

Lung doctors expect respiratory diseases will worsen with global climate change

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Worldwide increases in the incidences of asthma, allergies, infectious and cardiovascular diseases will result from a variety of impacts of global climate change, including rising temperatures, worsening ozone levels in urban areas, the spread of desertification, and expansions of the ranges of communicable diseases as the planet heats up, the professional organization representing respiratory and airway physicians stated in a new position paper released today.

The paper is published online and in print in the *Proceedings of the [American Thoracic Society](#)*. The society is the professional organization for pulmonologists, [thoracic surgeons](#) and respiratory therapists, among others. It issued the position paper to help its members know how to respond to these changes with their patients and within their communities, and to add their voices to calls for international cooperation to respond to the existing and anticipated [negative health effects](#) of global warming.

While based in the United States the 15,000-member society has members from around the globe. The position paper was written by a 10-member committee that included representatives from Europe, Asia, India, the Middle East and Africa.

"In these proceedings, we address such questions as how [climate change](#) may impact the distribution of respiratory disease worldwide, the impact of [heat stress](#) and adaptation, and how extreme heat affects the individual and the community," said Kent Pinkerton, professor of

pediatrics at the UC Davis School of Medicine and director of the UC Davis Center for Health and the Environment.

"Since my research focuses on environmental [air pollution](#) and its impact on the respiratory system, my biggest concern has been with issues of air quality," said Pinkerton, who is co-author of the paper and the organizer of the workshop upon which the paper is based. "These include more smoke and particulate matter from more wildfires, which are known to increase in frequency as the climate warms, and the presence of airborne particles from dust storms caused by desertification."

The position paper outlines a complex web of interrelated respiratory health effects from [global climate change](#). For example, mold spores that previously only were seen in Central America have been found as far north as Vancouver, British Columbia, promoting increases in allergy and asthma, with climate-change conditions implicated. Infectious diseases common in the Mediterranean region now are being seen as far north as Scandinavia, as that area grows warmer.

"There are certain vector-borne diseases caused by certain types of parasites or organisms whose range has expanded and that has been associated with increases in temperature," Pinkerton said.

Pinkerton said that some of the prospective respiratory health impacts from [global climate](#) change will be direct, such as more asthma due to increases in particulate matter in the atmosphere because of desertification, or increases in pollen because of more and extended plant blooms. But some will be indirect, he said.

For example, greater concentrations of displaced populations following extreme weather events -- such as hurricane Katrina or the Indonesian or Japanese tsunamis -- could lead to increases in outbreaks of infectious diseases. The health impacts will, of course, be more serious for

sensitive populations, he noted.

"There are individuals who will be much more susceptible to the effects of global climate change than will the members of the general population," Pinkerton said. "In particular, we know that infants and young children, people with asthma or chronic obstructive pulmonary disease (COPD), and those who are elderly or who have compromised immune systems will have more difficulties when air quality is poorer."

The position paper also categorizes the main issues that workshop participants deemed of key importance to respiratory health. The society placed heat-related disease resulting from increased frequency and severity of heat waves as the most serious and direct health risk of climate change. Higher surface temperatures, especially in developed urban areas, will promote the formation of greater amounts of ground-level ozone, exposure to which has been linked to exacerbations of asthma, lung cancer and acute lower-respiratory infections.

Public health measures should be developed to support vulnerable populations during specific climate-change related events, such as heat waves or severe air pollution episodes and other extreme weather events (e.g., extreme rainfall and floods) or rising sea levels and storm surges that challenge or threaten community infrastructure, Pinkerton said.

"Our greatest concern is infants, children, the elderly and other sensitive populations," he said. "They will be the first to experience serious climate change-related health problems."

Provided by University of California - Davis Health System

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