

Heat may kill more people in US than previously reported: study

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Death records point to hundreds of U.S. deaths from heat each year, but even moderately hot weather may actually be killing thousands. This summer, COVID-19 may make it harder to stay cool.

As temperatures rise this summer, a new study by Boston University School of Public Health (BUSPH) and the University of British Columbia School of Population and Public Health (UBC SPPH) researchers finds that thousands of U.S. deaths may be attributable to heat each year, far more than the 600 deaths previously estimated by the Centers for Disease Control and Prevention (CDC).

Published in the journal *Environmental Epidemiology*, the study estimates that heat contributed to the deaths of 5,600 people each year on average between 1997 and 2006 in 297 counties comprising three-fifths of the U.S. population.

Most of these deaths were from only moderately hot weather, rather than extremely hot weather—categories that the researchers defined not by temperature, but by what temperatures are normal for a given region of the U.S.

"How dangerous a hot day is may depend on where you live," says study lead author Dr. Kate R. Weinberger, assistant professor of occupational and [environmental health](#) at UBC SPPH.

"A 90°F day might be dangerous in Seattle, but not in Phoenix," she says. "One of the factors that gives rise to this phenomenon is differing degrees of adaptation to heat. For example, air conditioning is much more common in cities like Phoenix that experience [hot weather](#) frequently versus cities like Seattle with [cooler climates](#)," Weinberger says, noting that demographic factors can also affect how vulnerable a population is to heat—heat especially endangers older adults, children, pregnant women, and outdoor workers.

The researchers used data from the National Center for Health Statistics on deaths in the most populous counties (1997 to 2006 was the most recent decade with continuous data available), and the Parameter-

elevation Relationships on Independent Slopes Model (PRISM), which estimates temperatures across the contiguous U.S. down to the four-square-kilometer area.

While most previous research has focused on the information provided on death records to try to estimate deaths from heat, this study analyzed the association between days considered moderately or extremely hot in that county and the number of deaths from any cause, showing that not hundreds but thousands of deaths are tied to heat. The researchers estimated that moderate heat killed 3,309 people per year in the counties included in the study, and extreme heat killed 2,299 people each year.

"These estimates do not depend on anyone recognizing that a given [death](#) was due to excess heat, so they are likely closer to the true number than previous estimates," says study senior author Dr. Gregory Wellenius, director of BUSPH's Climate and Health program.

"Heat is very much a threat to the health of our communities and our families today," he says. "Public health officials have a responsibility to implement heat action plans—as many communities across the world already have—in order to warn residents ahead of days of extreme heat and to help residents cope with the heat and minimize their health risks."

However, the researchers point out that COVID-19 will make it harder to stay cool this summer. "Providing publicly accessible air conditioned spaces on hot days now carries additional risks and requires new protocols for keeping people safe from both heat and infection," Wellenius says.

"At the same time, with many offices, malls, stores, restaurants, and other commercial buildings still largely closed, this summer people are even more reliant on home [air conditioning](#) than ever before," he says. "Given the high unemployment rates, particularly among vulnerable

communities, we may see an even bigger impact of [heat](#) on people's health this summer."

More information: Kate R. Weinberger et al. Estimating the number of excess deaths attributable to heat in 297 United States counties, *Environmental Epidemiology* (2020). DOI: 10.1097/EE9.0000000000000096 , journals.lww.com/environepidem...ntext=LatestArticles

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