

Impacts of Extreme Heat: Children's Health and Future Success

Extreme heat poses serious and growing risks to children's health, safety, and education. Yet, schools and childcare facilities are unprepared to handle rising temperatures. **To protect the health and well-being of American children, Congress should (1) set policies that guide childcare facilities and schools in preparing for and responding to extreme heat, (2) collect the data required to inform extreme heat readiness and adaptation, and (3) strategically invest in necessary infrastructure upgrades to build heat resilience.**

Children are Uniquely Vulnerable to Extreme Heat Exposure and Acute and Chronic Health Impacts

At least five factors drive children's vulnerability to negative health outcomes from extreme heat, like heat-related illnesses and chronic complications. First, children's bodies take a longer time to increase sweat production and [acclimatize to higher temperatures](#). Second, young children are [more prone to dehydration](#) than adults because a larger percentage of their body weight is water. Third, infants and young children have challenges regulating their body temperatures and often [do not recognize when they should act to cool down](#). Fourth, compared with adults, [children spend more time active outdoors](#), which results in increased exposure to high ambient heat. Fifth, children usually depend on others to provide them with water and protect them from unsafe outdoor environments, but children's caretakers often [underestimate the seriousness of the symptoms of heat stress](#). Research shows that extreme heat days are linked to increased [emergency room \(ER\) visits for children](#), especially the [16% of children living at or below the federal poverty line](#). Extreme heat also [exacerbates children's chronic diseases](#), like asthma and eczema, increasing health care costs and decreasing children's overall quality of life.

The Consequences of Chronic Extreme Heat Exposure on Children's Learning and Well-Being

Studies show that excess temperatures [reduce cognitive functioning](#). Hot weather also impacts children's behavior, making them more [prone to restlessness, irritability, aggression, and mental distress](#). Finally, nighttime extreme heat exposure can [disrupt sleep patterns](#), making it harder to fall asleep and stay asleep. These factors can all reduce children's ability to focus, learn and succeed in school. For each 1°F rise in average annual temperature in [school districts without air conditioning](#) or proper heat protections, there is a 1% drop in learning. The Environmental Protection Agency found that these learning losses could translate into nearly [\\$7 billion dollars in annual future income losses](#) if warming trends continue.

Extreme Heat's Threat to Schools and Childcare Facilities

Rising temperatures force school districts and childcare facilities into a dilemma: choosing between staying open in unsafe heat or closing and disrupting learning and care.

Staying open can expose students and young children to extreme indoor and outdoor temperatures. The Government Accountability Office found that [41% of U.S. schools](#) need to upgrade their heating, ventilation, and air conditioning (HVAC) systems: upgrades that will cost billions of dollars that schools in low-income areas do not have. Similar infrastructure challenges [extend to childcare facilities](#). Extreme heat also makes outdoor recess more dangerous, as unshaded playgrounds and asphalt surfaces can heat up far above ambient temperatures and pose burn risks.

Yet when schools close for heat, children still suffer. Even [five days of closures for inclement weather](#) in a school year can cause measurable learning loss. Additionally, students may lose access to school meals; while food service continuation plans exist, overheated facilities can complicate implementation. Many children, especially in low-income families, also don't have access to reliable cooling at home, meaning that when schools close for heat, these children receive little respite. Finally, parents are directly impacted as well: school closures also mean parents lose access to childcare, forcing many to miss work or pay for alternative arrangements, straining vulnerable households.



Advancing Solutions that Safeguard American Children from the Impacts of Extreme Heat

To support the capacity of child-serving facilities to adapt to extreme heat, **Congress should direct the Department of Education to develop extreme heat guidance, technical assistance programs, and temperature standards**, following existing [state-level policies as a model for action](#). **Congress should also direct the Administration for Children and Families to develop analogous policies for early childhood facilities and daycare centers receiving federal funding.** Finally, **Congress should direct the U.S. Department of Agriculture to develop a waiver process for continuing school food service when extreme heat disrupts schedules during the school year.**

To support improved federal data collection efforts on extreme heat's impacts, Congress **should direct the Department of Education and Administration for Children and Families to collect data on how schools and childcare facilities are experiencing and responding to extreme heat.** There should be a particular focus on the infrastructure upgrades that these facilities need to make to be more prepared for extreme temperatures — especially in low-income and rural communities.

Lastly, to foster much-needed infrastructure improvements in schools and childcare facilities, Congress should consider **amending Title I of the Elementary & Secondary Education Act or directing the Department of Education to clarify that funds for Title I schools may be used for school infrastructure upgrades needed to avoid learning losses.** These upgrades can include the replacement of HVAC systems or installation of cool roofs, walls, and pavement, solar and other shade canopies, and green roofs, trees, and other green infrastructure, which can keep school buildings at safe temperatures during heat waves. Congress should also **direct the Administration for Children and Families to identify funding resources that can be used to upgrade federally-supported childcare facilities.**

The Federation of American Scientists: Who We Are

At the [Federation of American Scientists](#) (FAS), we envision a world where the federal government deploys cutting-edge science, technology, ideas, and talent to solve and address the impacts of extreme heat. We bring expertise in embedding science, data, and technology into government decision-making and a strong network of subject matter experts in extreme heat, both inside and outside of government. Through our [2025 Heat Policy Agenda](#) and broader policy library, FAS is positioned to help ensure that public policy meets the challenges of living with extreme heat.

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- » Understanding evidence-based policy solutions
- » Directing members and staff to relevant academic research
- » Connecting with issue experts to develop solutions that can immediately address the impacts of extreme heat

We are tackling this crisis with initiative, creativity, experimentation, and innovation, serving as a resource on environmental health policy issues. Feel free to always reach out to us:

- » **Grace Wickerson**, Senior Manager, Climate and Health, gwickerson@fas.org
- » **Autumn Burton**, Senior Associate, Climate, Health, and Environment, aburton@fas.org