AT A GLANCE

Extreme Heat and Early Childhood Development

Learn how extreme heat affects early childhood development—and find practical, actionable solutions that you can apply to support children and caregivers in your community.

Science Snapshot: What We Know

Extreme heat affects infants and young children more than most adults. That's because:

- Their smaller bodies heat up more quickly.
- They have less capacity to release heat via sweating.
- The biological systems that regulate their body temperature are less developed and less efficient.
- They can't seek out cooler environments or get water without relying on adults.

The effects on children's health and well-being are significant, both in the moment and across the lifespan:

- **Birth outcomes:** During high temperatures, there are increased rates of stillbirth as well as more premature and lower birth weight babies.
- **Heat-related illnesses:** Excess heat can lead to muscle breakdown, kidney failure, seizure, coma, or even death in extreme cases. Children with underlying health conditions are even more susceptible; for example, extreme heat can cause flare-ups of asthma.
- **Learning loss:** Heat can lead to slower reaction times, difficulty focusing, and disrupted sleep patterns, affecting early childhood cognitive function and learning.
- **Sleep quality:** Growing evidence shows associations between less sleep in infancy and childhood obesity. Sleep deficits also increase the likelihood of experiencing emotional and behavioral challenges and disrupted language development.
- **Mental and behavioral health:** Extreme heat activates the stress response system, and excessive activation during pregnancy and early childhood can disrupt healthy brain development.
- **Combined effects:** Heat amplifies the effects of systemic inequities in housing, neighborhood density, community infrastructure, and economic opportunity. As such, the impact of heat is greatest in low-income communities and communities of color.

Solutions Snapshot: What We Can Do

Practical, actionable solutions exist to prevent or minimize the effects of heat on children. These solutions can be implemented through local, county, state, and federal policy, as well as social services, education, and health care. Learn from a range of approaches already demonstrating positive impact in communities throughout the US:

- **Develop heat action plans.** Heat action plans, which coordinate local government response with other agencies, health care facilities, and community organizations, can specifically address the needs of young children.
- **Prioritize places where people spend time during pregnancy and childhood.** Childcare programs, K-12 schools, and homes should be evaluated for their ability to protect people from exposure to excessive heat.
- **Improve structural cooling options.** New building architecture, retrofitting of older buildings with cooling mechanisms, and urban planning—such as positioning playgrounds near shade—can reduce heat and efficiently use energy.
- **Increase green space, especially at school playgrounds and childcare centers.** Expanding tree canopies and surfaces covered with vegetation can decrease air temperatures and provide shade. This is particularly important in low-income communities and communities of color, where decades of discriminatory practices have led to the creation of urban heat islands.
- **Install air conditioning and other cooling mechanisms.** Some states offer subsidies on air conditioning to residents with low income. Less-expensive solutions also exist, such as heat pumps.
- **Provide support for affordable, reliable access to the power grid.** In some areas, pediatricians are helping families document the medical necessity of maintaining access to utilities; health insurance may even pay for utility bills.

Learn more and take action in your community:

- Read our full Working Paper on extreme heat and early childhood development.
- View our InBrief for more key takeaways.
- See our Solutions Spotlight to explore how communities are reducing children's exposure to extreme heat.
- Watch our webinar for a conversation on the impacts of heat on children—and strategies to reduce exposure—or listen to the podcast episode.