

Executive Summary

The Lancet Countdown U.S. Brief provides an annual assessment of the scientific data on climate change and health to provide decision-makers with high-quality, evidence-based policy guidance. The U.S. Brief is supported by a diverse group of health experts from over 70 U.S. organizations who recognize that climate change is first and foremost a health crisis. ***The Brief highlights the critical need for the U.S. to rapidly implement a comprehensive response to climate change that prioritizes health and equity.***

The State of Climate Change and Health in the United States

There is no safe global temperature rise from a health perspective. Everyone's health is at risk from climate change. This year's Brief explores three interrelated climate risks — extreme heat, droughts, and wildfires — to highlight the complexities and inequities of the impacts of climate change on health.

Health risks from extreme heat are growing, varying by population and geography

Some populations are more vulnerable to extreme heat, such as older adults and infants. In 2020, adults over the age of 65 experienced a total of nearly 300 million more days of heatwave exposure in the U.S. compared to the baseline, making it the second highest year of exposure recorded. Infants under one year experienced a total of nearly 22 million more days of heatwave exposure in 2020 versus baseline. In the U.S., more than a third of urban heat-related deaths in the 1990s and early 2000s were attributable to climate change, with heat exposure increasing since then. Historically cooler regions of the country are also more vulnerable, such as the Pacific Northwest, and the typical peak of heat-related hospitalizations happens at lower temperatures in this

region. This provides additional context for the atypical heatwave there in June 2021, which caused mass casualties, that was found to be virtually impossible without climate change.

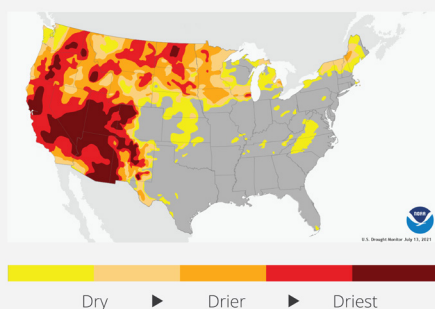
Droughts harm health broadly and worsen inequities, often in rural areas

Drought conditions have increased substantially across the Western and Central U.S. since 2020, with some areas facing the worst conditions in over a century. Drought harms health in indirect and under-recognized ways, particularly in rural areas, such as by compounding heat-related illness, increasing risks of infectious disease, worsening air and water quality, exacerbating mental health issues, and contributing to food insecurity.

Health impacts of wildfires are also experienced far from the event

Climate change is lengthening and intensifying the wildfire season in the U.S. Western region. September 2020 saw the peak maximum annual wildfire incidence to date at approximately 80,000 wildfires, 8 times greater than the total incidence in 2001. Wildfire smoke contains toxic air pollutants, which are especially harmful to children. Wildfire-related fine particulate matter (PM_{2.5}) may be up to 10 times more harmful to human health than PM_{2.5} from other sources. Exposure to wildfire smoke is associated with an increased risk of heart and lung disease, premature death, preterm birth, and worsened mental health. Dangerous air quality has been observed thousands of miles from the original fire. In July 2021, smoke from California's Dixie Fire reached as far east as Maine and contributed to New York City's worst air quality in 15 years.

U.S. DROUGHT CONDITIONS
AS OF JULY 13, 2021



Supporting citations can be found in the 2021 Lancet Countdown U.S. Policy Brief

Decades of discriminatory policies create health inequities worsened by climate change

Decades of racially-biased policies create inequities and place individuals and communities who are Black, Latinx, Alaskan Native or American Indian, Asian American or Pacific Islander, and other people of color at an increased risk of health harms from climate change. Policies also negatively impact the health of low-income and rural communities and make it harder to adapt to the rapidly changing climate.

- **Extreme Heat:** Policy failures (e.g., historic redlining) disproportionately expose groups to extreme heat, such as people of color, outdoor workers, incarcerated persons, and those living below the poverty line.
- **Droughts:** Drought-related risks and harms — food insecurity, vulnerability to water shortages, contaminated well water, job loss, and cultural threats — are not felt equally. Rural areas and Indigenous communities are particularly impacted.
- **Wildfires:** A variety of factors (e.g., discriminatory housing policies) place certain populations at increased risk of wildfires, including Black, Latinx, and American Indian families, low-income communities, and incarcerated persons in wildland firefighting programs.

Research helps anticipate growing health threats: Dengue in the U.S.

Climate change may influence the introduction and spread of new infectious diseases in the U.S., including the transmission potential that determines how likely one infection is to lead to another. As a result of changes in temperature, rainfall, and humidity, environmental conditions have become increasingly suitable for the spread of dengue through *Aedes aegypti* mosquitoes in the U.S. since the 1950s. In the past 5 years

(2016-2020), the transmission potential was on average 55.6% higher than in baseline years (1950-1954), and briefly rose above the transmission potential threshold of one for the first time in 2017. A transmission potential above one means that one case of dengue can cause more than one additional infection, potentially leading to an outbreak in the right conditions.

