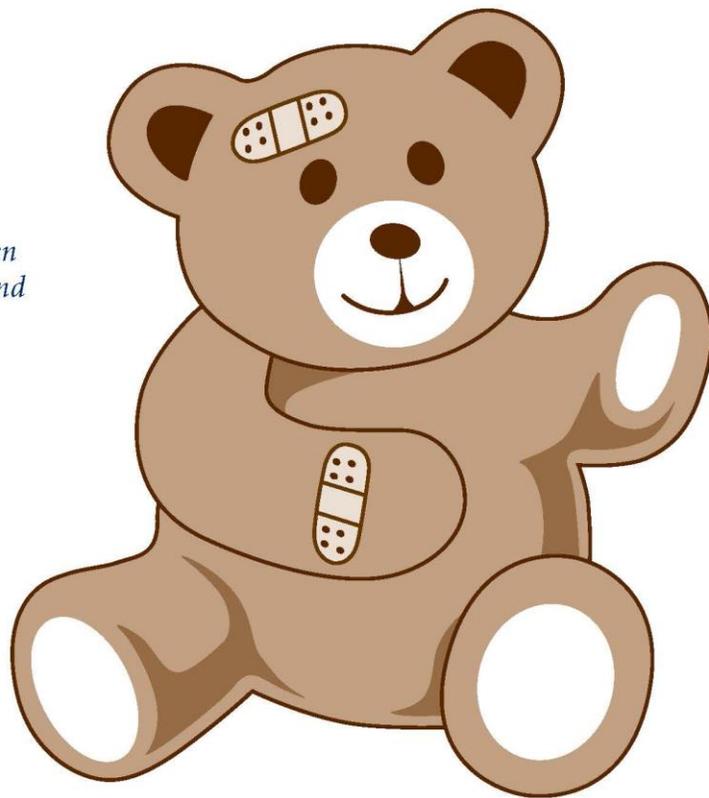


ILLINOIS  
Emergency Medical Services for Children

---

# Pediatric Disaster Preparedness Guidelines

*Illinois Emergency Medical Services for Children is a collaborative program between the Illinois Department of Public Health and Loyola University Medical Center*



**LOYOLA  
UNIVERSITY  
CHICAGO**

*Preparing people to lead extraordinary lives*

[www.luhs.org/emsc](http://www.luhs.org/emsc)  
August 2005

# Table of Contents

---

- Acknowledgements .....3
- How to Use These Guidelines .....3
- Overview.....4
- Disaster Planning.....5
  - Prevention/Mitigation.....5
  - Preparedness .....6
  - Response.....10
  - Recovery .....12
- Conclusion .....13
- Pediatric Preparedness Checklist .....14
- Footnotes.....19
- Additional References .....20

## Acknowledgements

---

These guidelines were developed by Illinois Emergency Medical Services for Children under the direction of the Illinois Terrorism Task Force's Pediatric Bioterrorism Work Group. Illinois Emergency Medical Services for Children is a collaborative program between the Illinois Department of Public Health and Loyola University Medical Center. The Pediatric Bioterrorism Work Group is composed of physicians, nurses, paramedics, pharmacologists and state/local health department personnel as well as representatives from key organizations, such as the American Red Cross, Illinois Association of School Nurses, Illinois Chapter of the American Academy of Pediatrics, Illinois College of Emergency Physicians, Illinois Hospital Association, Illinois State Council of the Emergency Nurses Association, Illinois Medical Emergency Response Team and Illinois Poison Center, among others.

In addition, we are grateful to a number of individuals, committees and organizations from throughout the state who reviewed and provided critical feedback as this document was drafted.

## How to Use These Guidelines

---

These guidelines are offered as a resource in addressing the needs of children during disaster planning. Please note that the recommendations in these guidelines do not indicate an exclusive course of treatment or serve as a standard of medical care. Tailor these guidelines to meet the needs of your organization and consult with key representatives within your organization to ensure compliance with state and federal laws.

Medical knowledge is constantly changing and evolving. These recommendations are based on current information and guidelines found within the medical literature. Variations may be appropriate when taking into account individual circumstances.

**NOTE:** This document defines the pediatric age range as 15 years of age and younger in accordance with the Emergency Medical Services and Trauma Center Code adopted by the Illinois Department of Public Health. Exceptions may include the population of children with special healthcare needs.

## Overview

---

There are more than 3 million children under the age of 18 in Illinois today and nearly 900,000 are age 5 and younger.<sup>1</sup> In the event of a terrorist attack in the state, these children would be one of the most vulnerable populations. It is important to note that children are more vulnerable than adults in many ways.<sup>2</sup>

- A child's condition can shift from stable to life-threatening quite rapidly because he/she has less blood and fluid reserves, is more sensitive to changes in body temperature, and has a faster metabolism.
- Children have smaller circulating blood volumes than adults so if treatment is not immediate, relatively small amounts of blood/fluid loss can lead to irreversible shock or death.
- Children have developmental vulnerabilities not shared by adults. Infants, toddlers and young children do not have the motor skills to escape from the site of a chemical, biological or other terrorist incident. Children also lack cognitive decision-making skills to figure out how to flee from danger or to follow directions from others.
- Children are particularly vulnerable to aerosolized biological or chemical agents because they breathe more times per minute than adults and would inhale larger doses of the substance in the same period of time. Also, because some such agents (e.g., sarin and chlorine) are heavier than air, they accumulate close to the ground — right in the breathing zone of children.
- Children are more vulnerable to the effects of agents that produce vomiting and/or diarrhea because they have less fluid reserve than adults and can become dehydrated faster.
- Children are more vulnerable to agents that act on the skin because their skin is thinner and they have a larger surface-to-mass ratio than adults.

