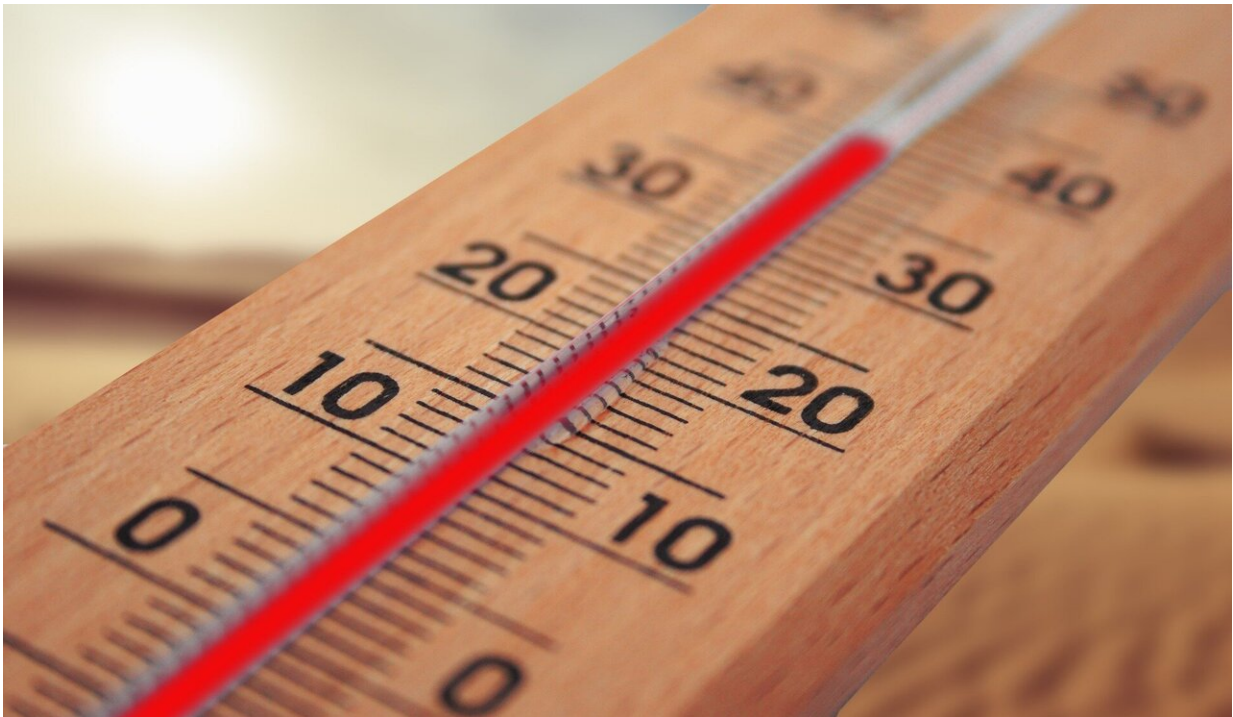


Experts discuss how heat affects the most vulnerable

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Extreme heat threatens the health of vulnerable populations such as children, laborers, and the elderly. A Stanford pediatrician, emergency medicine doctor, and professor of Earth system science discuss how we can best adapt and build resilience—particularly for those populations and communities that are most vulnerable.

This summer of record-breaking [heat](#) has made the realities of our warming planet painfully tangible for people across the world.

Extreme heat threatens the physical health of vulnerable populations such as laborers, the elderly, and children, while also impacting mental wellness: it has been associated with higher rates of suicide and violence. It can also spark climate anxiety.

The extended heat waves occurring this summer are particularly concerning, says Matt Strehlow, professor of emergency medicine at Stanford Medicine and a faculty fellow at the Stanford Center for Innovation in Global Health (CIGH). He is currently analyzing 1 million pediatric emergency service calls in India to better understand how extreme weather impacts [children's health](#).

"Heat is cumulative, and the duration of heat waves drives a lot of the illness and death that occurs," he said. "The daily temperature often gets the headline, but it is the unrelenting heat, day after day, that puts people at greater risk."

