Extreme heat, also known as “heat waves,” are extended periods (often lasting at least two to three days) of high heat or humidity, usually above 90 degrees Fahrenheit. Because of climate change, heat waves have grown hotter, more frequent, and tend to last longer. Many regions are also experiencing much hotter temperatures than they have in the past. By 2050, experts estimate that most areas in the United States will experience between 20 and 30 extreme heat days each year.

Many regions that are experiencing more heat waves than they have in the past do not have adequate infrastructure to cope, resulting in infrastructure failures and poor health outcomes. Extreme heat can create cascading crises if power grids are overwhelmed, potentially leaving people without air conditioning and access to medical services.

Urban areas are particularly vulnerable to extreme heat because dense concentrations of buildings, nonporous surfaces such as concrete or asphalt, and low levels of vegetation can trap heat. As a result, urban areas often experience "urban heat islands," a phenomenon where temperatures are higher in highly developed areas than in surrounding areas with more vegetation. People with low incomes and communities of color are most likely to experience heat island temperatures because of racially exclusionary planning and zoning policies that have led to less investment in green spaces and green infrastructure in these communities.

**HOW HEAT AFFECTS CHILDREN**

Extreme heat has serious negative effects, particularly for children who are still developing physiologically and behaviorally.

- **Health:** Compared with adults, children are less capable of regulating their body temperatures, which can lead to dehydration, heat stress, and worsened asthma symptoms. Research also consistently finds that greater numbers of extreme heat days are linked to increased emergency room visits for children, particularly among those living in households with lower incomes that experience greater exposure to higher temperatures and are less likely to have private health insurance.

- **Behavior and psychology:** Extreme heat has been linked to increases in aggressive behavior and aggravated mental distress. Hot weather can make children uncomfortable and restless, leading to irritability and agitation.

**ADDITIONAL RESOURCES**

For more information about mitigating extreme heat risks to children, see the resources library.

**Fact Sheets**
To learn about other environmental and climate hazards and their risks to children, see these fact sheets:
- Air Quality
- Flooding
- Paved Area and Green Space
- Wildfires

**Case Studies**
To learn how Head Start programs are addressing environment and climate hazards for children in their programs, see these case studies:
- Creating Outdoor Green Spaces
- Resourcing Head Start Providers to Mitigate Toxic Exposures
- Social-Emotional Programming for Families Exposed to Environmental Risks

**Mapping Tool**
Explore extreme heat risks and other environmental and climate hazards affecting children with our interactive map.

To access this fact sheet and other resources to reduce environmental and climate hazard exposures for children, visit https://urbn.is/3OkdZQt. This research is funded by the US Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation. The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Further information on the Urban Institute’s funding principles is available at urban.org/fundingprinciples. Copyright © July 2023. Urban Institute. Permission is granted for reproduction of this file, with attribution to the Urban Institute.
It can also disrupt their sleep patterns, making it harder for them to fall asleep, stay asleep, and get quality rest, which in turn can affect their mood, focus, and overall well-being.

- **Learning**: Numerous studies have shown that heat *lowers cognitive functioning*, makes learning more difficult for children of all ages, and *decreases the effectiveness* of classroom and learning time. These effects can be worse for Black and Hispanic children and children in families with low incomes who are more likely to attend *schools without adequate air conditioning* and to attend *child care programs that receive less funding*.

### INTERVENTIONS FOR LIMITING HEAT EXPOSURE

Early childhood educators, child care providers, parents, and caregivers can consider the following actions to reduce children’s exposure to extreme heat.

- **Monitor daily temperatures.** Track predicted extreme heat days and create plans for appropriate activities to keep children engaged and cool indoors.

- **Keep children hydrated.** Children should be drinking plenty of fluids, especially during *periods of extreme heat*. Clean water and low-sugar beverages containing electrolytes—which help replenish fluids—can be kept available throughout the day. Remind children to take breaks and drink fluids.

- **Encourage heat-appropriate clothing and sun protection.** To *stay cool* when spending time outdoors, children can wear single-layer, loose-fitting, and light-colored clothing and sunscreen. To minimize unnecessary physical contact with children, consider *applying spray sunscreen*—and be careful when applying to children’s faces to avoid contact with their eyes.

- **Stay in air-conditioned spaces.** Whenever possible, limit time spent outside during extreme heat days. Plan any outdoor activities for off-peak heat hours during the day, such as early in the morning when it is still cool or in the evening. Seek *shaded and covered spaces* and area cooling centers or other air-conditioned spaces if needed.

- **Invest in schoolyard greening.** Adding natural features such as trees or plants, investing in shaded or covered playgrounds, and transitioning concrete surfaces to alternative coverings can *provide children with access to green space* during program hours while also providing natural cooling and potential flood protection benefits.

- **Learn the signs of heat-related illnesses.** Heat stroke, heat exhaustion, and heat rash are all acute health effects from extreme heat. Educators and caregivers should understand *the signs and symptoms of extreme heat* and how to address them.