Because of these unique vulnerabilities of children, it is vital that their special needs are addressed in every stage of disaster planning – prevention, preparation, response and recovery. Since 1994, a priority for Illinois Emergency Medical Services for Children (EMSC) has been to ensure that health care providers and health care facilities are prepared to meet the emergency care needs of children. Beginning in 1998, the Illinois Department of Public Health began formally recognizing hospitals for their emergency department (ED) pediatric preparedness through the EMSC Pediatric Facility Recognition process.

Through this process, hospitals voluntarily meet criteria that assist in assuring they have appropriately trained personnel as well as resources and capabilities to handle the needs of the critically ill or injured child. Pediatric facility recognition is an initial step in preparing for pediatric disaster and terrorist events. Therefore, all hospitals are encouraged to strive to become recognized as one of the following:

- Standby Emergency Department Approved for Pediatrics (SEDP); or
- Emergency Department Approved for Pediatrics (EDAP); or
- Pediatric Critical Care Center (PCCC)

The Illinois EMSC facility recognition process is supported by the Illinois Academy of Family Physicians, Illinois Chapter-American Academy of Pediatrics, Illinois College of Emergency Physicians, Illinois State Council-Emergency Nurses Association, Illinois Hospital Association, the Metropolitan Chicago Healthcare Council and other key professional organizations within our state.

Throughout the text of this document are references to Illinois Emergency Medical Services for Children (EMSC) and the EMSC facility recognition criteria. These criteria are set out in administrative rules adopted by the Illinois Department of Public Health in subpart J of the Emergency Medical Services and Trauma Center Code<sup>3</sup> and can also be accessed on the *Illinois EMSC Web site* ([www.luhs.org/emsc](http://www.luhs.org/emsc)).<sup>4</sup>

## Disaster Planning

---

Throughout the United States, health care organizations are working to develop and ensure their disaster preparedness. Integrating pediatric needs into disaster planning is critical; however, children are often a neglected population as disaster plans are developed. According to data collected by the Federal Emergency Management Agency (FEMA) in 1997, no state disaster plan incorporated pediatric components.<sup>5</sup> In order to address this gap, it is essential that the unique needs and vulnerabilities of children be incorporated into disaster plans at every stage of the planning process.

Current disaster management literature organizes disaster planning in the following four phases: *prevention/mitigation, preparedness, response, and recovery*.<sup>6</sup> Using these phases as a framework, this document outlines specific pediatric disaster planning elements that your organization can consider implementing. This document is intended for use as a guide to further enhance the capabilities of your organization in the event of a disaster event that involves the pediatric population.

### PREVENTION/MITIGATION

---

Prevention/Mitigation describes the process of taking proactive sustained actions to lessen or to eliminate the impact of a disaster. The Federal Emergency Management Agency (FEMA) has identified mitigation as the cornerstone of emergency management.<sup>6</sup> Consequently, Illinois EMSC has identified several mitigation related opportunities for pediatric preparedness.

#### Hazard Vulnerability Analysis

Construct a *Hazard Vulnerability Analysis*<sup>7,8</sup> by assessing specific threats unique to your physical structure, campus and the geographic environment surrounding your facility. Conduct a pediatric-specific disaster risk assessment and identify areas where children regularly convene such as schools, popular field trip destinations, summer camps and juvenile justice facilities. A Hazard Vulnerability Analysis contains both qualitative and quantitative components. Specific tools<sup>7,8,9,10</sup> have been developed through the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), FEMA and other organizations that can assist in this analysis. Using these tools as a guide, you can determine what types of hazards have a high, medium or low probability of occurring.

#### Education/Training

Encourage health care practitioners to complete formal training that teaches recognition and appropriate management of life-threatening events in the pediatric population, as well as education that addresses childhood growth and development, assessment, appropriate triaging issues and managing children with special health care needs. Recommended pediatric courses include the following:

- *Advanced Pediatric Life Support (APLS)* – American College of Emergency Physicians (ACEP) and the American Academy of Pediatrics (AAP)
- *Advanced Trauma Life Support (ATLS)* – American College of Surgeons
- *Disaster Preparedness for School Nurses* – National Association of School Nurses
- *Emergency Nursing Pediatric Course (ENPC)* – Emergency Nurses Association
- *Neonatal Resuscitation Program (NRP)* – AAP
- *Pediatric Advanced Life Support (PALS)* – American Heart Association (AHA) and AAP
- *Pediatric Education for Prehospital Professionals (PEPP)* – AAP
- *School Nurse Emergency Care (SNEC)* – Illinois EMSC

NOTE: It is highly recommended that ALL emergency department personnel, Regional Medical Emergency Response Team (RMERT) members and prehospital personnel maintain certification in one or more of the above courses. Course information can be obtained through local sponsoring organizations and facilities. The *Illinois EMSC Web site*<sup>6</sup> also maintains some information on these courses.

## Partnerships

- Develop and nurture relationships with local law enforcement agencies, fire departments, children's hospitals, public health services, mental health care organizations, schools and faith-based organizations.
- Be aware of and collaborate with state emergency response teams such as the Illinois Medical Emergency Response Team (IMERT) and the Illinois Nurse Volunteer Emergency Needs Team (INVENT).

## PREPAREDNESS

---

Preparedness can be defined as pre-disaster activities aimed at strengthening the capacity for response in times of a disaster. It is the process of building your capabilities through planning, training and exercising so that you can effectively respond to and recover from a hazard.<sup>6</sup> Listed in this section are several measures to ensure your facility is prepared to treat critically ill or injured pediatric patients during a disaster or mass casualty incident (MCI).

