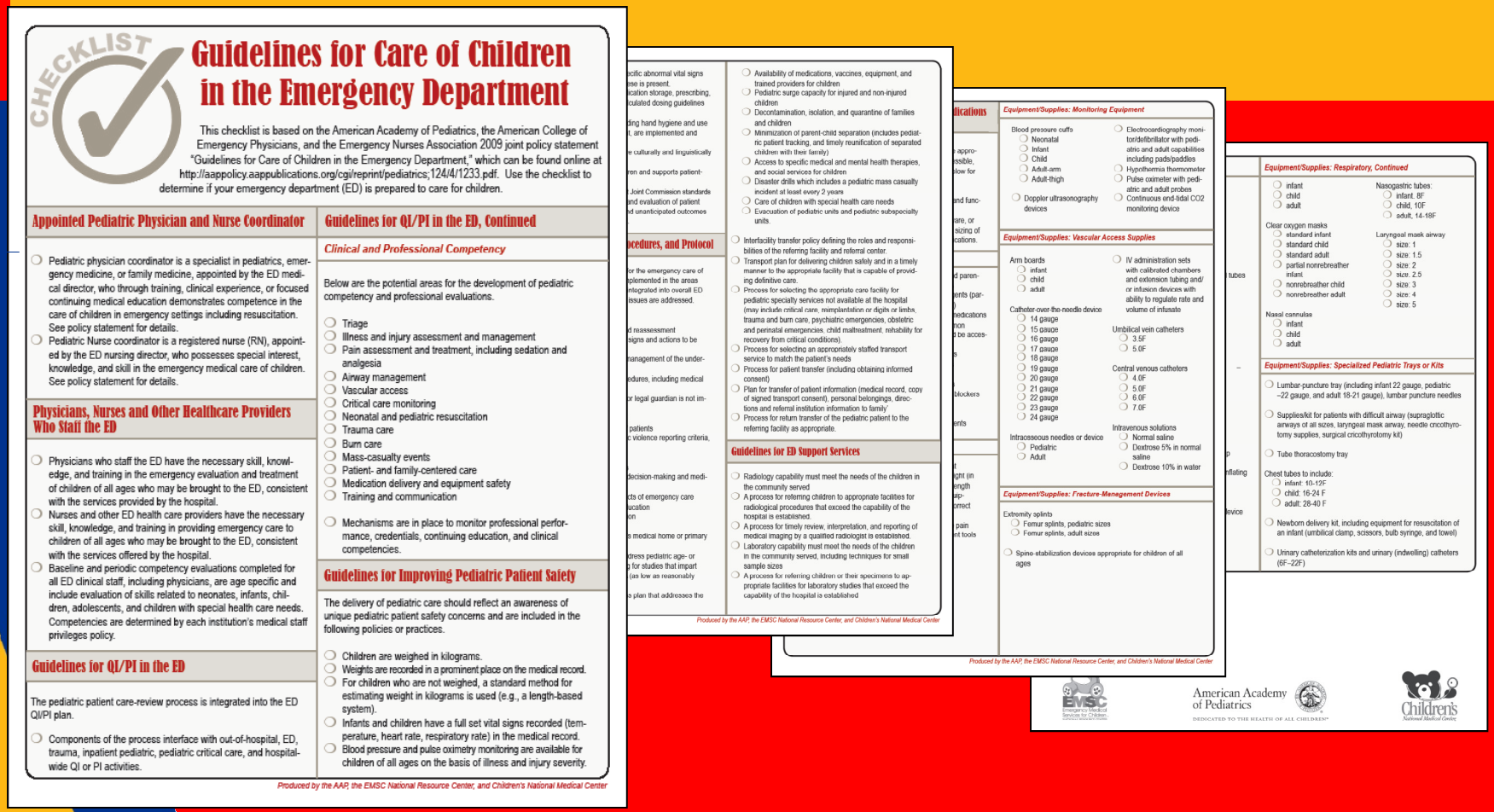
Checklist



Guidelines for Care of Children in the Emergency Department

This checklist is based on the American Academy of Pediatrics, the American College of Emergency Physicians, and the Emergency Nurses Association 2009 joint policy statement "Guidelines for Care of Children in the Emergency Department," which can be found online at http://aappolicy.aappublications.org/cgi/reprint/pediatrics;124/4/1233.pdf. Use the checklist to determine if your emergency department (ED) is prepared to care for children.

