United States Environmental Protection Agency

Climate Change and the Health of Children

Understanding the threats that climate change poses to human health can help us work together to lower risks and be prepared.

Climate change threatens human health, including mental health, and access to clean air, safe drinking water, nutritious food, and shelter. Everyone is affected by climate change at some point in their lives. Some people are more affected by climate change than others because of factors like where they live; their age, health, income, and occupation; and how they go about their day-to-day life.

Children are especially vulnerable to the impacts of climate change because of (1) their growing bodies; (2) their unique behaviors and interactions with the world around them; and (3) their dependency on caregivers.

Growing Bodies

Children's growth and development from infancy to adolescence makes them more sensitive to environmental hazards related to climate. For example, because children's lungs develop through adolescence, they are more sensitive to respiratory hazards. Climate change worsens air quality because warming temperatures make it easier for ground-level ozone to form. Changing weather patterns and more intense and frequent wildfires also raise the amount of pollution, dust, and smoke in the air. For children, this change in air quality may increase the number and worsen the severity of asthma episodes. Climate change is also expected to lead to longer and more severe pollen seasons, triggering asthma and allergies in children.

In addition to developing physically, children are also developing emotionally. Climate change will lead to an increase in the frequency, severity and duration of some extreme weather events, increasing risks to children's mental health. When extreme weather causes injuries, death, or displacement, children may have difficultly controlling their emotions, may not perform as well in school, and may face depression, anxiety and post-traumatic stress. While many children show resilience to traumatic events, mental health impacts may last into adulthood, especially if left untreated.

What is climate change and why does it matter for health?

We've all heard of it, but what exactly is climate change? Greenhouse gases act like a blanket around Earth, trapping energy in the atmosphere. Human activities, especially burning fossil fuels for energy, increase the amount of greenhouse gases in our atmosphere and cause the climate to warm. **Climate** is the typical or average weather for an area. **Climate change** is any change in average weather that lasts for a long period of time, like warming temperatures. Climate change affects the food we eat, the air we breathe, and the water we drink. It also leads to extreme weather events, like flooding, droughts, and wildfires. All of these impacts affect human health.

To protect children against the negative impacts of climate change, caregivers should consider the age, stage of development, and health of the children in their care and work with health professionals, educators, and others in the community to minimize exposure to environmental risks.

Unique Behaviors and Interactions with the Environment

Children's behaviors and interactions with the world around them increase their exposure to certain health threats. The graphic on the following page describes examples of how children's unique behaviors make them more vulnerable to certain health impacts that are expected to increase due to climate change.

Dependency on Adult Caregivers

Children, particularly those with disabilities or special health needs, must rely on parents or caregivers to provide for basic needs like nutrition, shelter, hygiene, and clothing. Children separated from their caregivers during weather events, such as during storms and floods, are at increased risk of health impacts.

Impacts as Children Grow

Climate change affects children differently depending on their age and stage of development. These stages begin in the womb and continue throughout childhood and adolescence. The graphic below provides some highlights of climate vulnerabilities at different stages of life.

Newborns

Newborns are more likely to have been born before their due date or at a low birth weight if their mother is exposed during pregnancy to extreme heat, air pollution, and flood-related contaminants.

Infants and Toddlers

Infants and toddlers breathe, eat, and drink more for their body size than adults. They are sensitive to pollutants or allergens in the air, which may trigger asthma episodes. Infants and toddlers are also sensitive to contaminants in water and food, which increases the risk of diarrhea. Heat-related illness is also a threat to very young children, as they are less able to regulate body temperature.

School Age and Older Children

School age and older children spend more time outdoors than adults, which increases their risk of being exposed to extreme heat and higher average temperatures, pollutants in air and water, and diseases carried by mosquitoes and ticks. High school athletes are particularly at risk for heat illnesses. About 9,000 children are treated for heat illness (such as heat stroke and muscle cramps) related to athletic activity each year.

Children's Exposure and Vulnerability to Climate Change Impacts

1 Exposure to allergens

Small children play on the ground and place their hands and other objects in their mouths. This increases their exposure to allergens such as dust, mold spores, and pollen.

- Climate-related increases in droughts and dust storms can increase levels of dust.
- More frequent extreme weather events such as flooding can lead to indoor mold growth.
- Climate change leads to longer and more severe pollen seasons.

2 Extreme heat

Children and student athletes often play outside and may not recognize the signs of becoming dehydrated or overheated. Children have a higher risk of becoming ill or dying due to extreme heat.

- Climate change will increase extreme heat events and also lead to higher temperatures throughout the year.

3 Insect and tick-related diseases

Children spend more time outdoors than adults, increasing their exposure to mosquito and tick bites. These bites can cause diseases that are diagnosed more often in children, such as La Crosse encephalitis or Lyme disease.

- Climate change and increased temperatures will lead to insects expanding their ranges and being present for longer seasons.

4 Contaminated water

Children swallow about twice as much water as adults while swimming. Children are more likely than adults to develop serious stomach and diarrheal illnesses if they drink contaminated water.

- Climate change increases contamination risk in water bodies where children play.
- Storms and floods may compromise local sources of drinking water.

This fact sheet is based on "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment." To explore the full report, go to:

https://health2016.globalchange.gov

Learn More

Climate Change and the Health of Pregnant Women
https://www3.epa.gov/climatechange/impacts/health/factsheets/

Climate Change: Human Health
https://www3.epa.gov/climatechange/impacts/health.html

Climate Change: What You Can Do
https://www3.epa.gov/climatechange/wycd/

Pediatric Environmental Health Specialty Units – expert medical advice on environmental exposures and health effects
www.pehsu.net

Tips from EPA's Office of Children's Health Protection
Protecting Children's Environmental Health
https://www.epa.gov/children

How Caregivers Can Protect Children's Health

Air Quality & Respiratory Illnesses
Check the Air Quality Index and pollen counts on your local weather reports and consider limiting outdoor time if levels are high.

www.airnow.gov

Extreme Weather Events
If children are exposed to storms or floods, watch for diarrhea symptoms and mental health impacts. Also, watch for signs of mold indoors after a flood, and be sure to clean and dry affected areas. During a power outage, never use a generator indoors or in a garage.

http://emergency.cdc.gov/disasters

Heat-Related Illness
Watch for signs of dehydration or overheating; offer sips of water often and find places to cool off.

http://www.cdc.gov/extremeheat/children.html

Disease Carried By Ticks and Mosquitoes
Prevent bites by using insect repellent (bug spray) and protective clothing (long sleeves and pants). Check children daily for ticks after they have been outdoors, especially in wooded or grassy areas and especially during warmer months.

https://www.epa.gov/insect-repellents/tips-prevent-tick-bites

https://www.epa.gov/insect-repellents/tips-prevent-mosquito-bites