### Incident Management and Response

- Ensure your facility has taken the appropriate steps to adopt and implement processes, protocols and procedures outlined in the National Incident Management System (NIMS).<sup>11</sup> Incorporate pediatric components through the use of wallet cards, job-action sheets or other forms of portable documentation that identifies pediatric-specific job responsibilities and lists important contact information.
- The Chicago Department of Public Health's Pediatric Bioterrorism Subcommittee has developed several pediatric resources, including job-action sheet templates and organizational charts. These documents can be downloaded from the Chicago Health Alert Network Web site.<sup>12</sup>

### Disaster Drills

- Include sufficient proportions of pediatric victims and child-related scenarios in all disaster drills. Drills also should address children with special health care needs and children with mental health emergencies.<sup>2</sup>
- Conduct drills that exclusively involve pediatric victims or a majority of pediatric victims in various circumstances (e.g., in schools, day care facilities, school buses) to adequately test the capacity of the system to handle pediatric patients.

### Disaster Planning

Ensure that your disaster planning committee includes representation from the following groups who have knowledge and expertise in handling pediatric critical illness or injury:

- Hospital-based pediatricians and other sub specialists (trauma surgeons, anesthesiologists)
- Nurses and other ancillary personnel (e.g., respiratory therapists)
- Child life specialists or individuals trained in recognizing children's unique physical, psychosocial and emotional needs. For example, children will be frightened of health care personnel, especially if they are wearing personal protective equipment (PPE). Conducting routine procedures, such as starting IVs and taking vital signs, will be more challenging. These individuals can identify the best approaches to treatment based on developmental age and environment.

## Pediatric Protocols/Guidelines

Have pediatric protocols or adult/pediatric protocols available that reflect knowledge of the unique treatment needs of children and integrate these protocols into your facility's disaster plan. Health care practitioners can refer to the American Academy of Pediatrics (AAP) *Children, Terrorism & Disasters Toolkit*,<sup>2</sup> which identifies distinct vulnerabilities of children to biological, chemical and other terrorist attacks, and highlights their unique treatment needs.

## Medications

- Children require different medication dosages than adults because of their anatomic and physiological differences. In addition, certain drugs and biological agents may have different effects on the pediatric patient (Refer to the *Equipment/Supply/Medications* appendix of the EMSC facility recognition criteria set out in Appendix L within subpart J of the Emergency Medical Services and Trauma Center Code for recommended emergency medications to have in the ED<sup>13</sup>).
  - The correct medication dose for a child is based on his/her weight. Assure that you have a method in place for correct weight-based dosing.
  - Consider using weight estimation emergency tools. The Broselow-Luten™ Pediatric Emergency Tape is an example of a weight estimation color coded tool.
  - Refer to the *Duke University Medical Center Web site*<sup>14</sup> ([www.dukehealth1.org/deps/emergency.asp](http://www.dukehealth1.org/deps/emergency.asp)) to access a study packet that reviews appropriate use of the Broselow-Luten™ Pediatric Emergency Tape.

**Note:** If using the Broselow-Luten™ Pediatric Emergency Tape, please be aware that the color zones identify the correct milligrams (mg) per kilogram (kg) to administer, but an additional tool or system is needed to calculate the proper milliliter (ml) dose. It is highly recommended to create pre-printed emergency drug sheets that encompass weights from 3 kg to 45 kg based on the drug concentrations that are available at your facility. This will help to avoid medication calculation errors.

- Medication and medical management guidelines for biological, chemical and nuclear events can be accessed in your emergency department *Bioterrorism Treatment Guidelines* handbook or flipchart developed by the Illinois Department of Public Health (IDPH) and the Illinois Poison Center (IPC). These guidelines were developed to clinically guide the health care provider in recognizing various causative agents, their incubation periods, signs/symptoms, laboratory and diagnostic testing, and treatment pertaining to biological, chemical and nuclear events. The guidelines can be downloaded from the *IDPH Web site* ([www.idph.state.il.us/Bioterrorism/pdf/BTFullGuidelines.pdf](http://www.idph.state.il.us/Bioterrorism/pdf/BTFullGuidelines.pdf)).<sup>15</sup> Note that pediatric specific information is italicized and denoted by a teddy bear in the handbook.
- Since access to outside supplies may be difficult during the initial hours/days of a disaster, develop a plan to stock a 72-hour supply of equipment, nutrition and pharmaceuticals for staff, patients and their families. Staff should maintain a 72-hour supply of their own personal medication in lockers or in other secure/accessible areas. Keep in mind that a process for assuring security of these supply items and checking for expiration will need to be developed.

## Equipment

- Children require smaller sized equipment than adults. Ensure your organization has pediatric-specific equipment on site as well as a mechanism for quick retrieval of additional supplies. Refer to the *Equipment/Supply/Medications* appendix of the EMSC facility recognition criteria set out in Appendix L within subpart J of the Emergency Medical Services and Trauma Center Code for recommended equipment in the ED.<sup>13</sup>
- Your facility may routinely transfer pediatric patients to a tertiary care center or other hospital with pediatric specialty services. However, during a disaster event, children may need to be maintained at your hospital. Consider stocking additional practical supplies to have on hand for children, such as extra pillows and blankets, pediatric-sized clothing and hospital gowns, flashlights, batteries, diapers, diaper wipes, formula, dextrose in water, bottles, nipples, and distraction devices such as toys, books, board games, art supplies, bubbles and dolls.

