



# National Preparedness Month: Children in Emergencies

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Emergency Partners Information  
Connection (EPIC) Webinar Series  
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# Children's Preparedness Overview

- National Preparedness Month
- Biological and physiological differences
- Developmental and social differences & children with special healthcare needs
- Behavioral and mental health differences
- Preparedness and Recovery Resources



**Children are  
>22% of the  
US population**



**They're 100%  
of our future**



# National Preparedness Month

**YOU** HAVE THE POWER  
TO BE PREPARED

**READY...STEADY...SHOW...GO!**

# How are children different?

Because they **breathe in more air for their size** than adults, children **absorb harmful materials from the air** more readily.



Because they **need vaccines, medicines, and specially designed equipment for emergency situations** that are **different from adults**.

**Children**  
are more  
vulnerable in  
emergencies



Because they **spend more time outside, are lower to the ground, and they put their hands in their mouths** more often than do adults.

Because they **may not be able to communicate their symptoms or feelings**.



# **Biological & Physiological Differences**

Biologic Threats & Infectious Disease Outbreaks

# What are biologic threats?

- Anthrax
- Ebola virus
- Plague
- Smallpox
- Zika virus
- Pandemic influenza



# How have children been affected?



Polio Outbreak, 2010

## Zika Virus Outbreak, 2015



Image credit: CDC PHIL (Polio); AP Photo/Felipe Dana (Zika)

# How have children been affected?



Haiti Cholera Outbreak, 2010

# Children are more vulnerable...

Because they **breathe in more air for their size** than adults, children **absorb harmful materials from the air** more readily.



# Children are more vulnerable because of their...

- Faster metabolism;
- Higher respiratory rate;
- More permeable skin;
- Smaller amounts of body fluids;
- More active cell division; and
- Less developed immune systems.



# Protecting children from biologic threats



- Prepare an emergency kit
- Stay informed
- Know your family's medical history

# Available resources

## Caring for Children in a Disaster

Caring for Children in a Disaster

How Children are Different

Why CDC Makes It a Priority

Helping Children Cope

Children with Special Healthcare Needs

Before, During, & After an Emergency +

Specific Threats -

Chemical

Radiation

**Biological**

Severe Weather

Real Stories +

Tools and Resources +

[CDC](#) > [Caring for Children in a Disaster](#) > [Specific Threats](#) > [Biological](#)

## Biological Threats



## Biologic Threats and Children

A biologic threat is an infectious disease with the potential to spread and cause emergency.

Infectious diseases are illnesses caused by germs (such as bacteria and viruses). Some infectious diseases require close contact between two people, like when people talk to each other. Other infectious diseases can only spread by germs carried in air, water, food, or soil, or by biting insects or by animals.

Biologic threats may spread naturally, as in a [worldwide flu](#) outbreak or be released intentionally in a [bioterrorism attack](#). [Anthrax](#) was intentionally released in 2001.

## Why Children are Vulnerable to Biologic Threats

Children are more likely to get sick and have a more severe illness from a biologic threat because their immune systems are not fully developed, which means they can more easily get sick.

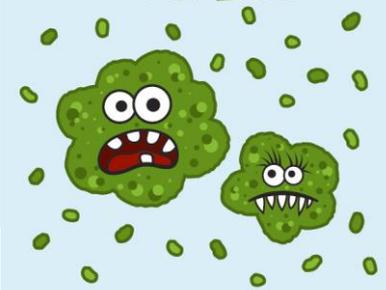


## MOSQUITO BITES ARE BAD!



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

## FLOODING AND MOLD



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

Source: <https://www.cdc.gov/childrenindisasters/biological-threats.html> (left); <https://www.cdc.gov/phpr/readywrigley/books.htm> (right)

# **Developmental & Social Differences: Children with Special Healthcare Needs**

Chemical & Radiological Threats

# Children are more vulnerable...



Because they **spend more time outside, are lower to the ground, and they put their hands in their mouths** more often than do adults.



Because they **need vaccines, medicines, and specially designed equipment for emergency situations that are different from adults.**

# What are chemical/radiological threats?

- 4-methylcyclohexanemethanol (MCHM)
- Chlorine
- Transportation accident
- Sarin
- Mustard gas
- Nuclear power plant accident
- Dirty bomb

# How have children been affected?



Syria, 2018

Chlorine Exposure, San Jose, 2018



# How are children affected after a disaster?

- Chernobyl, 1986
- Goiania, 1987
- Fukushima, 2011



Pripyat Elementary School, Chernobyl

Koriyama, Fukushima Prefecture, 2011

# Protecting children from chemical/radiological threats

- Not every chemical and radiation emergency is the same, and may require different actions to keep families and children safe.
- Listen for public announcements about evacuating and sheltering in place.
- Limit exposure time.
  - Shielding
  - Decontamination



