



## Topic Brief: Climate Change and Health

**Date:** 5/25/2022

**Nomination Number:** 0983

**Purpose:** This document summarizes the information addressing a nomination submitted on May 10, 2022, through the Effective Health Care Website. This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

**Issue:** The nominator of this topic is a healthcare journalist who would like to raise awareness among clinicians on the contribution of climate change on various health issues that patients present with, so that they may be optimally diagnosed and treated.

**Findings:** The EPC program develops systematic reviews to inform healthcare decision-making by clinical professional groups, clinicians, healthcare organizations, patients, and others. The EPC Program's primary purpose is not public health messaging and will not consider this topic further.

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### Background

The World Health Organization (WHO) describes climate change as “the single biggest health threat facing humanity,” and further notes that the current climate crisis “threatens to undo the last fifty years of progress in development, global health, and poverty reduction, and to further widen existing health inequalities between and within populations.”<sup>1</sup> The WHO additionally notes that climate change is expected to cause roughly 250,000 additional deaths per year from malnutrition, malaria, diarrhea, and heat stress along between 2030 and 2050. The direct damage costs to health are also estimated to be around two to four billion dollars annually by 2030.<sup>2</sup>

While climate change presents substantial challenges to general human health, it presents particular challenges to respiratory health. Epidemiological research has demonstrated that increasing atmospheric temperatures caused by climate change are worsening ambient air quality across measurable levels. Extreme events (e.g., wildfires, heat waves, extended droughts, etc.) frequently cause dangerous levels of particulate matter and ground-level ozone. Long-term exposure to particulate matter such as these demonstrates damage to lung function growth in children and result in increased respiratory symptoms overall. This exposure has outsized impacts on pediatric populations, as well as those who suffer from common respiratory illnesses, such as asthma and Chronic Obstructive Pulmonary Disease (COPD).<sup>3</sup>

The International Agency for Research on Cancer additionally conducted an evaluation on the carcinogenicity of outdoor air pollution (including particle pollution) and concluded that it is a

Group I agent – carcinogenic to humans.<sup>4</sup> Taken together, these data reveal the impact of climate change on air quality, and global respiratory health.

## Resources

The WHO is currently in the process of updating its Global Air Quality Guidelines, and to that end is conducting a series of systematic reviews that examine the relationships between various air pollutants and human health outcomes. These reviews may be of interest to the nominator of this topic.<sup>5</sup>

## References

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**Conflict of Interest:** None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

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