Because of their unique anatomy and physiology, children have increased vulnerability to the hazards of disasters and emergencies and have different patterns of injury and illness, psychosocial response.

**VULNERABILITIES OF CHILDREN TO DISASTERS**

The type, time, and site of a disaster will determine the number of children likely to be involved, the nature and severity of their injuries, and the secondary disaster-related events. Children may be disproportionately affected depending on whether the disaster site is one where youngsters are present. Work sites are likely to have no or relatively few children, while sites such as schools have relatively fewer adults. Manmade disasters often intentionally target particular segments of a population. Children may also be disproportionately affected based on their location of a disaster site. A day care center within an office building may be relatively spared or more severely damaged, and may be more or less accessible for rescue efforts based on its location. The more broadly based the disaster, the more likely that the proportion of children affected will reflect the demographics of the population base.

Pediatric vulnerabilities based on mechanisms of injury and illness that may be encountered during a disaster include:

**Blunt Trauma From Falls and Flying or Falling Debris**

Young children are less likely to attempt to avoid flying debris and/or to position themselves to minimize the impact of debris. If trapped by debris, they may be less capable of extracting themselves and may be more easily overlooked in search and rescue efforts because they can be trapped in very small spaces. They are, however, able to crawl through smaller spaces to free themselves. In children with blunt trauma, multisystem organ injuries are the rule rather than the exception because their organs are proportionately larger and are in much closer proximity to each other.
Blast Injury

Children are more likely to be propelled by the force of an explosion because they have less body mass. It is also more likely that projectile objects from a blast will penetrate their vital structures.

Fire

Children, particularly young children, are less likely able to avoid the hazards of smoke and fire because they require someone older to get them to safely. If children or their clothing are on fire, they are more likely to do nothing or run than to drop and roll. They are at greater risk of deeper burns because of thinner skin and at greater risk of circumferential burns because of their smaller size. Young children are also at increased risk of secondary infection because of their less competent immune system.

Flood

Children, particularly young children, are less likely to know how to swim or float and are at risk of drowning even in standing water. Even children who can swim are more likely than adults to drown in fast-moving waters because they have less mass, strength, and stamina.

Heat and Cold Exposure

Children are more vulnerable to heat illness because their larger body surface-to-mass ratio results in greater conduction of heat from the environment and greater fluid loss. Also, it may be difficult to get children to drink enough to maintain their hydration. Children are also more vulnerable to hypothermia due to greater radiation, convection, conduction, and evaporation heat loss because of a larger body surface-to-mass ratio, less subcutaneous tissue, and proportionately larger head size.

Electrical Injury

Children are less likely to recognize downed power lines as hazards and are therefore more likely to sustain electrical burns.

WEAPONS OF MASS DESTRUCTION

Biological Agents

The less fully developed immunologic system of children less than 2 years of age, particularly those less than 3 months of age, increases their risk of infection with biologic agents. If and when vaccination programs are initiated against biologic WMDs, young children may not be vaccine candidates.

Chemical Exposures

- Inhalation: Children are at risk of greater exposure to inhaled agents per unit mass than adults, because the concentration of many of the chemicals