

The New Science for the U.S.

The Lancet Countdown: Tracking Progress on Health and Climate Change is an international research collaboration that monitors and reports annually on the relationship between health and climate, and its implications for national governments. The 2021 U.S. Brief publishes the following new important data for the United States (U.S.) from the 2021 Lancet Countdown indicators and its researchers.

Climate change impacts, exposures, and vulnerability

Older adults and infants are experiencing a rising number of days of heatwave exposure

- The young and old have an increased susceptibility to extreme heat.
- Infants – children under one year – experienced a total of nearly 22 million more days of heatwave exposure* in 2020 compared to the 1986-2005 average baseline.
- In 2020, older adults – over the age of 65 – experienced a total of nearly 300 million more days of heatwave exposure* compared to the 1986-2005 average baseline, making it the second highest year of heat exposure recorded since 1986.

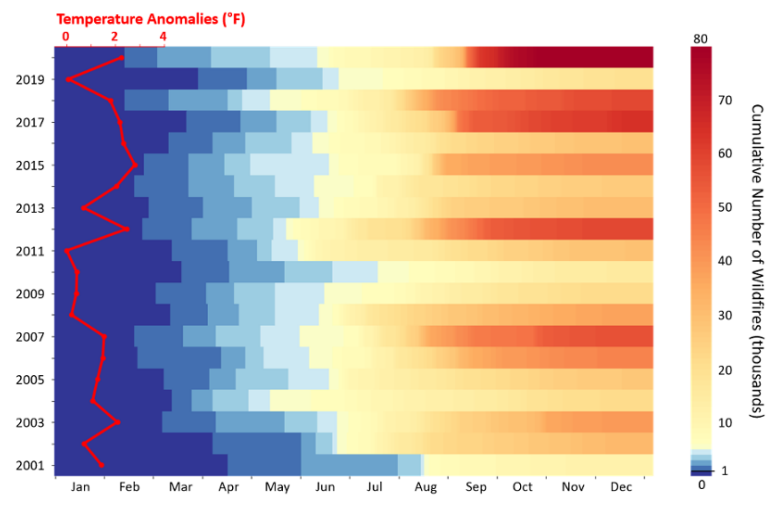
* The “days of heatwave exposure” are measured as “person-days.” This unit encompasses both the number of people exposed and the length of exposure. One person-day represents one person being exposed to one day of a heatwave. In this way, if 10 people were each exposed to 10 days of a heatwave, there would be a total of 100 person-days of heatwave exposure in this population.

Wildfire season in the Western U.S. is lengthening and intensifying

- Wildfires in the Western U.S. are associated with hotter temperatures, and wildfire seasons are lengthening.
- 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 (see Figure below).

Figure: Cumulative annual wildfire incidence by month in the Western U.S., 2001-2020, with annual temperature anomalies.

The figure depicts daily cumulative presumed vegetation wildfires at nominal and high confidence levels (confidence $\geq 30\%$) in the western U.S. (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) from 2001 to 2020. As depicted, cumulative fire incidence reached 1,000 (midweight blue) by early April during the early 2000s (e.g., 2001, 2002); notably, that same cumulative incidence tended to be reached by early February during the late 2010s (e.g., 2018, 2020). The baseline period for temperature is 1980-2000. *Note: New data from Dr. Yun Hang, MS, PhD and Yang Liu, PhD at Emory University Rollins School of Public Health who also produced the Lancet Countdown Indicator 1.2.1.*



The transmission potential of dengue in the U.S. is rising

- Climate change may influence the introduction and spread of new 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, the 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.

Adaptation, planning, and resilience for health

Air conditioning saves lives, but inequities in access to air conditioning and the electricity used for it contributes to deaths from air pollution and further increases greenhouse gas emissions

- 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 air conditioning in the U.S. has increased by 11% since 2000 to include about 92% of households in 2019. However, access is more limited in historically cooler regions of the U.S. and access does not always mean that households are able to effectively operate air conditioning.
- The energy used for air conditioning is largely derived from the burning fossil fuels. The use of air conditioning 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.

Mitigation actions and health co-benefits

The U.S. contributed 15% of global greenhouse gas emissions from the burning of fossil fuels in 2019

For more information on these indicators, please see the 2021 Lancet Countdown global report and appendix and the 2021 U.S. Policy Brief.