

Climate Change and Human Health

Rwshon A H M

Climate is the weather conditions prevailing in an area in general or over a long period. Climate change may have impact on human health in different ways; warming temperatures, changes in precipitation, increases in the frequency or intensity of some extreme weather events, and rising sea levels. These may threaten us by affecting the food, the water, the air, and the weather we experience. Depending on the ability of public health and safety systems to address or prepare for these changing threats, and also on individual's behavior, age, gender, and economic status the severity of impact will vary.

People of developing countries are most vulnerable to health risks, but climate change poses threats to wealthy nations as well. Special group of population, like children, pregnant women and older adults face increased risks.

Warmer average temperatures will lead to hotter days and more frequent and longer heat waves. These changes will lead to an increase death in all countries.

Exposure to extreme heat can lead to heat stroke and dehydration, as well as cardiovascular, respiratory, and cerebrovascular disease. Exposure to extreme heat can lead to heat stroke and dehydration, as well as cardiovascular, respiratory, and cerebrovascular disease.

Urban areas are typically warmer than their rural surroundings. Large metropolitan areas such as St. Louis, Philadelphia, Chicago, and Cincinnati have seen notable increases in death rates during heat waves. Climate change is projected to increase the vulnerability of urban populations to heat-related health impacts in the future. Heat waves are also often accompanied by periods of stagnant air, leading to increases in air pollution and associated

Warmer temperature is associated with shifting weather patterns that worsen air quality which we breathe both indoors and outdoors, which may cause asthma attacks and other respiratory and cardiovascular health effects.

Wildfires, which are expected to continue to increase in number and severity as the climate changes, create smoke and other unhealthy air pollutants. Rising carbon dioxide levels and warmer temperatures also affect airborne allergens, such as ragweed pollen.

Despite significant improvements in U.S. air quality since the 1970s, as of 2014 about 57 million Americans lived in counties that did not meet national air quality standards. Climate change may make it even harder for states to meet these standards in the future, exposing more people to unhealthy air.

It is scientifically predicted that warmer temperatures from climate change will increase the frequency of days with unhealthy levels of ground-level ozone, a harmful air pollutant, and a component in smog. Ground-level ozone can damage lung tissue, reduce lung function, and inflame airways. This can aggravate asthma or other lung diseases. The higher concentrations of ozone due to climate change may result in tens to thousands of additional ozone-related illnesses and premature deaths per year by 2030 in the United States, assuming no change in projected air quality policies.

Extremely small (< 2.5 micrometers) particulate matter and liquid droplets suspended in the atmosphere; such as dust, wildfire smoke, and sea spray occur naturally, while some is created by human activities such as the burning of fossil fuels to produce energy. These particles may be emitted directly from chemical reactions of gases such as sulfur dioxide, nitrogen dioxide, and volatile organic compounds. Climate change may carry them from one place to other and inhalation of these may lead to lung cancer, chronic obstructive pulmonary disease (COPD), and cardiovascular disease. Rainfall can remove these particulate matters but is interfered by change of climate

Climate change may affect allergies and respiratory health. The spring pollen season is already occurring earlier in the United States for certain types of plants, and the length of the season has increased for some plants with highly allergenic pollen such as ragweed.

Climate change may affect allergies and respiratory health. The spring pollen season is already occurring earlier in the United States for certain types of plants, and the length of the season has increased for some plants with highly allergenic pollen such as ragweed that may cause hay fever. Increases in the frequency or severity of some extreme weather events, such as extreme precipitation, flooding,

droughts, and storms, threaten the health of people during and after the event. Extreme events can affect human health in a number of ways by reducing the availability of safe food and drinking water, damaging roads and bridges disrupting access to hospitals and pharmacies, interrupting communication, utility, and health care services, contributing to carbon monoxide poisoning from improper use of portable electric generators during and after storms. increasing stomach and intestinal illness, particularly following power outages, creating or worsening mental health impacts such as depression and post-traumatic stress disorder (PTSD).

Vectors like mosquitoes, ticks, and fleas can carry, viruses, bacteria, and protozoa, from animals to humans and responsible for a number of diseases. Changes in temperature, precipitation, and extreme events increases the geographic range of diseases spread by vectors and can lead to illnesses occurring earlier in the year. With the increase of temperature, range of ticks that carry Lyme disease are likely to become active earlier in the season, Mosquitoes thrive in certain climate conditions and can spread a number of diseases including West Nile virus.

The risks for climate-sensitive diseases can be much higher in poorer countries that have less capacity to combat and treat them.

Contaminated drinking or recreational water another important cause of a number of illness.. Climate change through increasing temperature may cause more frequent heavy rains and runoff and may lead to storms. Health impacts may include gastrointestinal illness like diarrhea by waterborne pathogens (bacteria, viruses, and parasites such as *Cryptosporidium* and *Giardia*); toxins produced by harmful algal and cyanobacterial blooms in the water; and chemical , effects on the body's nervous and respiratory systems, or liver and kidney damage. Higher sea surface temperatures will lead to higher mercury concentrations in seafood, and increases in extreme weather events will introduce contaminants into the food chain through stormwater runoff. Higher concentrations of carbon dioxide in the air can act as a "fertilizer" for some plants, but lowers the levels of protein and essential minerals in crops such as wheat, rice, and potatoes, making these foods less nutritious. Extreme events, such as flooding and drought, create challenges for food distribution if roads and waterways are damaged or made inaccessible. From "farm to table" rising CO₂ and climate change will affect the quality and distribution of food, with subsequent effects on food safety and nutrition

Any changes in a person's physical health or surrounding environment can also have serious impacts on their mental health. In particular, experiencing an extreme weather

event can cause stress and other mental health consequences, particularly when a person loses loved ones or their home.

Other linkages exist between climate change and human health. For example, changes in temperature and precipitation, as well as droughts and floods, will affect agricultural yields and production, these impacts on food security and threaten human health through malnutrition, the spread of infectious diseases, and food poisoning. Declines in human health in other countries can affect the developed countries like United States through trade, migration, and immigration and has implications for national security.

Earth's temperature depends on the balance between energy entering from the sun and leaving from the planet system. These are affected by variation in the sun's energy reaching the earth, changes in the reflectivity of earth's atmosphere and surface and also on the greenhouse effect.

Impacts of climate on human health around the world can be minimized by preparing for adaptation and through changes—such as establishing early warning systems for heat waves and other extreme events, taking steps to reduce vulnerabilities among populations of concern, raising awareness among healthcare professionals, and ensuring that infrastructure is built to accommodate anticipated future changes in climate. Understanding the threats that climate change poses to human health is the first step in working together to lower risks and be prepared.

References

1. USGCRP (2016). Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N.Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J.Trtnanj, and L.Ziska, Eds. U.S. Global Change Research Program, Washington, DC. 312 pp. dx.doi.org/10.7930/J0R49NQX.
2. USGCRP (2009). Global Climate Change Impacts in the United States. Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). United States Global Change Research Program. Cambridge University Press, New York, NY, USA..
3. EPA (2014). Air Quality Trends. Accessed March 1, 2016.
4. IPCC (2014). Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 p. (PDF, 80 pp, 4.6MB).
5. USDA (2015). Climate Change, Global Food Security, and the U.S. Food System. Brown, M.E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi, 146 p.