## Family Preparedness

Provide families in your community with guidance on home disaster preparedness so that when disaster strikes, they have a plan in place. This can be accomplished by conducting community educational activities or mailings or by making family preparedness resources available in your ED or hospital waiting areas. Available resources include the following:

- *Family Readiness Kit; Preparing to Handle Disasters*<sup>16</sup> – available on AAP Web site.
- *Children, Disasters & Terrorism Toolkit*<sup>2</sup> – available on AAP Web site
- *Your Family Disaster Plan*<sup>17</sup> – available through the American Red Cross
- *Your Family Disaster Supplies Kit*<sup>18</sup> – available through the American Red Cross
- *Disaster/Terrorism Preparedness Web Resources for the Pediatric Patient* – available on the Illinois EMSC Web site.<sup>4</sup>

## Children with Special Health Care Needs (CSHCN)

Fear, lack of awareness, insufficient equipment and medications, inadequate knowledge and failure to recognize emergencies are all potential barriers to effective emergency care for the CSHCN population. It is imperative to educate these families about the resources and tools available to prepare and respond to an emergency or disaster. Resources for families with CSHCN include the following:

- Contact information for local hospitals, EMS and utility companies
- *Preparing for Emergencies – A Checklist for People with Mobility Problems*<sup>19</sup> – available through FEMA and the American Red Cross
- Identification of “medical home” partners
  - Community emergency planners
  - Illinois Division of Specialized Care for Children<sup>20</sup>
  - Primary medical care providers
  - Schools/day care centers
  - Special care providers
  - Medical equipment suppliers
- *Emergency Information Form (EIF)*<sup>21</sup> – AAP and ACEP. Encourage families to keep one copy of the form in each of the following places:
  - Primary and specialist physician’s office
  - ED where child is most likely to be treated
  - Home – keep where it can easily be found (e.g., on the fridge)
  - In each parent’s vehicle

(continued on next page)

- At each parent’s workplace
  - In each parent’s purse or wallet
  - On file with the school nurse
  - Keep with child wherever he/she goes
  - Emergency contact person’s home
- Identify and work collaboratively with your community’s CSHCN families, facilities with a large volume of CSHCN (e.g., children’s rehabilitation and long-term care centers) and agencies (e.g., Illinois Division of Specialized Care for Children)<sup>20</sup> to assure CSHCN and their families are considered during emergencies/disasters.

## Children and Legal Issues

- Consult legal counsel regarding how your emergency department or organization will address and manage legal dilemmas that may arise with regard to pediatric patients during a disaster situation. Consider, for example, legal issues that may arise when children are separated from their parents or when children are in a mass care, community shelter or decontamination situation.

## Security Concerns Unique to the Pediatric Patient

- Many organizations will face the issue of parent-child separation. Plan to treat families together whenever possible. However, if caregivers and children become separated or are triaged to different levels of care, hospitals will need to establish a plan to secure the safety of these children until government officials or extended family can take temporary custody.<sup>22</sup>
- Designate a holding area and staff to supervise and support children who have been separated from family members. General staffing guidelines for the holding area are as follows:
  - 1 adult to 4 infants
  - 1 adult to 10 preschool children
  - 1 adult to 20 school-age children
  - Detailed staffing guidelines can be accessed in Section 407.190 of the *Illinois Licensing Standards for Day Care Center rules*<sup>23</sup> adopted by the Illinois Department of Children and Family Services which outlines appropriate staff/child ratios.
- Take digital or Polaroid™ pictures of each non-identified patient upon arrival to facilitate identification at a later time. If the child is able to tell you his/her name, write it on the back of the picture. Also include a description of the child, for example, “Child is a female with blonde hair, wearing a blue coat, black shoes and carrying a blue backpack.”
- Utilize an emergency patient tracking system for patients and patient belongings. An example is the American Red Cross’ *Patient Connection Program*. Through this system, the Red Cross can track patient admissions, provide appropriate information to inquiring families and allow clinical staff to stay focused on delivering medical care. To establish a patient connection agreement between your facility and the American Red Cross, contact your local Red Cross chapter.

## Surge Capacity

- In a mass casualty event, it is likely that the resources to assist children will be scarce, and staff inexperience with pediatric critical injury and illness will result in an inadequate “surge capacity.” There are typically fewer pediatric hospital beds and pediatric specialists available in most communities. As part of the preparedness phase, your facility should predetermine your capacity for pediatric casualties and have a plan in place to be able to increase your pediatric surge capacity. For example, if a hospital is preparing to handle 100 victims, estimate that at least 15 to 20 of those patients will be 15 years of age or younger. **Note:** This is an estimate based on assumptions of surge capacity and the percentage of pediatric vs. adult patients in the general population. There are many disasters (such as a school bus incident) that would alter this assumption.
- Strategies to increase surge capacity within the hospital should be consistent with and integrated within your regional disaster plan. All appropriate available space should be utilized. Some areas to consider include the following:
  - Converting outpatient procedure beds into inpatient beds
  - Discharging patients in a timely manner
  - Establishing discharge holding area
  - Using hallways or creating alternate treatment areas (e.g., cafeteria, on-site fitness center).
- Strategies to create pediatric emergency treatment capacity outside the hospital
  - Initiate mutual agreements with other health care facilities, such as pediatric long-term care and rehabilitation facilities.
  - Utilize mobile clinics, hospital-based ambulances, faith-based facilities, fitness centers and/or schools as alternate treatment areas.
  - Establish relationships with pediatric tertiary care centers.

## RESPONSE

---

Response is the actual conduction of emergency operations to save lives and property.<sup>6</sup> In the event of a pediatric disaster or disaster that involves pediatric patients, measures noted in this section can assist with appropriate response.

### Initial Response

- Identify the situation. While obtaining information about the incident (e.g., explosion, biological attack or chemical vapor release), be sure to find out as quickly as possible the potential number of pediatric victims, so that your facility can begin preparations to manage these children.
- Activate pediatric staff. Contact previously identified credentialed pediatric disaster team members, including mental health professionals and/or social workers, to provide supportive services for children.