# Children with special health care needs



- In 2009–2010, an estimated 15% (1 in 6) of US children were identified as having a special health care need
- Autism, ADHD, heart defects, muscular dystrophies, blood disorders, and asthma are examples of conditions requiring special health care needs

# Children with special health care needs may require

- Medication lists
- Battery chargers (back up for electronic devices)
- Transportation/evacuation
- Maintenance of daily routine
- Discussion with special education/Individualized Education Plan teams



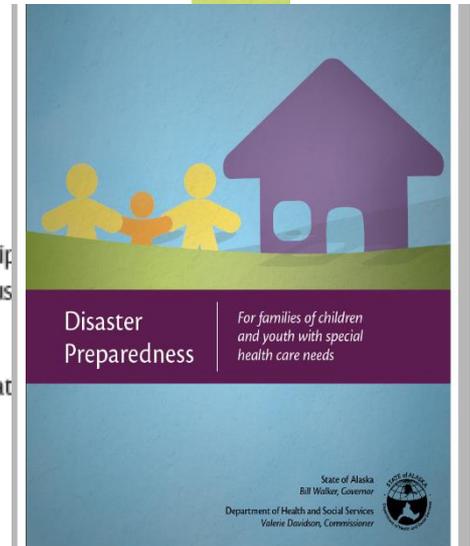
# Make a plan

## Section 2: Disaster planning and preparation

Can you care for yourselves and your family member with special health care needs, without outside assistance, for 10 days?

Preparation is the key to surviving a disaster and managing the chaos that occurs afterwards. There are many tips preparing for a disaster that are applicable to all families. In addition, families with special health care needs must be prepared to manage their needs under challenging conditions.

Do you have a disaster plan for your family? Does your plan include emergency strategies if your child is away at school, child care providers, caregivers, or church?



# Behavioral & Mental Health Differences

Natural Disasters

# Impact of natural disasters on children



**Texas military rescue family from flooding following Hurricane Harvey**  
Photo credit: Texas Military Department, Aug 27<sup>th</sup>, 2017



**New York National Air Guard evacuation of mother and child prior to Hurricane Irma**  
Photo credit: Stagg Sgt. Erin Mills, Air Force Public Affairs Agency, OLC, Sept 10<sup>th</sup>, 2017



**Child evacuation following Hurricane Maria**  
Photo credit: Taylor King, Navy Media Content Services, Sept 28<sup>th</sup>, 2017

# “Children...are among those most at risk for psychological trauma and behavioral difficulties after a disaster.”\*

\*Institute of Medicine. *Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy*. Washington, DC: National Academics Press, 2003

- Children are not small adults
- Children depend on adults
- Children need to feel safe
- Development can be impacted



# Children are more vulnerable...

Because they  
**may not**  
**be able to**  
**communicate**  
**their symptoms**  
or feelings.



# Symptoms to watch for in children following a disaster

## Infants and toddlers

- Irritability
- Changes in sleep or eating habits
- Regression to earlier behaviors, such as bedwetting
- Tantrums

## Older children

- Trouble concentrating
- Focus on disaster events
- Anxiety
- Depression
- Post-traumatic stress
- Acting out

# Which children are most vulnerable?

- Children who have experienced trauma in the past
- Children with pre-existing mental, behavioral, or developmental disorders



# Increased stress from disasters experienced during pregnancy is associated with

- Fetal distress
- Mental disorders in children
- Poor communication and social skills in children



