

The Youngest Victims: Disaster Preparedness to Meet Children's Needs

Children Are More Vulnerable Than Adults

Children are not little adults. Their developing minds and bodies place them at disproportionate risk in a number of specific ways:

- Children are particularly vulnerable to aerosolized biological or chemical agents because they breathe more times per minute than adults, meaning they would get relatively larger doses of the substance in the same period of time. Also, because some such agents (eg, 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 agents that act on or through the skin because their skin is thinner and they have a larger surface-to-mass ratio than adults.
- Children are more vulnerable to the effects of agents that produce vomiting or diarrhea because they have less fluid reserve than adults, increasing the risk of rapid dehydration.
- Children have smaller circulating blood volumes than adults so, without rapid intervention, relatively small amounts of blood loss can quickly tip the physiologic scale from reversible shock to profound, irreversible shock or death.
- Children have significant 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. Even if they are able to walk, young children may not have the cognitive ability to figure out how to flee from danger or to follow directions from others.

Children Have Unique Treatment Needs

Once children are critically ill or injured, their bodies will respond differently than adults in similar medical crises. Consequently, pediatric treatment needs are unique in a number of ways:

- Children need different dosages of medicine than adults—not only because they are smaller, but also because certain drugs and biologicals may have effects on developing children that are not of concern for the adult population.
- Children need different sized equipment than adults. Because children have smaller bodies, they require smaller equipment. From needles and tubing, to oxygen masks and ventilators, to imaging and laboratory technology, children need equipment that has been specifically designed for their size.
- Children demand special consideration during decontamination efforts. Because children lose body heat more quickly than adults, skin decontamination showers that are safe for adults may result in hypothermia in children unless heating lamps or other warming equipment is provided.

Children Have Unique Mental Health Needs

Just as children's developing bodies affect their response to physical trauma, children's developing minds pose unique challenges to providing quality mental health care.

- Children's reactions to situations beyond the usual scope of human experience, such as a terrorist attack or other disaster, will vary greatly depending on the child's cognitive, physical, educational, and social development level and experience.
- Children are highly influenced by the emotional state of their caretakers. When the parents or other caretakers of a child are psychologically harmed by the events around them, it is likely to affect the psychological well-being of the child.

Children Need Care From Providers Trained to Meet Their Unique Needs

Because children respond differently than adults in a medical crisis, it is critical that all health care workers be able to recognize the unique signs and symptoms in children that may indicate a life-threatening situation, and to respond accordingly.

- A child's condition can go from stable to life-threatening quite rapidly because they have less blood and fluid reserves, are more sensitive to changes in body temperature, and have faster metabolisms.
- Children may struggle against the efforts of health care workers because they do not understand what is going on or may be frightened by the appearance of workers in protective gear.
- Each child reacts to disaster according to his or her development stage. Providing quality mental health care to children requires a familiarity with age-appropriate intervention.

Disaster Planning to Meet Children's Needs

To meet the unique needs of all infants, children, adolescents, and young adults, it is critical that our community preparedness efforts involve pediatric health care experts, as well as key facilities, institutions, and agencies that care for children.

- Federal, state, and local disaster plans should include specific protocols for management of pediatric casualties and should include pediatricians in planning at every organizational level.
- Pediatric health care facilities (eg, children's hospitals, pediatric emergency departments, and pediatricians' offices) should be included in all aspects of preparation because they are likely to become primary sites for managing child casualties. Financial support should be provided to create specialized areas for children such as isolation zones and decontamination rooms.
- Local disaster teams should include pediatricians and other personnel skilled at evaluating and treating children.
- Schools and child care and after-school care facilities must be prepared to evacuate children (including those who are too young to walk and/or follow directions and those with special health care needs), take them to a safe place, notify parents, reunite children with their families, provide or arrange care for children whose parents are incapacitated or cannot reach them, and render first aid.
- Poison centers should be included in local preparedness planning efforts. These centers can be used as resources and central clearinghouses for toxicologic information that is to be given to the public and health care personnel. Information including antidotes and decontamination strategies may be rapidly distributed by poison centers to hospitals, police, and the public.
- Government agencies should work to ensure that adequate supplies of antibiotics, antidotes, and vaccines are available to children, that they are safe and efficacious, and that pediatric doses are established. Resource allocation plans should ensure that these agents are readily available to pediatric health care sites and other locations where children may congregate.
- Research and development efforts related to terrorism and other disasters should address children's needs. The unique needs of children should be considered in such areas as prevention, communication, community preparedness, countermeasures, therapeutics, and emergency response.

For additional information, please visit the American Academy of Pediatrics' Children, Terrorism & Disasters Web site at www.aap.org/terrorism.

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The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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