### Triage

A standardized triage system provides guidance for personnel making life and death decisions that otherwise may be influenced by emotional issues when triaging children. *JumpStart Pediatric Multiple Casualty Incident Triage*<sup>24</sup> is an objective triage system that addresses the needs of children and can be a resource tool when planning a triage process for pediatric patients.

## Decontamination

- Special considerations need to be made for children during decontamination procedures. Since children lose their body heat quickly, assure access to warm shower water. In addition, assure that the shower system is high volume/low pressure.
- Consider decontamination systems that are designed for use in children of all ages (including infants), of the parentless child, of the non-ambulatory child and of the child with special health care needs. These shower decontamination units must be able to accommodate an adult (parent or caretaker) as well as the child, so that families can shower together.
- Most children will need assistance with decontamination. Those without parents will need hospital personnel to decontaminate them. **REMEMBER: CHILDREN DO NOT LIKE SHOWERS; THEY WILL SCREAM AND RESIST.** Therefore, proper decontamination of children could take significantly longer than with adults.<sup>25</sup> Health care practitioners need to be aware of this during disaster planning.
- Plan for how contaminated infants or young children should be carried through decontamination systems. Take into consideration that when infants are wet, they will be slippery. Avoid potential injury by carrying them through decontamination systems in plastic baskets, car seats or on a stretcher.
- Immediate access to warming equipment and supplies is essential after showering. Your facility should have access to several of the following pieces of equipment to ensure the child or infant's body temperature remains normothermic:
  - Fluid/blood warmer
  - Warming blankets
  - Forced-air warming therapy (e.g., *Bair Hugger Temperature Management System*<sup>TM</sup>)<sup>26</sup>
  - Overhead heat lamps
  - Isolettes/radiant warmers
  - Appropriate sized gowns
- As mentioned previously, families should be decontaminated together whenever possible. However, when this is not possible, decontaminate the child and send him/her to a designated holding area. Plan for how children will be reunited with family members after the process.
- *The Center for BioPreparedness at Children's Hospital Boston*<sup>27</sup> has developed an educational video titled "The Decontamination of Children." The video addresses best practices in decontaminating children. Information is available on the *AHRQ* Web site<sup>28</sup> and *Illinois EMSC* Web site.<sup>4</sup>

## Evacuation

- Evacuation of your facility may be necessary in the event of a fire, structural damage, hazardous material or bomb threats. Evacuation may be partial (involving limited units) or total (involving the whole building). Evacuation of patients and personnel from the emergency department should be implemented as a last resort. When evacuation is indicated, the following activities are critical:
  - Transport newborns and infants in transport incubators. (If incubators are not available, leave them in warmers for as long as possible before evacuation.)
  - Children on ventilators should be hand-bagged by qualified practitioners.
  - Direct ambulatory patients to a pre-determined assembly area.
  - Designate personnel to provide care and supervision to pediatric patients.
  - Implement a method for reuniting children with family members

## RECOVERY

---

Recovery involves rebuilding the community so individuals, families, businesses and governments can function again on their own, return to normal life and protect against future hazards.<sup>6</sup> This section contains some necessary steps your organization can take during the recovery phase of a disaster to address pediatric needs.

### Disaster Critique

Critique your disaster plan or disaster after each drill or event, and identify opportunities for improvement and modification.

- *Johns Hopkins Evidence-based Practice Center (EPC)* has developed a set of data collection instruments<sup>39</sup> for use in the assessment of disaster drills. The instruments were developed in modules so that users can choose the components they need to evaluate. The modules address incident command system, triage, decontamination, in-hospital treatment centers and post-drill debriefing.

### Mental Health Issues

- Refer to local psychiatric referral centers and other resources typically accessed during a non-disaster situation to identify local credentialed pediatric mental health practitioners who can be part of the first response team in a disaster situation. Organizations can also utilize the Substance Abuse and Mental Health Services Administration (SAMHSA) *Mental Health Services Locator*<sup>30</sup> for information related to mental health services and resources and to locate trained mental health providers.
- Help families transition after the disaster by encouraging parents to –
  - Let their children know they're safe
  - Offer verbal reassurance that the events are not the child's fault
  - Allow their children to talk about their feelings and worries, if they want to. If their child does not want to talk about what happened, encourage them to draw a picture or write a story about it.
  - Provide a safe outlet for aggression, such as kneading Playdoh™, yelling into a pillow or exercise.

(continued on next page)

- Validate children’s fears anxieties or feelings of injustice, no matter how trivial they may seem.
- Go back to everyday routines as soon as possible.
- Increase time with family and friends.
- Take time to deal with the parent’s own feelings.
- Keep in mind that people in the same family can react in different ways.
- Provide health care providers, children and families with resources on mental health and recovery following traumatic events. Include educational materials that review how to recognize and monitor the potential acute and longer-term psychological impact of disaster events on children. Resource examples include *The Handbook of Frequently Asked Questions Following Traumatic Events: Violence, Disasters, or Terrorism*<sup>31</sup> and Web-based mental health resources on the *Illinois EMSC* Web site.<sup>4</sup>

## Conclusion

---

This document was created to promote awareness of children’s unique vulnerabilities in a disaster or mass casualty incident and to guide organizations in integrating pediatric considerations into their disaster plans. Implementing these recommendations and guidelines is only the first step in improving emergency and disaster preparedness for children. A collaborative effort by health care providers, communities, families and individuals is needed to assure preparedness for children in every stage of the planning process.

