

# More research is needed on how climate change affects infectious diseases

June 30 2016

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It is time we act proactively to minimize the effect of climate change on our health, say the researchers behind a new review published in *Environment International*. To do this, more cross-disciplinary collaboration is needed to predict how climate change will alter the outbreak and spread of infectious diseases.

The review, carried out by researchers from Texas State University, USA and Tsinghua University, China, won Elsevier's Atlas Award for May 2016.

The researchers identified three main ways [climate change](#) can affect disease: by impacting the pathogen, vector or host, and the spread of the disease. For example, when a mosquito (the vector) feeds from a human (host) who is infected with the Zika virus (the pathogen), the mosquito becomes infected and can spread the virus to another human by subsequently feeding from them.

"We need to increase our understanding of the impact of climate change and [extreme weather events](#) on [infectious diseases](#)," said one of the study's corresponding authors Dr. Yongmei Lu, Professor of Geography at Texas State University, USA. "With our current knowledge, it is difficult to predict and prevent outbreaks."

For the review, the team selected scientific literature using three sets of search terms: pathogen, host and transmission of infectious diseases; weather- and climate-related keywords; and certain disease names. They

identified 131 peer-reviewed articles and government reports published between 1990 and 2015.

Figures from the European Environment Agency (EEA) show the [global average temperature](#) increased by 0.74°C in the 20th century, and the Intergovernmental Panel on Climate Change (IPCC) has predicted a further increase of between 1.5°C and 5.8°C in the 21st century. Such significant changes in temperature and weather can cause heat waves, floods and droughts, as well as change the spread of diseases.

The researchers give three main recommendations for future research. First, we need to increase our understanding of the cause and effect climate change will have on infectious diseases by carrying out more scientific studies. Second, we need to better predict how climate change will change the spread of diseases across space and time. And third, we need to set up local warning systems for the health effects of climate change.

"Like resources, money, power and rights, climate change is distributed unevenly and unequally in this world - and so are its impacts. However, it goes beyond political boundaries, and beyond administrative boundaries. It calls for our collective efforts and collaborative wisdom beyond boundaries to reduce and proactively adapt to its impacts," explained Dr. Bing Xu, professor at Tsinghua University in China.

**More information:** Xiaoxu Wu et al. Impact of climate change on human infectious diseases: Empirical evidence and human adaptation, *Environment International* (2016). [DOI: 10.1016/j.envint.2015.09.007](https://doi.org/10.1016/j.envint.2015.09.007)

Provided by Elsevier

Citation: More research is needed on how climate change affects infectious diseases (2016, June 30) retrieved 25 April 2024 from <https://phys.org/news/2016-06-climate-affects-infectious-diseases.html>

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