Appointed Pediatric Physician and Nurse Coordinator

- ○ Pediatric physician coordinator is a specialist in pediatrics, emergency medicine, or family medicine, appointed by the ED medical director, who through training, clinical experience, or focused continuing medical education demonstrates competence in the care of children in emergency settings including resuscitation. See policy statement for details.
- ○ Pediatric Nurse coordinator is a registered nurse (RN), appointed by the ED nursing director, who possesses special interest, knowledge, and skill in the emergency medical care of children. See policy statement for details.

Physicians, Nurses and Other Healthcare Providers Who Staff the ED

- ○ Physicians who staff the ED have the necessary skill, knowledge, and training in the emergency evaluation and treatment of children of all ages who may be brought to the ED, consistent with the services provided by the hospital.
- ○ Nurses and other ED health care providers have the necessary skill, knowledge, and training in providing emergency care to children of all ages who may be brought to the ED, consistent with the services offered by the hospital.
- ○ Baseline and periodic competency evaluations completed for all ED clinical staff, including physicians, are age specific and include evaluation of skills related to neonates, infants, children, adolescents, and children with special health care needs. Competencies are determined by each institution's medical staff privileges policy.

Guidelines for QI/PI in the ED

The pediatric patient care-review process is integrated into the ED QI/PI plan.

- ○ Components of the process interface with out-of-hospital, ED, trauma, inpatient pediatric, pediatric critical care, and hospital-wide QI or PI activities.

Guidelines for QI/PI in the ED, Continued

Clinical and Professional Competency

Below are the potential areas for the development of pediatric competency and professional evaluations.

- ○ Triage
- ○ Illness and injury assessment and management
- ○ Pain assessment and treatment, including sedation and analgesia
- ○ Airway management
- ○ Vascular access
- ○ Critical care monitoring
- ○ Neonatal and pediatric resuscitation
- ○ Trauma care
- ○ Burn care
- ○ Mass-casualty events
- ○ Patient- and family-centered care
- ○ Medication delivery and equipment safety
- ○ Training and communication

- ○ Mechanisms are in place to monitor professional performance, credentials, continuing education, and clinical competencies.

Guidelines for Improving Pediatric Patient Safety

The delivery of pediatric care should reflect an awareness of unique pediatric patient safety concerns and are included in the following policies or practices.

- ○ Children are weighed in kilograms.
- ○ Weights are recorded in a prominent place on the medical record.
- ○ For children who are not weighed, a standard method for estimating weight in kilograms is used (e.g., a length-based system).
- ○ Infants and children have a full set vital signs recorded (temperature, heart rate, respiratory rate) in the medical record.
- ○ Blood pressure and pulse oximetry monitoring are available for children of all ages on the basis of illness and injury severity.

Produced by the AAP, the EMSC National Resource Center, and Children's National Medical Center

- ○ Availability of medications, vaccines, equipment, and trained providers for children
- ○ Pediatric surge capacity for injured and non-injured children
- ○ Decontamination, isolation, and quarantine of families and children
- ○ Minimization of parent-child separation (includes pediatric patient tracking, and timely reunification of separated children with their family)
- ○ Access to specific medical and mental health therapies, and social services for children
- ○ Disaster drills which includes a pediatric mass casualty incident at least every 2 years
- ○ Care of children with special health care needs
- ○ Evacuation of pediatric units and pediatric subspecialty units.

- ○ Interfacility transfer policy defining the roles and responsibilities of the referring facility and referral center.
- ○ Transport plan for delivering children safely and in a timely manner to the appropriate facility that is capable of providing definitive care.
- ○ Process for selecting the appropriate care facility for pediatric specialty services not available at the hospital (may include critical care, reimplantation or digits or limbs, trauma and burn care, psychiatric emergencies, obstetric and perinatal emergencies ,child maltreatment, rehability for recovery from critical conditions).
- ○ Process for selecting an appropriately staffed transport service to match the patient's needs
- ○ Process for patient transfer (including obtaining informed consent)
- ○ Plan for transfer of patient information (medical record, copy of signed transport consent), personal belongings, directions and referral institution information to family
- ○ Process for return transfer of the pediatric patient to the referring facility as appropriate.