## Illinois EMSC Pediatric Preparedness Checklist

Objective	In Progress	Target Date of Completion	Date of Completion
<b>PREVENTION/MITIGATION</b>			
<b>Hazard Vulnerability Analysis</b> <ul style="list-style-type: none"> <li>■ Conduct a pediatric-specific disaster risk assessment.</li> <li>■ Identify local areas where children regularly convene, e.g., schools, juvenile justice facilities.</li> </ul>			
<b>Education</b> <p>Ensure staff obtain and maintain certification in pediatric education. Encourage education that includes growth and development, assessment, triage, management and CSHCN population. Nationally recognized courses include the following:</p> <ul style="list-style-type: none"> <li>■ Advanced Pediatric Life Support (APLS)</li> <li>■ Advanced Trauma Life Support (ATLS)</li> <li>■ Disaster Preparedness for School Nurse Workshop (NASN)</li> <li>■ Emergency Nursing Pediatric Course (ENPC)</li> <li>■ Neonatal Resuscitation Program (NRP)</li> <li>■ Pediatric Advanced Life Support (PALS)</li> <li>■ Pediatric Education for Prehospital Professionals (PEPP)</li> <li>■ School Nurse Emergency Care (SNEC) course</li> </ul>			
<b>Partnerships</b> <p>Develop relationships with</p> <ul style="list-style-type: none"> <li>■ Local law enforcement agencies</li> <li>■ Fire departments</li> <li>■ Children's hospitals</li> <li>■ Public health services</li> <li>■ Mental health care organizations</li> <li>■ Schools</li> <li>■ Faith-based organizations</li> <li>■ Pediatric tertiary care centers</li> </ul>			
<b>PREPAREDNESS</b>			
<b>Incident Management and Response</b> <p>Incorporate pediatric components through</p> <ul style="list-style-type: none"> <li>■ Wallet cards</li> <li>■ Job-action sheets</li> <li>■ Other</li> </ul>			

Objective	In Progress	Target Date of Completion	Date of Completion
<p><b>Disaster Drills</b></p> <p>Conduct drills that include</p> <ul style="list-style-type: none"> <li>■ Pediatric victims</li> <li>■ Child-related scenarios</li> <li>■ Mental health emergencies</li> <li>■ Children with special health care needs (CSHCN)</li> </ul>			
<p><b>Disaster Planning</b></p> <ul style="list-style-type: none"> <li>■ Involve pediatricians and other pediatric specialists on the disaster planning committee, e.g., child life specialists</li> <li>■ Have pediatric protocols or adult/pediatric protocols in place and readily accessible.</li> </ul>			
<p><b>Medications</b></p> <ul style="list-style-type: none"> <li>■ Establish capabilities to maintain a supply of EMSC, AAP and ACEP recommended pediatric emergency medications.</li> <li>■ Provide access to the IDPH/IPC <i>Bioterrorism Treatment Guidelines</i> handbook and flipchart. <b>NOTE:</b> Pediatric info is italicized and denoted by a teddy bear in the handbook.</li> <li>■ Verify that a method is available for correct weight-based dosing.</li> <li>■ Verify staff have received training in use of a method for correct weight-based dosing. <ul style="list-style-type: none"> <li>■ If method <i>only</i> provides milligrams (mg) per kilogram (kg), have precalculated dosing forms in place to identify proper milliliters (ml) dose. <b>Note:</b> Ensure tool reflects drug concentrations available thru your pharmacy.</li> </ul> </li> </ul>			
<p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>■ Establish capabilities to maintain EMSC, AAP and ACEP recommended pediatric emergency supplies and equipment.</li> <li>■ Stock miscellaneous pediatric supplies on-site in the event that a large volume of pediatric patients need to be admitted. Examples include <ul style="list-style-type: none"> <li>■ Pillows</li> <li>■ Blankets</li> <li>■ Clothing/hospital gowns</li> </ul> </li> </ul>			

Objective	In Progress	Target Date of Completion	Date of Completion
<ul style="list-style-type: none"> <li>■ Flashlights</li> <li>■ Batteries</li> <li>■ Diapers/diaper wipes</li> <li>■ Formula/Dextrose in H<sub>2</sub>O</li> <li>■ Toys/activities</li> </ul>			
<p><b>Family Preparedness</b></p> <p>Provide community outreach education, including guidance on home disaster preparedness. Some examples include</p> <ul style="list-style-type: none"> <li>■ Conduct community educational activities.</li> <li>■ Make family preparedness resources available in your organization.</li> </ul>			
<p><b>Children with Special Health Care Needs</b></p> <ul style="list-style-type: none"> <li>■ Encourage parents/caregivers to maintain an updated Emergency Information Form (EIF) on their child and to access emergency and disaster preparedness resources and tools.</li> <li>■ Establish relationships with children’s rehabilitation centers and long-term care centers to assist with care during a disaster event.</li> </ul>			
<p><b>Legal Issues</b></p> <p>Involve legal counsel in disaster planning to ensure strategies are in place to address potential pediatric issues, e.g., parent/child separation.</p>			
<p><b>Security Concerns</b></p> <ul style="list-style-type: none"> <li>■ Develop a plan to treat families together whenever possible.</li> <li>■ When this is not possible, establish a plan to secure the safety of separated children. <ul style="list-style-type: none"> <li>■ Designate a holding area and staff to supervise and support children.</li> <li>■ Take digital or Polaroid™ pictures of each non-identified patient upon arrival.</li> <li>■ Utilize an emergency patient tracking system for patients and patient belongings.</li> <li>■ Work with the American Red Cross to develop a patient tracking process.</li> </ul> </li> </ul>			

