

Children and the Changing Climate

This is a transcript of a podcast in the National Institute of Environmental Health Sciences' podcast series, *Environmental Health Chat*. See the [podcast page](#) for the audio version of this podcast and other resources.

Anne Frances Johnson: [music] Welcome to Environmental Health Chat, a podcast about how the environment affects our health, from the National Institute of Environmental Health Sciences Division of Extramural Research and Training.

Children are some of the most resilient people around. They can go from wailing over a skinned knee to dashing around like a superhero in seconds. But of course, they're also very vulnerable.

Pound for pound, their bodies take in more air, water, and food than adults, and they spend a lot of their time close to the ground. This exposes them to toxins and pollutants to a greater degree than adults. Because their bodies are developing so rapidly, these exposures can have lasting health effects. And for better or worse, they're reliant on others to care for them. Often adults protect children, but when those adults are afflicted by illness or other stressors, it affects the kids, too.

Climate change is expected to be a big stressor for the health of adults and kids alike. The U.S. Global Change Research Program recently released a new scientific assessment of those health impacts. A number of NIEHS researchers and grantees contributed to the report, including our guest today, Dr. Perry Sheffield.

She's a pediatrician and assistant professor at the Icahn School of Medicine at Mount Sinai in New York. We invited her to speak with us about how climate change is expected to affect the health of children.

Perry Sheffield: Climate change will, by and large, make existing problems worse. There are some new, sort of unheard-of things that maybe will happen with climate change—some infectious diseases that we don't yet know about, for example. But most of the problems that climate change will cause, if you will, already exist; it will just cause them to be worse.

Anne Frances Johnson: For example, she said vector-borne diseases will affect more people as species like mosquitoes and ticks colonize new areas.

Extreme weather events obviously bring their own hazards. In particular, she pointed to extreme heat. Many American cities are expected to see a significant increase in the number of sweltering days per year, raising the risk of heat exhaustion. There's already been an increase in heat-related illness in adolescents, such as athletes practicing outdoors after school.

Some of these trends will affect kids everywhere, while others will create or exacerbate health problems to a greater degree in the developing world. In one example, Perry said studies suggest climate change could alter plant growth and make food crops less nutritious.

Perry Sheffield: We've found out that many of the major food crops of the world—wheat, rice, even soy—have slightly or more significantly lower levels of protein when grown in higher levels of carbon dioxide, and lower levels of important micronutrients, like zinc, for example. And we know that those two things potentially could have very dramatic, wide-scale global effects because of this already-existing problem where childhood malnutrition is already a problem or where the risk of childhood malnutrition is a threat.

Anne Johnson: There's also some evidence that plants will produce more pollen as carbon dioxide levels rise, increasing people's exposure to allergens and further exacerbating respiratory problems like asthma, which are on the rise as air quality declines.

And the health problems aren't all physical. Perry said we need to consider how climate change affects children's mental health, as well.

Perry Sheffield: Children interpret the world differently. And so, there's a lot of conversation in the news, appropriately, about climate change, and one of the things we're starting to learn is that children are not immune to all of that discussion. And so the very threat of climate change is a concern for mental health effects, because it's talking about this great big, scary thing that seems, in many ways, sort of out of control. And so children need perhaps additional attention in helping to understand that the adults are making some big decisions that are going to affect them later on, but that hopefully, we can say with confidence that we're going to protect them, and reassure them so that it doesn't become a stressor, just sort of the stressor of the unknown.

Anne Johnson: So how can we say with confidence that we're going to do the best we can to protect them? What exactly can be done?

Perry Sheffield: This is where it gets exciting, because there is so much incredible potential for improving children's health as we do the right thing in mitigating climate. Whether or not it's through mechanisms that are going to reduce fossil fuel consumption and thus the emissions from burning fossil fuels, or the ways that we design cities in order to require less energy—all of those things have incredible health benefits in the short term. And the more we can do now to improve children's health in the short term, the more resilient those same children are going to be as adults.

Anne Frances Johnson: Perry said the public health infrastructure and health care systems that improve health and well-being now are going to be crucial to absorbing the health impacts of climate change in the coming years. That means countries like the United States that have a robust health infrastructure now will be better positioned to deal with these threats, though there are still important disparities to address, both here and abroad.

Discussions about improving children's health and responding to climate change often focus on things like big policy decisions at the national or global level. I asked Perry what we can do as individuals to work toward those same goals.

Perry Sheffield: I think about that a lot as a pediatrician and as a scientist, and as a mother of a young child. I think there's an educational component and I think there's a sort of lifestyle component. We can do a lot as adults, as parents, to prepare our children both to be global citizens, and scientifically literate, as well as physically and mentally healthy.

Some of that starts with helping children understand—connecting the dots as is developmentally appropriate. It's not too early, even with young children, to start talking about things like “pollution comes out of tailpipes,” and when you bike, or you ride your tricycle, or you walk instead, or you take public transportation, then you're making less pollution—sort of helping to understand that the choices you make have an impact.

Anne Frances Johnson: The second component, she said, is making clear that those choices impact not only the environment, but our health, both now and in the long term.

Thanks to today's guest, Dr. Perry Sheffield of the Icahn School of Medicine at Mount Sinai. If you want to hear more about other aspects of children's health, you can find lots of other podcast episodes at niehs.nih.gov/podcasts. There, you can also find our sister podcast, Global Environmental Health Chat, which has a number of episodes on health and climate change.

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