

# Information for Medical Professionals

## Diagnosis: Climate change harms health and disrupts healthcare delivery

Climate change is broadly harming the health of patients as individuals and communities across the United States (U.S.) increasingly experience the long-predicted consequences of climate change. There is no safe global temperature rise from a health perspective, and every fraction of a degree matters for patients and communities.

### Burning fossil fuels drives climate change and air pollution, harming patients

Greenhouse gas (GHG) emissions, driven to a large extent by the burning of fossil fuels (e.g., coal, oil, and natural gas), have already warmed the world by 2°F (1.1°C) on average compared to pre-industrial temperatures. The mission of the Paris Agreement is the aggressive reduction of GHG emissions to prevent reaching a temperature increase of 2.7°F (1.5°C) within the next two decades.

The broad, geographically diverse impacts of climate change leave no part of the country untouched. Depending on where you practice, your patients are likely experiencing health impacts from climate-intensified heatwaves, droughts, wildfires, hurricanes, heavy rainfall, floods, or sea level rise. Climate change harms health directly through these types of exposures, but it also causes indirect or insidious harm. For example, climate-driven increases in temperature and precipitation are contributing to infectious diseases such as Lyme disease and West Nile becoming more common, more intense pollen levels that worsen allergic and respiratory conditions, and an increased risk for waterborne diseases that cause gastrointestinal illness. Burning fossil fuels also produces health-harming air pollution that is associated with increased risks for a wide range of diseases, such as coronary artery disease, type II diabetes, respiratory diseases like asthma, and cognitive decline (see 2020 Brief).

### Climate change worsens existing health inequities and creates new ones

While everyone's health is at risk from climate change, some patients bear a greater burden from increased exposure (e.g., outdoor workers) and heightened susceptibility (e.g., pregnancy, high-risk medical conditions).

Decades of racially-biased policies have created inequities, placing individuals and communities who are Black, Latinx, Alaskan Native or American Indian, Asian American or Pacific Islander, and other people of color at increased risk of health harms from climate change and air pollution. Policies have also negatively impacted the health of low-income communities and made it harder to adapt to the rapidly changing climate.

### Focus area: Clinical implications of extreme heat, droughts, and wild fires

The 2021 Lancet Countdown U.S. Brief focuses on three interrelated climate hazards: extreme heat, droughts, and wildfires.

- **Extreme heat:** Climate change is increasing the frequency, duration, and intensity of heatwaves. As examples, vulnerable patients with heightened susceptibility, geriatric patients and infants are experiencing a rising number of days of heatwave exposure. The risks of exposure to extreme heat are among the best-studied aspects of climate change, such as worsening cardiovascular and renal disease, pregnancy outcomes, mental health, and many other health conditions. The heatwave in the Pacific Northwest in June 2021 strained the health sector's ability to provide adequate care. Heat-related emergency department visits in the region were nearly 70 times higher than baseline with an estimated 600 heat-related deaths in one week.
- **Droughts:** Climate change is driving worsening drought conditions in the Western and Central U.S., with some areas facing their worst conditions in over a century, leading to increased anxiety and depression. Airborne dust from dry soil can harm respiratory and cardiovascular health. Drought can also create more suitable conditions for mosquitoes that carry infectious diseases like West Nile, increase exposure to harmful water pollutants, and intensify risk for heat-related illnesses.

- **Wildfires:** Climate change is lengthening and intensifying the wildfire season in the Western U.S., and smoke can travel thousands of miles and harm the health of those in downwind communities. Wildfire smoke contains particulate matter, carbon monoxide, and other harmful pollutants. There is emerging evidence that particulate matter in wildfire smoke

may be up to ten times more harmful to health than particulates from other sources, with accentuated respiratory harms for pediatric patients. Exposure to wildfire smoke is associated with an increase in premature death and a higher risk of conditions like cardiac and pulmonary disease, worsened mental health, and preterm birth.

### Climate change and infectious disease: Dengue in the U.S.

Climate change may influence the future spread of new infectious diseases in the U.S. The transmission potential (R0) 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. The R0 was on average 55.6% higher in the past 5 years than compared to the baseline in the 1950s.