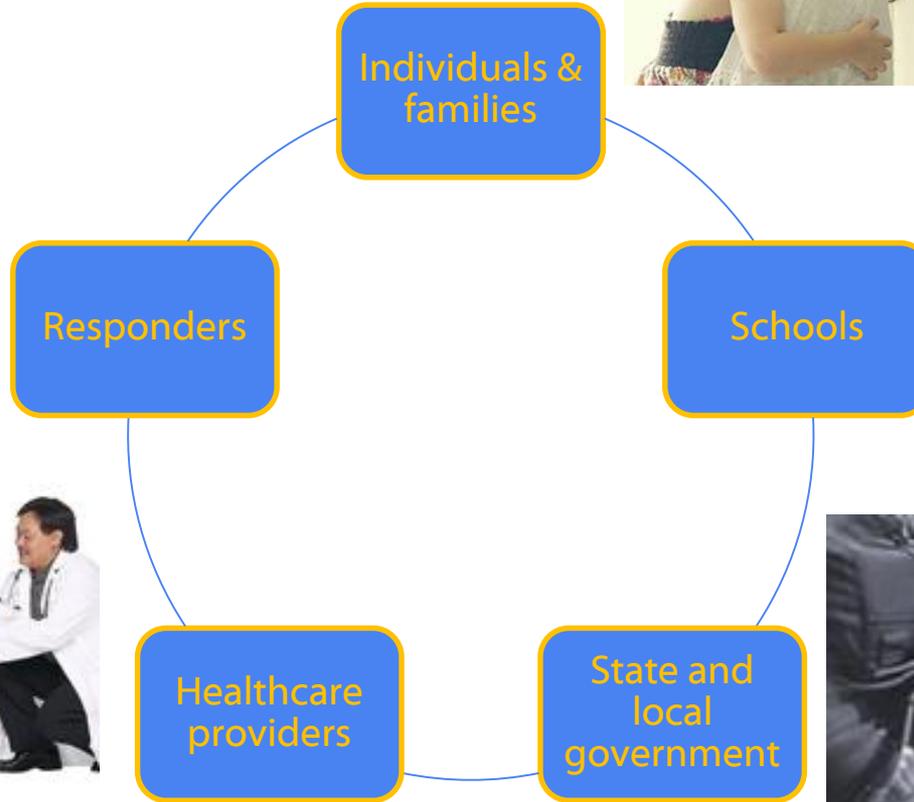
# Supporting children's mental health

- Partner with parents, schools, and healthcare providers
- Share age-appropriate information
- Encourage children to ask questions
- Limit media exposure
- Return to normal routine



*Family reunification is paramount*

# Partnerships are Key



# Coping after a disaster

## Caring for Children in a Disaster

### COPING AFTER A DISASTER



[CDC](#) > [Caring for Children in a Disaster](#) > [Helping Children Cope](#)

### Helping Children Cope with Emergencies



Regardless of your child's age, he or she may feel upset or have other strong emotions after an emergency. Some children react right away, while others may show signs of difficulty much later. How a child reacts and the common signs of distress can vary according to the child's age, previous experiences, and how the child typically copes with stress.

Children react, in part, on what they see from the adults around them. When parents and caregivers deal with a disaster calmly and confidently, they can provide the best support for their children. Parents can be more reassuring to others around them, especially children, if they are better prepared.

**People can become more distressed if they see repeated images of a disaster in the media. Early on, consider limiting the amount of exposure you and your loved ones get to media coverage.**



# Preparedness & Recovery Resources

# Caring for Children in a Disaster

## Caring for Children in a Disaster

How Children are Different

Helping Children Cope

Children with Special Healthcare Needs

Before, During, & After an Emergency +

Specific Threats +

Real Stories +

**Tools and Resources -**

Teachers and Childcare

Kids and Families

Health Professionals

Emergency Kit Checklists +

Emergency Planners

Infographic: Easy as ABC

[CDC](#) > [Caring for Children in a Disaster](#) > [Tools and Resources](#)

## Tools & Resources



TEACHERS AND CHILDCARE

KIDS AND FAMILIES

HEALTH PROFESSIONALS

EMERGENCY PLANNERS

INFOGRAPHIC

VIDEOS



# Emergency Planning for Families

## EASY AS ABC

THREE STEPS TO PROTECT YOUR CHILD DURING EMERGENCIES IN THE SCHOOL DAY

**A**

**ASK** how you would be reunited with your child in an emergency or evacuation



**B**

**BRING** extra medications, special food, or supplies your child would need if you were separated overnight



**C**

**COMPLETE** a backpack card and tuck one in your child's backpack and your wallet

**BACKPACK  
EMERGENCY  
CARD**



# Children are constantly growing and changing



All of them require special attention before, during, and after an emergency

# Resources

- Caring for Children in a Disaster:  
<https://www.cdc.gov/childrenindisasters/index.html>
- Specific Threats: <https://www.cdc.gov/childrenindisasters/index.html>
- Helping Children Cope in Emergencies: <https://www.cdc.gov/childrenindisasters/helping-children-cope.html>
- Children with Special Healthcare Needs in Emergencies:  
<https://www.cdc.gov/childrenindisasters/children-with-special-healthcare-needs.html>
- Emergency Kit Checklists: <https://www.cdc.gov/childrenindisasters/checklists/index.html>
- Ready Wrigley Preparedness Materials: <https://www.cdc.gov/phpr/readywrigley/index.htm>
- National Child Traumatic Stress Network: <http://www.nctsn.org/>
- Psychological First Aid (WHO):  
[http://apps.who.int/iris/bitstream/10665/44615/1/9789241548205\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/44615/1/9789241548205_eng.pdf)
- SAMHSA's Disaster Distress Hotline: <https://www.samhsa.gov/find-help/disaster-distress-helpline>

**Children**  
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# Thank You!

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For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)



The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.