Guidelines for ED Support Services

- ○ Radiology capability must meet the needs of the children in the community served
- ○ A process for referring children to appropriate facilities for radiological procedures that exceed the capability of the hospital is established.
- ○ A process for timely review, interpretation, and reporting of medical imaging by a qualified radiologist is established.
- ○ Laboratory capability must meet the needs of the children in the community served, including techniques for small sample sizes
- ○ A process for referring children or their specimens to appropriate facilities for laboratory studies that exceed the capability of the hospital is established

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Equipment/Supplies: Monitoring Equipment

Blood pressure cuffs
- ○ Neonatal
- ○ Infant
- ○ Child
- ○ Adult-arm
- ○ Adult-thigh

- ○ Doppler ultrasonography devices

- ○ Electrocardiography monitor/defibrillator with pediatric and adult capabilities including pads/paddles
- ○ Hypothermia thermometer
- ○ Pulse oximeter with pediatric and adult probes
- ○ Continuous end-tidal CO2 monitoring device

Equipment/Supplies: Vascular Access Supplies

Arm boards
- ○ infant
- ○ child
- ○ adult

Catheter-over-the-needle device
- ○ 14 gauge
- ○ 15 gauge
- ○ 16 gauge
- ○ 17 gauge
- ○ 18 gauge
- ○ 19 gauge
- ○ 20 gauge
- ○ 21 gauge
- ○ 22 gauge
- ○ 23 gauge
- ○ 24 gauge

Intraosseous needles or device
- ○ Pediatric
- ○ Adult

- ○ IV administration sets with calibrated chambers and extension tubing and/or infusion devices with ability to regulate rate and volume of infusate

Umbilical vein catheters
- ○ 3.5F
- ○ 5.0F

Central venous catheters
- ○ 4.0F
- ○ 5.0F
- ○ 6.0F
- ○ 7.0F

Intravenous solutions
- ○ Normal saline
- ○ Dextrose 5% in normal saline
- ○ Dextrose 10% in water

Equipment/Supplies: Fracture-Management Devices

Extremity splints
- ○ Femur splints, pediatric sizes
- ○ Femur splints, adult sizes

- ○ Spine-stabilization devices appropriate for children of all ages

Equipment/Supplies: Respiratory, Continued

- ○ infant
- ○ child
- ○ adult

Clear oxygen masks
- ○ standard infant
- ○ standard child
- ○ standard adult
- ○ partial nonrebreather infant
- ○ nonrebreather child
- ○ nonrebreather adult

Nasal cannulae
- ○ infant
- ○ child
- ○ adult

Nasogastric tubes:
- ○ infant, 8F
- ○ child, 10F
- ○ adult, 14-18F

Laryngeal mask airway
- ○ size: 1
- ○ size: 1.5
- ○ size: 2
- ○ size: 2.5
- ○ size: 3
- ○ size: 4
- ○ size: 5

Equipment/Supplies: Specialized Pediatric Trays or Kits

- ○ Lumbar-puncture tray (including infant 22 gauge, pediatric ~22 gauge, and adult 18-21 gauge), lumbar puncture needles
- ○ Supplies/kit for patients with difficult airway (supraglottic airways of all sizes, laryngeal mask airway, needle cricothyrotomy supplies, surgical cricothyrotomy kit)
- ○ Tube thoracostomy tray

Chest tubes to include:
- ○ infant: 10-12F
- ○ child: 16-24 F
- ○ adult: 28-40 F

- ○ Newborn delivery kit, including equipment for resuscitation of an infant (umbilical clamp, scissors, bulb syringe, and towel)
- ○ Urinary catheterization kits and urinary (indwelling) catheters (6F–22F)

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EMS-C Ohio

- Goal
  - -Facilitate the implementation of the recommendations of the Joint Policy Statement by the AAP and ACEP
- Support
  - -American Academy of Pediatrics
  - -American College of Emergency Physicians
  - -Emergency Nurses Association
  - -Ohio Hospital Association

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Starting Small

- Beginning with one hospital system in NE Ohio - UH
- Hospital network to support this endeavor
- Affiliation and resources available from Rainbow Pediatric ED
  - -Pediatric Expertise
  - -Pediatric Protocols, policies, procedure
  - -Transfer agreements
  - -Pediatric EMR order sets
  - -CME

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Conclusion

- There is a vast difference in the care of pediatric emergencies by EDs
- IOM has concerns of the quality of care of seriously ill and injured children
- ACEP/AAP have recommendation for all EDs to improve quality of pediatric care
- EMSC goal to facilitate implementation of these recommendations to Ohio Emergency Department

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Implementation

- Hospitals complete a pre-visit survey to identify current ED status
- Ohio EMSC provides a consultation visit to clarify survey information and offer assistance where needed
- Ohio EMSC provides a consultation report summarizing the visit and outlining areas for improvement and sources of support

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Thank you
Questions?