### Climate change as a threat multiplier: The COVID-19 pandemic & health system capacity

Climate change amplifies existing threats. Events intensified by climate change, such as extreme heat and hurricanes, have threatened the U.S. response to the COVID-19 pandemic and exacerbated critical capacity shortages. Cascading failures underscore the structural weaknesses of interconnected health systems and breakdowns in managing the extreme challenges posed by compounding crises.

## Treatment: The medical community must respond to climate change

Climate change threatens the fundamental mission of medical professionals to improve the health of patients, prevent harm, and advance equity. As a result, a broad spectrum of treatments is urgently needed. As trusted messengers, medical professionals can disseminate the knowledge that action on climate change is a prescription for improved health and equity.

Action on climate change is the prescription for improved health and equity

### Prescription 1: Adapt clinical practice and increase the resilience of healthcare systems

It is critical to educate medical professionals on the ways climate change is harming the health of patients, creating and worsening inequities, and disrupting the delivery of high-quality healthcare. Key responses include adapting clinical practice to better protect patients and improving the resilience of healthcare systems. During events like extreme heat, droughts, and wildfires – for example – the medical community can better anticipate demands, proactively identify the most vulnerable populations, improve outreach and education, and prepare hospitals and clinics to provide uninterrupted service to minimize impacts. Medical professionals must also stress to decision-makers the essential need to increase the resilience of health systems and demand a proactive response.

### Prescription 2: Advocate for policies that rapidly increase funding for health protections, especially for the most vulnerable populations who are being disproportionately harmed.

It is critical that medical professionals use their trusted voice to advocate for policies that improve the health of patients and communities. This includes having a better understanding of the health effects of climate change, identifying those most at risk, and implementing effective risk reduction measures. For extreme heat, examples include eliminating electricity surge pricing to increase the equitable use of air conditioning and cooling technologies like heat pumps and home weatherization. The health and research communities need funding and resources to develop, implement, and evaluate equitable, health-protective actions. This necessitates a close working relationship between the medical and public health communities, in addition to multidisciplinary collaboration and broad multisectoral engagement.

The U.S. must rapidly implement an all-encompassing, evidence-informed response to climate change that prioritizes and optimizes health and equity

### Prescription 3: Advocate for policies that urgently and equitably reduce economy-wide greenhouse gas emissions

To get to the root cause of the health harms of climate change, there is an urgent need for policies that rapidly reduce economy-wide GHG emissions to 57-63% of 2005 levels by 2030, consistent with a 1.5° C national emissions pathway, and a near zero-emission economy by mid-century. At least 40% of investments need to be directed towards improving air quality in under-resourced communities. Continued investments in fossil fuel infrastructure and extraction and the lagging transition to zero-emission energy is harming health inequitably, locking in emissions for decades, and putting the 1.5°C limit out of reach.



### Talk to your patients about climate change

Talk with your patients about how climate change harms their health. Here are examples of topics that you could discuss with them. These topics will vary depending on factors such as the climate-related exposures your region experiences, the specialty area in which you practice, and your patient's specific health conditions.

- **Staying safe from extreme heat:** Discuss strategies for dealing with extreme heat, such as recognizing the signs of heat-related illness and ways to mitigate it.
- **Protection from poor air quality:** Encourage your patients to pay attention to air quality alerts and educate them on how to stay safe and/or minimize outdoor activity during poor air quality days (e.g., secondary to wildfire smoke).
- **Disaster preparedness:** Ask your patients about their readiness in case of a climate-intensified disaster . . . Discuss strategies pertinent to their health conditions, including having printed copies of prescriptions and a cooler handy to store temperature-sensitive medications in case of evacuation.
- **Mental health check:** Ask your patients about their mental health and well-being. The impact of climate-related mental trauma can be long-lasting, especially in communities of color.

For more information on how to help your patients, access these Center for Disease Control and Prevention resources: <https://www.cdc.gov/disasters/index.html>

This fifth annual Policy Brief is supported by a diverse group of health experts from over 70 institutions, organizations, and centers who recognize that climate change is first and foremost a health crisis. The references for the information presented here can be found in the 2021 Brief or previous Briefs, as they are meant to build upon one another.