Objective	In Progress	Target Date of Completion	Date of Completion
<p><b>Surge Capacity</b></p> <ul style="list-style-type: none"> <li>■ Predetermine your capacity for pediatric patients.</li> <li>■ Identify strategies to increase pediatric surge capacity.</li> </ul>			
<b>RESPONSE</b>			
<p><b>Pediatric Disaster Team</b></p> <ul style="list-style-type: none"> <li>■ Identify a plan for contacting and activating pediatric disaster team members, including mental health professionals and/or social workers.</li> <li>■ Have a call list with pediatric disaster team members readily accessible.</li> </ul>			
<p><b>Triage</b></p> <p>Adopt an objective triage system that addresses the needs of children.</p>			
<p><b>Decontamination</b></p> <ul style="list-style-type: none"> <li>■ Train personnel in special needs of children during decontamination.</li> <li>■ Identify a plan for safely carrying infants and children thru the decontamination system.</li> <li>■ Ensure access to warm water and high volume/low pressure shower capabilities.</li> <li>■ Stock warming equipment and supplies for use after showering.</li> </ul>			
<p><b>Evacuation</b></p> <ul style="list-style-type: none"> <li>■ Ensure that transport mechanisms are equipped to maintain body temperature.</li> <li>■ Designate personnel to provide care and supervision to pediatric patients.</li> </ul>			
<b>RECOVERY</b>			
<p><b>Disaster Critique</b></p> <ul style="list-style-type: none"> <li>■ Critique disaster plan and drills to identify opportunities for improvement. Utilize assessment tools, e.g., <i>Johns Hopkins Evidence-based Practice Center data tools</i>.</li> </ul>			

Objective	In Progress	Target Date of Completion	Date of Completion
<p><b>Mental Health Issues</b></p> <ul style="list-style-type: none"> <li>■ Identify local credentialed mental health practitioners to participate on your response team.</li> <li>■ Identify resources to the community related to mental health and recovery following traumatic events.</li> </ul>			

## Footnote References

---

- <sup>1</sup> United States Census Bureau. *State and County Quick Facts*, 2003. <http://quickfacts.census.gov/qfd/states/17000.html>
- <sup>2</sup> American Academy of Pediatrics (AAP) (2002). *Children, Terrorism and Disasters Toolkit*. [www.aap.org/terrorism](http://www.aap.org/terrorism)
- <sup>3</sup> 77 Ill. Adm. Code 515.4000 et seq. available at <http://ilga.gov/commission/jcar/admincode/077/07700515sections.html>
- <sup>4</sup> Illinois Emergency Medical Services for Children (EMSC). Information available at [www.luhs.org/emsc](http://www.luhs.org/emsc)
- <sup>5</sup> National Advisory Committee on Children and Terrorism (2003). Recommendations to the Secretary of Health and Human Services. Available at <http://www.bt.cdc.gov/children/PDF/working/Recommend.pdf>
- <sup>6</sup> Federal Emergency Management Agency (FEMA) (2000). *Annual Performance Plan*. Available at [www.fema.gov/library/pp2intro.shtm](http://www.fema.gov/library/pp2intro.shtm)
- <sup>7</sup> American Society for Healthcare Engineering of the American Hospital Association (2001). *Hazard Vulnerability Analysis*. Available at [http://www.gnyha.org/eprc/general/guidelines/200102\\_HVA\\_TechDoc.pdf](http://www.gnyha.org/eprc/general/guidelines/200102_HVA_TechDoc.pdf)
- <sup>8</sup> Federal Emergency Management Agency (2004). *Understanding Your Risks: identifying hazards and estimating losses (FEMA 386-2)*. Available at <http://www.fema.gov/fima/howto2.shtm>
- <sup>9</sup> Kaiser Permanente. *Medical Center Hazard and Vulnerability Analysis Tool*. Available at [http://www.emsa.ca.gov/dms2/kaiser\\_model.xls](http://www.emsa.ca.gov/dms2/kaiser_model.xls)
- <sup>10</sup> Security Management Online. *Hazard Vulnerability Analysis Tool*. Available at [http://www.securitymanagement.com/library/healthcare\\_link0702.pdf](http://www.securitymanagement.com/library/healthcare_link0702.pdf)
- <sup>11</sup> National Incident Management System (NIMS). Information available at <http://www.fema.gov/nims/>
- <sup>12</sup> Chicago Department of Public Health, Chicago Health Alert Network, Resources and Tools. [http://egov.cityofchicago.org/city/webportal/portalDeptCategoryAction.do?deptCategoryOID=-536893252&contentType=COC\\_EDITORIAL&topChannelName=SubAgency&entityName=HAN&deptMainCategoryOID=-10931](http://egov.cityofchicago.org/city/webportal/portalDeptCategoryAction.do?deptCategoryOID=-536893252&contentType=COC_EDITORIAL&topChannelName=SubAgency&entityName=HAN&deptMainCategoryOID=-10931)
- <sup>13</sup> Equipment/Supply/Medications appendix of the EMSC Facility Recognition criteria set out in Appendix L within subpart J of the Emergency Medical Services and Trauma Center Code (77 Ill. Adm. Code 515.4000 et seq.). Available at <http://ilga.gov/commission/jcar/admincode/077/07700515ZZ99961R.html>
- <sup>14</sup> Duke University Medical Center and the U.S. Department of Health and Human Services Health Resources and Services (2002). *Duke Enhancing Pediatric Safety (DEPS)*. Available at [www.dukehealth1.org/deps/emergency.asp](http://www.dukehealth1.org/deps/emergency.asp)
- <sup>15</sup> Illinois Department of Public Health (IDPH) and Illinois Poison Control Center (IPC) (2003). *Bioterrorism Treatment Guidelines*. Available at <http://www.idph.state.il.us/Bioterrorism/pdf/BTFullGuidelines.pdf>
- <sup>16</sup> American Academy of Pediatrics. (2nd edition). *Family Readiness Kit; Preparing to Handle Disasters*. Available at <http://www.aap.org/family/frk/frkit.htm>
- <sup>17</sup> American Red Cross. *Your Family Disaster Plan*. Available at [http://www.redcross.org/static/file\\_cont36\\_lang0\\_23.pdf](http://www.redcross.org/static/file_cont36_lang0_23.pdf)
- <sup>18</sup> American Red Cross. *Your Family Disaster Supplies Kit*. Available at <http://www.redcross.org/disaster/safety/fds-all.pdf>
- <sup>19</sup> American Red Cross and Federal Emergency Management Agency (1992). *Preparing for Emergencies-A Checklist for People with Mobility Problems*. Available at <http://www.fema.gov/pdf/rrr/mob-all.pdf>
- <sup>20</sup> Illinois Division of Specialized Care for Children. Information available at <http://www.uic.edu/hsc/dscc/index.htm>
- <sup>21</sup> American Academy of Pediatrics and the American College of Emergency Physicians, Emergency Information Form. Available at [www.aap.org/advocacy/eif.doc](http://www.aap.org/advocacy/eif.doc)
- <sup>22</sup> Freishtat RJ, Wright JL, and Holbrook PR. Issues in Children's Hospital Disaster Preparedness. *Clinical Pediatric Emergency Medicine* 3(4), 2002.

