

# CLIMATE CHANGE & PUBLIC HEALTH

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There is a strong consensus among climate scientists that the Earth is undergoing rapid, global climate change and that the burning of fossil fuels is the leading cause. Human health is strongly linked to the health of the Earth, and climate change damages human health in both direct and indirect ways. It is imperative that we recognize how our actions are affecting our own health and the health of future generations.

**The following is a list of ten public health concerns related to climate change:**

- ✗ **Respiratory Diseases:** Urban air pollution is projected to become the leading environmental cause of premature death worldwide by 2050. Higher temperatures increase ground-level ozone, a deadly component of smog that damages lungs, blood vessels and the heart. High ozone exposure leads to more frequent hospitalizations due to asthma, pneumonia, chronic obstructive pulmonary disease (COPD), as well as higher rates of death. The prevalence of asthma in the U.S. has quadrupled over the last 20 years, paralleling the increase in carbon dioxide emissions. Because their lungs are still developing, children are especially vulnerable to short- and long-term health effects of air pollution. 1 in 11 U.S. children now have asthma, and climate change leads to higher pollen and mold counts, which worsen both asthma and allergies.
- ✗ **Cardiovascular Disease:** Hotter temperatures lead to increased levels of fine particles in the air, or particulate matter. Particulate matter is associated with heart attacks, formation of deep vein blood clots, and increased mortality. Hospital admissions for heart-related problems, like arrhythmias (rhythm abnormalities) and stroke, increase as temperatures rise.
- ✗ **Water Security:** Climate change is threatening global water supplies. Droughts are increasingly frequent and extreme, and changing precipitation patterns make dry areas drier and wet areas wetter. Melting glaciers will diminish the water supplies for one-third of the world's population, resulting in a lack of clean, safe drinking water and threatened food production.
- ✗ **Food Security and Nutrition:** Extreme weather patterns, including droughts and floods, warmer temperatures, water shortages, air pollution, and more resistant pests will damage crops and threaten food supplies, leading to increased malnutrition, hunger and famine. Food insecurity can lead to food riots and social unrest.
- ✗ **Cancer:** Climate change is contributing to depletion of the stratospheric ozone layer. Unlike ground-level ozone, stratospheric ozone is beneficial for human health: it reduces ultraviolet (UV) light exposure. Thus, decreasing stratospheric ozone is associated with higher levels of UV light exposure and increasing rates of skin cancer. Higher temperatures may stir up more volatile and semi-volatile compounds (cancer-causing agents) from wastewater into the atmosphere, magnifying human exposures. Intense precipitation and flooding will increase runoff of toxic chemicals from the land into the water, increasing the likelihood of human exposure and the subsequent risk of cancer.

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- ✗ **Infectious Diseases:** Insect-borne diseases such as malaria, dengue fever, Lyme disease and West Nile virus are sensitive to changes in temperature and rainfall patterns and are spreading into regions where they never previously existed. The U.S. saw the highest number of cases of West Nile virus this year since its detection in 1999. Higher airborne dust levels serve as a transporter for diseases like coccidioidomycosis, or “valley fever,” a fungal illness that may affect nearly all of the body’s organ systems. The rates of valley fever have been increasing in the Southwest since the disease first became reportable in 1997. Cholera outbreaks, like the one seen in post-Hurricane Sandy Haiti, occur with water and sanitation disruption following severe weather events. The World Health Organization projects that rates of diarrheal disease—mostly among young children—will be 10% higher by 2030 as a result of climate change.
  - ✗ **Mental Health:** As wildfires, hurricanes, and other weather extremes become more common, stress and anxiety rise. Prolonged and severe climate events can cause chronic stress disorders, like post-traumatic stress disorder and depression. Infrastructure damage, financial loss, and a lack of accessible health care all contribute to psychological stress due to climate change. Because of their cognitive immaturity, children are especially susceptible to long-term psychological damage as a result of severe weather events.
  - ✗ **Increased Temperature:** Heat waves and rising temperatures cause a variety of health concerns, from mild heat rashes to death due to heat stroke. In 2003, 35,000 Europeans died in an unprecedented summer heat wave. The most vulnerable are babies, the elderly, the poor, and the socially isolated. In addition, as temperatures rise, heavy air conditioner use increases electricity demand, thus causing more fossil fuel combustion and worsening air pollution.
  - ✗ **Sea Level Rise:** As sea levels rise, salt water will contaminate aquifers, exacerbating the concerns about already threatened water supplies. Increased soil salt content also reduces farming productivity. Devastating storm surges, like the one caused by Hurricane Sandy, will become more frequent as sea levels continue to rise. Floods caused by rising oceans and storm surges threaten to displace over 200 million people living in coastal areas.
  - ✗ **Environmental Refugees:** As cities, homes, and livelihoods are threatened by drought, desertification, soil erosion, flooding, and other severe weather events, millions of people are forced to flee. Hurricane Katrina forced more than 1 million people to evacuate from New Orleans and surrounding areas; 300,000 of those people never returned home. Such sudden, large-scale migrations place additional strain on water, sanitation, and health infrastructures. The number of environmental refugees is expected to continue rising steadily as climate change worsens.

**While this list is not exhaustive, it provides evidence of the significant health effects resulting from climate change. Although the task is daunting and the effects are nearly innumerable, there is hope. The United States has an opportunity to lead the world in drastically reducing carbon emissions and improving energy efficiency. It is not just our planet that suffers due to climate change—humans suffer too. We must act quickly to protect our health and the health of future generations from the damaging effects of climate change.**

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