Evidence-Informed Policy Recommendations that Prioritize Health and Equity

Policies must recognize the unequal health harms of climate change and the ability of climate solutions to address these harms. The Brief outlines three policy recommendations that highlight how health and equity can serve as guiding principles in the response to climate change.

- 1 **Adaptation - Rapidly increase funding for health protections:** Local, climate-specific health research conducted through multi-sectoral partnerships can directly inform the development, implementation, and evaluation of equitable health-protective actions.
- 2 **Economics & Finance - Incorporate health-related costs of fossil fuels into the social cost of carbon:** U.S. calculations must include these health-related costs to accurately analyze the costs and benefits of policies that contribute to the release of carbon dioxide.
- 3 **Mitigation - Urgent and equitable economy-wide greenhouse gas (GHG) emission reductions:** Rapidly reduce economy-wide GHG emissions to 57-63% of 2005 levels by 2030, consistent with a 1.5°C national emissions pathway, and to a near zero-emission economy by mid-century. Direct at least 40% of investments toward improving air quality in under-resourced communities.

Adaptation

Evidence-informed implementation of protective actions is essential to improve health and equity: Air conditioning as an example

It is imperative that an understanding of health risks and inequities guide actions to adapt and implement health protections. Air conditioning (A/C), as an example, is an important but flawed health protection. In 2019, air conditioning was estimated to prevent approximately 48,000 heat-related deaths in the U.S. in those over the age of 65. Access to A/C in the U.S. has increased by 11% since 2000, to include about 92% of households in 2019. However, access varies by region, is inequitable because of issues like associated expenses, and is unreliable due to factors like power outages.

In the U.S. Pacific region, a historically cooler area, nearly 30% of households lack A/C overall and 56% lack it in Seattle, Washington, helping explain the mass casualty event there during the June 2021 heatwave. Expenses associated with A/C, like electricity, drive inequitable access and use. Electricity costs are barriers for many,, exacerbated by inequitable policies. Disparities in energy costs are higher for Black and Latinx households compared to non-Hispanic White households. In Maricopa County in Arizona, over 80% of persons suffering an indoor heat-related death in 2020 had an A/C unit present within their building, but two-thirds of the units were not functioning, and one-third were not running. Lastly, the electricity used for A/C is largely derived from the burning of fossil fuels, and its electricity consumption contributed to an estimated 500 additional deaths from air pollution exposure and worsened climate change by emitting over 260 megatonnes of carbon dioxide in 2019.

These limitations necessitate a multi-pronged, evidence-informed policy approach to extreme heat that can provide equitable health protections at the individual, building, and neighborhood levels (e.g., equitable implementation of interventions like heat pumps, cool roofs, and increased greenspace in urban environments). Additional policy solutions such as solar tax incentives and power rebates can ensure equitable access to health protective measures during the transition to more equitable, reliable, and sustainable solutions.

Economics & Finance

The health-related costs of fossil fuel use are substantial and must be factored into fiscal analyses and decision-making across all levels and sectors

Given that the health of everyone is impacted by the extraction and use of fossil fuels – from climate change to air pollution – ignoring health-related costs leads to a flawed and narrow understanding of the economic benefits of action on climate change. The continued burning of fossil fuels drives climate change-related health harms, the costs of which are on the order of billions to trillions annually just for one type of health harm (e.g., heat-related deaths) or event (e.g., one hurricane). The social cost of carbon (SCC) attempts to quantify the costs of future harm caused by the release of one additional ton of carbon dioxide, yet currently doesn't account for the full breadth of costs associated with climate-related deaths and illness. Incorporating these health costs would substantially increase the SCC, and further reinforce that a rapid and swift transition away from fossil fuels will improve health and equity and be cost effective.

Mitigation

Health and equity benefits should motivate and guide a swift transition to a zero-emission economy

In 2019, the U.S. contributed 15% of global GHG emissions from the burning of fossil fuels. While GHG reductions must occur across the entire U.S. economy, the electricity generation and transportation sectors are major focuses as they contributed to over half of the U.S. GHG emissions in 2019, at 25% and 29%, respectively. Continued investments in fossil fuel infrastructure and extraction are locking in emissions for decades and putting the 1.5°C limit out of reach. Our lagging transition to zero-emission energy is harming health inequitably. The faster an equitable transition away from fossil fuels occurs, the greater the health benefits. Across most states, exposure to air pollution is higher for Black, Latinx, Alaskan Native or American Indian, Asian American or Pacific Islander, and other people of color. This is true even when controlling for income, in nearly every emissions category both in rural and urban areas. Policies to cut GHG emissions should focus most immediately on transitioning away from high-polluting fossil-fuel infrastructure in and adjacent to low-income communities and those most impacted.