<sup>23</sup> Illinois Licensing Standards for Day Care Centers. 89 Ill. Adm. Code 407.190. Available at <http://www.ilga.gov/commission/jcar/admincode/089/089004070D01900R.html>

<sup>24</sup> Romig, L. (2001). *JumpStart Pediatric Multiple Casualty Incident Triage*. Available at <http://www.jumpstarttriage.com/default.asp>

<sup>25</sup> Center for Pediatric Emergency Medicine (CPEM) PowerPoint Presentation (2004). *Controversies in Preparation and Response for Children in the Face of Terrorism or Disaster*.

<sup>26</sup> Bair Hugger Temperature Management System™ Information available at <http://www.bairpaws.com/arizanthhealthcare/faw.shtml>

<sup>27</sup> The Center for BioPreparedness at Children's Hospital Boston. Information available at [http://web1.tch.harvard.edu/chnews/07-18-03/newcenter\\_p.html](http://web1.tch.harvard.edu/chnews/07-18-03/newcenter_p.html)

<sup>28</sup> Agency for Healthcare Research & Quality (AHRQ). Information available at <http://www.ahrq.gov/>

<sup>29</sup> Johns Hopkins University Evidence-based Practice Center (EPC) (2003). *Evaluation of Hospital Disaster Drills: A Module-Based Approach*. Available at <http://www.ahrq.gov/research/hospdrills/hospdrill.htm#download>

<sup>30</sup> Substance Abuse and Mental Health Services Administration's (SAMHSA). *Mental Health Services Locator*. Information available at <http://www.mentalhealth.samhsa.gov/databases/>

<sup>31</sup> International Center to Heal Our Children: Building Healthy Minds and Futures, Children's National Medical Center (2002). *The Handbook of Frequently Asked Questions Following Traumatic Events: Violence, Disasters, or Terrorism*. Available at [www.dccchildrens.com](http://www.dccchildrens.com)

## Additional References

---

American Academy of Pediatrics. *Emergency Preparedness for Children with Special Health Care Needs; Instructions for Parents*.

American Red Cross (2002). *Homeland Security Advisory System Recommendations for Family*. Available at [www.redcross.org](http://www.redcross.org)

Blaschke, G.S., Palfrey, J.S. & Lynch, J. Advocating for children during uncertain times. *Pediatric Annals*. 32(4):271-4, 2003 Apr.

Centers for Disease Control and Prevention (2003). *NACCT: Recommendations to the Secretary*. Available at: [www.bt.cdc.gov](http://www.bt.cdc.gov)

Center for Pediatric Traumatic Stress (CPTS) at the Children's Hospital of Philadelphia. *After the Injury: Helping My Child Cope*. Available at [www.chop.edu/cpts](http://www.chop.edu/cpts)

Emergency Medical Services for Children Resource Center (2001). *After the Emergency is Over: Post-Traumatic Stress Disorder in Children and Youth*.

Illinois Emergency Medical Services for Children (2003). *School Nurse Emergency Care Course*.

Johns Hopkins Evidence-based Practice Center (2002). Web site available at <http://www.hopkinsmedicine.org/epc/>

Mailman School of Public Health at Columbia University (2003). *Executive Summary of Pediatric Preparedness for Disaster and Terrorism: A National Consensus*. Available at [http://www.ncdp.mailman.columbia.edu/program\\_pediatric.htm](http://www.ncdp.mailman.columbia.edu/program_pediatric.htm)

Ohio Developmental Disabilities Council (2004). *Emergency Preparedness from the Lifespan Conference*. Available at [www.ddc.ohio.gov/Pub/emergency.htm](http://www.ddc.ohio.gov/Pub/emergency.htm)

U.S. Department of Justice modified by MCHC CAPES (Clinical, Administrative, Professional and Emergency Services) EMS subcommittee (2001). *Characteristics of Biologic, Nuclear, Incendiary, and Chemical Agents*.

Wheeler, D.S. and Poss, W.B. Mass casualty management in a changing world. *Pediatric Annals*. 32(2):98-105, 2003 Feb.

Yu, C.E. Medical response to radiation-related terrorism. *Pediatric Annals*. 32(3):169-76, 2003 Mar.