



# Climate Change & Children's Health

## Flooding

Storms and flooding events fueled by climate change bring increased health and safety risks for children.

### SCIENCE SUMMARY

Heavier precipitation, more intense storms, and rising sea levels — all driven by a warming climate — contribute to increasing [flood](#) hazards. [Extreme rainfall events have been rising](#) in the U.S. since the 1980s. Other extreme weather events, such as [hurricanes](#) and [atmospheric rivers](#), bring [risks of heavy rains and flooding](#). Intense bursts of rainfall can increase the risk of both [inland](#) and [coastal flooding](#).

Children are among the most vulnerable to the [potential health risks](#) associated with floods. Exposure to hazards such as indoor mold, waterborne pathogens, and toxic chemicals, as well as [social harms](#) caused by disruption to routines, increased stress at home, and displacement, can all put children's health and safety at risk.

Exposure to damp, moldy buildings (including homes and [schools](#)) can increase risks of [respiratory infections, asthma attacks, or allergic reactions](#). Mold exposure can also contribute to [asthma development](#) in children.

Children [exposed to weather disasters](#) are more likely to experience mental health distress, including symptoms of anxiety and depression. A study of families affected by Hurricane Sandy found that children living in homes with even minor damage were [more than four times as likely](#) to be sad or depressed after the storm than children from homes with no damage. Children also face an [increased risk of exposure to abuse or violence following a flood](#) since these events create extreme stress and can disrupt social structures that protect kids.

Around [two feet of sea level rise](#) will occur this century along the U.S. coastlines due to carbon pollution to date — and will climb without rapid cuts to emissions from burning fossil fuels. Without adequate adaptation, research estimates that even 20 inches (50 centimeters) of global sea level rise could put [approximately 185,000 children at risk of losing their homes](#) and around one million more at risk of being temporarily displaced due to coastal flooding. This research also shows that the increased inland flood risk from 4°C (7.2°F) of warming could put around 560,000 children at risk of temporary or permanent displacement.

### TOP TAKEAWAYS

- Human-caused climate change is increasing flood risks from rising seas, stronger storms, and heavier precipitation.
- Children are among the most vulnerable to the physical, mental, and emotional health impacts experienced during and after a flood.
- Exposure to hazards after a flood, such as indoor mold and waterborne pathogens, poses significant risks to health. Children can also experience stress and anxiety after a weather-related disaster.
- Flood risks will continue to increase as the planet warms and seas rise — and more children could be exposed to flood hazards and face the loss of their homes.
- Parents and caregivers can protect children by preparing for weather-related disasters. Community investment in climate resilience can reduce flood vulnerability and help protect children and families.

### KEY TERMS

- **Sea level rise** – the increase in the average height of the sea relative to the land, driven by warming oceans and melting ice due to human-caused climate change; rates of sea level rise will differ locally
- **Extreme rainfall** – an event with an amount of rain well above normal for the time and location, over a period of hours or even minutes

## CHILDREN & CLIMATE CHANGE

Children are especially sensitive to climate change impacts, in part because they are still growing and developing and they spend more time outdoors. The effects of climate change experienced in childhood can have lifelong consequences on physical and mental health.

Children also have less control over their surrounding environments and less understanding of health risks. They rely on their adult caregivers — from parents and older family members to coaches and teachers — to help protect their health at home, in school, and when recreating outdoors.

# FAMILY FLOOD SAFETY

## Before



Create a disaster plan

## During



Follow evacuation orders

## After



Avoid mold exposure

CLIMATE CENTRAL

Parents and caregivers can protect children by preparing for weather-related disasters and limiting exposure to flood-damaged buildings after the storm.

## WHO'S MOST AT RISK?

Within communities exposed to flooding hazards, risks are not evenly distributed. Households in coastal communities with lower socioeconomic status or racial and ethnic minority households may be [more likely to face extensive flooding at their homes](#) compared with higher socioeconomic status and white households.

Households with fewer resources are [less likely to have flood insurance](#) and may experience compounding challenges during and after a flood, such as [difficulty evacuating](#), [lack of access to recovery funds](#), [food insecurity](#), and [inadequate temporary housing](#) — all of which can put children at greater risk of harm.

## PROTECTING CHILDREN'S HEALTH

**Be prepared.** Households that are physically [prepared for floods](#), with [plans](#) and resources for [recovery](#), can face fewer risks, minimize their exposure to hazards, and reduce stress for the whole family during weather-related emergencies. Learn more about disaster preparedness from [Ready.gov](#).

**Prepare kids for what's coming.** Disasters such as floods can be especially challenging for young children to understand and respond to. Resources such as this "[Pedro the Penguin](#)" series from the Red Cross can help prepare children. Seek [counseling and support](#) for family members — both children and adults — as needed.

**Follow evacuation instructions.** When there is a threat of flooding, monitor emergency alert systems, such as the [NOAA Weather Radio](#) or local radio and television, for evacuation orders and updates. If you receive evacuation orders, follow them immediately so you do not become trapped by floodwaters. Do not evacuate unless you receive evacuation orders because attempting to travel through a flood can actually be more dangerous than staying in your home. Only return to your home when given clearance from local authorities.

**Reduce exposure to hazardous flood-damaged buildings and materials.** If possible, [keep kids away](#) until the building has been cleaned and repaired after a flood. In addition to direct hazards from mold, toxins, or debris, the cleaning products commonly used to [clean up after a flood](#), such as bleach, can be harmful to kids. Discard soft items that got wet, including mattresses, clothing, and stuffed animals, and items that can't be easily sterilized.

**Provide safe drinking water.** If there is a chance that [water has been contaminated](#), use bottled water for drinking, mixing baby formula, and cooking.

**Build climate-resilient communities.** Individuals and communities can take action to [reduce flood risks](#) to homes, schools, and other important infrastructure. Children living in [communities that invest more in public safety and welfare](#) also have less flood vulnerability.

**Commit to rapid, sustained cuts to carbon pollution from burning fossil fuels — now.** With continued warming, [future generations](#) are likely to face accelerating change and intensifying risks. Ultimately, cutting carbon pollution is the most meaningful action to slow the rate of warming and set younger generations on a different path, toward a safer future.

## ADDITIONAL RESOURCES

- Climate Central's report [After the Storm: Damp, Moldy Homes](#)
- Climate Central's [Extreme Weather Toolkits](#)
- Climate Central's [sea level rise mapping and data tools](#)
- Environmental Protection Agency's report, [Climate Change and Children's Health and Well-Being in the United States](#)

## Endnotes & Acknowledgements

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