And yet, he adds, the risk is not shared equally across communities, with children, the elderly, and economically disadvantaged and unsheltered individuals all more vulnerable to heat's impacts.

Strehlow and two other planetary health experts, Gabrielle Wong-Parodi and Lisa Patel discussed how communities can best adapt and build resilience—particularly for those populations that are most vulnerable.

Wong-Parodi is an assistant professor of Earth system science at the Stanford Doerr School of Sustainability, and a center fellow at the Stanford Woods Institute for the Environment who studies frontline communities impacted "first and worst" by [climate change](#). Patel is a clinical associate professor of pediatrics at Stanford Medicine, a faculty

fellow at the CIGH, and lead author of a recent report, "[Climate-Resilient California Schools: A Call to Action](#)."

Who is most vulnerable to being affected by extreme heat?

Patel: I worry the most about outdoor workers who have few protections in place in many parts of the world. I worry about infants, especially newborns in the first week of life where evidence suggests a higher risk of mortality if born during a [heat wave](#). I worry about pregnant individuals, who face a higher risk of preterm birth. And I worry for the elderly, who face the highest risk of mortality from heat waves, particularly for these events that are severe and prolonged in many parts of the world.

How can we prepare and support the most vulnerable during heat events?

Strehlow: Individuals and families can avoid prolonged outdoor exposure, dress in light colors, drink more water, monitor that young children are urinating regularly, and use cooling measures such as fans and wet washcloths over skin. Communities can plan to have publicly operated cooling centers where [vulnerable people](#) can go or be brought. It is key to educate the community about their location in advance of what we now know will be recurrent severe heat waves.

Hospitals and emergency care systems have providers that are trained to care for people with heat-related illnesses, but responding to a rapid increase in need can be tremendously challenging when resources are already stretched. Health systems can better prepare by setting up an office of emergency management to anticipate and plan for situations where the need for services is expected to outpace the capacity to

respond. We have a saying in emergency medicine: "When is an emergency not an emergency? When you are prepared."

Patel: Air conditioning is protective from the worst health harms of heat waves, but providing it to everyone is both an enormous logistical challenge and could drive the burning of more fossil fuels, making [heat waves](#) even worse. We need to think about the places where people spend the most time, the populations that will be the most vulnerable—and invest our resources there in terms of cooling.

Schools are the place where children spend the second most time after their homes, and children are vulnerable to [extreme heat](#), making this a logical site for intervention. Poorer communities, public housing, homes and housing for the elderly, and areas that have been redlined and tend to be measurably hotter should also be prioritized.

How do experiences of extreme weather impact people's beliefs about climate change and their willingness to act?

Wong-Parodi: Experience with [extreme weather](#) can be a signal for some people that climate change is happening, prompting them to be more willing to take mitigation or adaptation action, such as supporting climate policies or developing an emergency plan. Yet people's perceptions of the risk can quickly change as they become accustomed to extremes. That's why it is important to provide information and resources for improving resilience when people are experiencing extremes in weather or soon thereafter.

What changes are you hopeful might come from this summer, when awareness of extreme heat and its

health impacts is so high?

Wong-Parodi: I hope that this points more of a focus on the need to adapt to extremes, and to adapt in anticipation of greater extremes than we have experienced before. This could be communities and local municipalities investing in climate resilience hubs where community members can go during extreme events to seek shelter, socialize, work, and recreate. This could also be greater investment in [critical infrastructure](#) such as for stormwater, power, and health services that are more robust to the climate extremes that we're expecting to see.

Patel: This may be the coolest summer of our lifetime moving forward if we don't do more to get off fossil fuels. From here, each year stands to break the record of the year before. I think people cannot imagine a world that is so hot we couldn't survive it, but we don't need to imagine it—we are living it. We need to tell our policymakers that enough is enough—no new drilling projects or pipelines for oil, and no backsliding on our commitments to cut our carbon pollution from fossil fuels.

Provided by Stanford University

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