

Information for Pediatricians on Climate Change's Effects on Children's Health

The warming of the atmosphere is causing climate change, which is resulting in rising sea levels, ocean warming and acidification, air pollution, and extreme weather events that occur unevenly and unpredictably around the world. The American Academy of Pediatrics (AAP) is dedicated to protecting children from the negative effects of climate change, recognizing that children are a particularly vulnerable population that is disproportionately affected by environmental changes. Thus, the Academy advocates for strong federal policies to regulate climate change in order to help mitigate negative impacts on the health and wellbeing of children across the nation.

Climate change is an environmental health issue that profoundly affects children.

- Climate change has well documented effects on human health; 88% of the existing burden of disease worldwide from climate change is in children, and 80% is in children <5 years old (Sheffield et al, 2011).
- Children have unique vulnerabilities compared to adults when it comes to exposure to environmental toxins due to:
 - higher exposure rates per body weight
 - differences in metabolism (higher respiratory rates, higher caloric intake)
 - increased exposure to infectious diseases
 - longer duration of exposures
 - potential for exposures to occur during periods of critical development in utero and after.

The health-related effects of climate change will be numerous and devastating, unless immediate action is taken.

- **Air quality:** Increased temperatures lead to higher concentrations of ground-level ozone, which triggers asthma exacerbations and can lead to diminished lung function. Pediatricians are seeing how children with allergy-related diseases are affected by the increased pollens and aeroallergens and shifts in length and timing of allergy seasons.
- **Extreme weather events:** The number and severity of hurricanes, storms, floods, wildfires, and droughts are expected to increase significantly, putting children at an increased risk for acute traumatic injury, significant mental health problems, and death. Wildfires also generate particulate matter in the air associated with respiratory disease and eye irritation. All such events can disrupt communities and displace families. There are even greater implications for those living in poverty.
- **Infectious Diseases:** Climate change leads to increased habitable areas for the vectors that carry Lyme disease, malaria, dengue and many other infectious diseases, placing many more children at risk. Diarrheal and other water-borne illnesses increase in incidence with higher temperatures as well as weather events that affect the water supply.
- **Heat:** Heat waves are the biggest weather-related cause of death in the United States. Children spend significant time outdoors. Infants and young children have a reduced capacity to adjust to high temperatures. Additionally, young athletes are at increased risk for heat related illness when playing sports outdoors.
- **Displacement:** Rising sea levels and extreme weather events place millions of children at risk of displacement from homes and familial separation, which may produce profound psychological effects including anxiety, depression, and post-traumatic stress disorder.
- **Resource scarcity:** Droughts, floods, and other extreme weather events lead to difficulties in food production. Changes in temperature will also differentially affect the growth potential of crops, threatening the nutrition of children, who need both adequate calories and proper nutrient/micronutrient intake for growth and development.



Following are examples of real-life stories on how climate change can have devastating effects: A Pediatrician's Perspective...

- *I was a medical student at New York University during Hurricane Sandy. On the evening the storm hit, we lost power at our main hospital, Tisch, and the backup generators failed due to flooding. The decision was made to evacuate the entire hospital. I helped carry many pediatric patients down 10 flights of stairs. I can't imagine what must have been going through those children's heads as they were rushed downstairs and through darkened hallways in evacuation sleds. Many of them looked terrified. Severe weather events are expected to become worse through global climate change and the mental trauma children go through during these events has the potential to affect them for the rest of their lives.*

–B. Stierman, MD

- *As a pediatric hospitalist one of the main diseases I treat in the hospital setting is poorly-controlled childhood asthma. Asthma affects a significant number of children in the District of Columbia and across the country. In addition to scientific evidence, my clinical experience shows that more children with asthma are admitted when weather patterns are abnormal, which can be due to climate change. Warm weather into the winter season and irregularity in weather patterns means that more children suffer from asthma exacerbations leading to hospitalizations and days lost from school and play. If we want our children with asthma to live healthy, happy lives we must address the factors that trigger asthma; controlling the outdoor environment is one main step in achieving this goal.*

–A. Nerlinger, MD

- *Jess is an eight-year old girl who had pain in her ankle last fall that got progressively worse. She was finally diagnosed with Lyme disease. Lyme disease is spreading northward, into regions that were previously too cold for tick survival. There is now Lyme disease in Maine and Canada, and other tick and mosquito borne infections are spreading widely across the globe.*

–S. Ahdoot, MD

- *Adam was 6 years old when he came to our practice in 2006. His home and community were destroyed by Hurricane Katrina in 2005, forcing him and his father to move to Virginia to live with Adam's grandmother and uncle. Unfortunately, his uncle had mental health issues, was struggling financially, and did not want Adam or his father in the house. Adam, like so many child Katrina refugees, did very poorly in school, never adjusted to his new home, and is now, at 16, living in a home for delinquent boys.*

–S. Ahdoot, MD

Support strong federal policies that keep children safe

Now is the time to support efforts to mitigate climate change, including reductions in carbon emissions, improving ozone standards, and other EPA initiatives to reduce environmental toxins.

For more information, please contact the AAP Washington Office: 202.347.8600 or kids1st@aap.org