



## CLIMATE CHANGE: PUBLIC HEALTH IMPACTS

Climate change is projected to create new, unprecedented health problems and health threats, as well as more severe and frequent health problems that are already affected by the climate and weather. Human vulnerability to these health effects depends on three factors: *exposure* to climate and weather threats; *sensitivity*, or tendency to be affected by a given amount of exposure; and *adaptive* capacity, or the ability to avoid or reduce exposure.

The National Climate Assessment, produced by the U.S. Global Change Research Program, reports that U.S. residents will face more health issues. Increased ground-level ozone and particulate matter will impact air quality, causing some U.S. residents to experience respiratory stress, more asthma attacks and cases, weakened lung function, and more premature deaths. Plants will flourish in warmer temperatures and produce more allergens, resulting in more frequent allergic sensitizations and asthma occurrences. Rising temperatures and more extreme rainfall will foster indoor air quality problems, including the growth of molds.

Climate change will cause more extreme weather events, such as hurricanes, heavy snowfall, and flooding. Extreme weather events lead to fatalities and increases in behavioral health issues: anxiety, substance abuse, suicide, and post-traumatic stress disorder. The leading weather-related cause of death in the U.S. is extreme heat events, and these will increase. Extreme heat causes increases in heat stroke, cardiovascular disease, respiratory disease, cerebrovascular disease, and kidney disorders.

Scientists expect a greater number of disease outbreaks caused by mosquitoes, ticks, and fleas. Climate change will influence the geographic and seasonal distribution of these vector populations and the outbreak potential for Lyme disease, dengue fever, West Nile virus, Rocky Mountain spotted fever, plague, and tularemia. Vector-borne pathogens not currently found in the U.S., such as chikungunya, Chagas disease, and Rift Valley fever viruses, may impact U.S. residents as a result of travel and trade.

Climate change will most impact people whose health is already at risk and who have the fewest resources to address or adapt to changes in climate. Children are physiologically and behaviorally more vulnerable to heat waves, extreme weather events, asthma, and many infectious diseases. Seniors are susceptible to extreme heat waves and may have underlying diseases that increase health risks and illness. Low-income and minority communities often experience higher rates of asthma, diabetes, and other chronic diseases that place them at higher risk of complications from extreme weather, especially extreme heat.

Extreme weather events can affect mental health in several ways. Following disasters, mental health problems increase among people with no history of mental illness as well individuals with mental illness. Reactions may be short-lived or persist for years after experiencing the loss of homes, livelihoods, and community resources. Anyone can experience mental health impacts due to the stress of environmental changes, drought, or severe weather or disasters.

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Individuals at increased risk of mental health impacts from climate change are persons with pre-existing mental illness, persons and responders who experienced disaster, and those who live in disaster-prone areas near waterways and urban “heat islands.” Other vulnerable populations are pregnant women, the elderly, persons on low incomes or impaired mobility, and farmers and watermen whose livelihoods depend on stable climate conditions. Polluted air, which causes asthma, is associated with higher rates of anxiety, depression, and schizophrenia.

Flash floods, storm surge, and damaging winds destroy infrastructure, displacing people and disrupt the normal rhythms of families and communities for months and years. Prolonged droughts, heavy rains that run off quickly, and less snowfall can contaminate or diminish water supplies, severely limiting farming and food production, and cause damaging flash floods that contribute to stress, anxiety, and depression. As sea level rise displaces coastal residents or requires the construction of barrier walls to protect communities and drinking water, it will create inordinate stress, depression, grief, and post-traumatic stress.

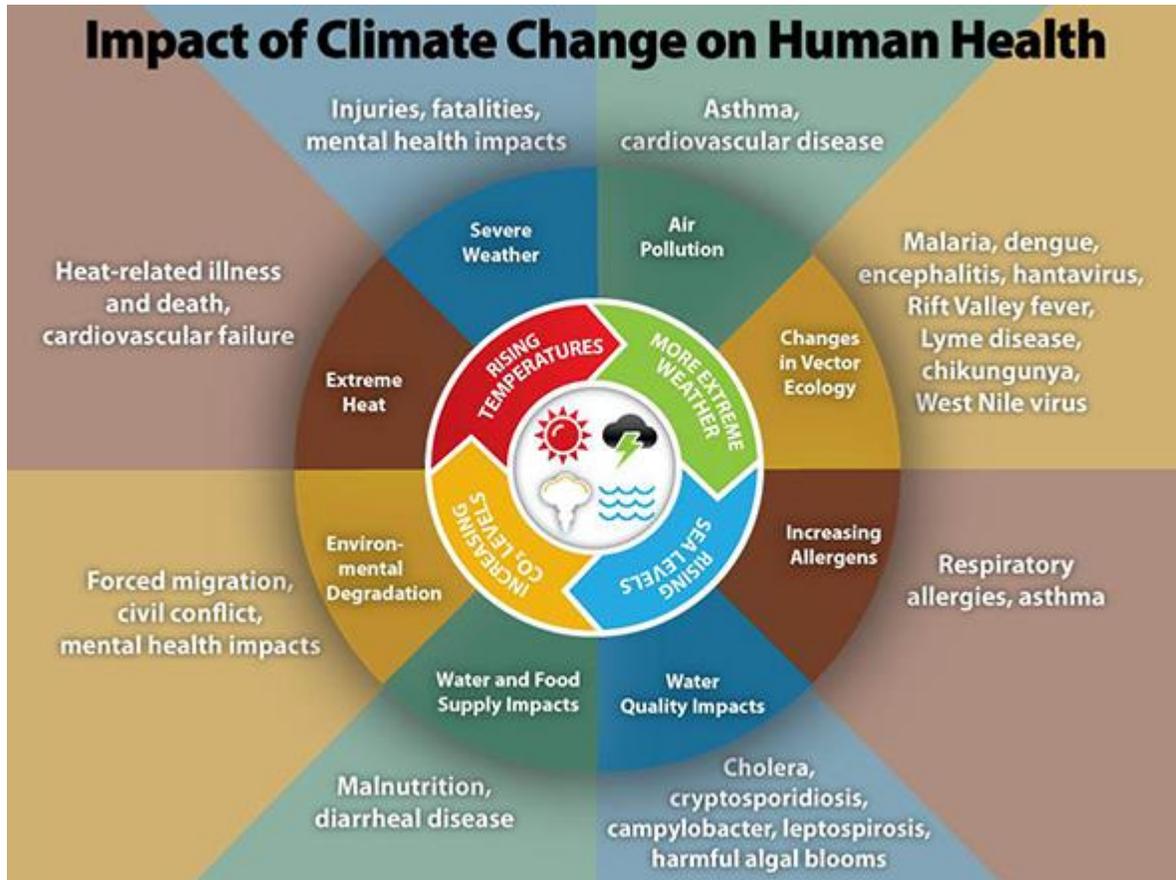
Symptoms of stress are anxiety, post-traumatic stress, depression, interpersonal and/or societal conflict, family stress, persistent grief, and child behavioral and developmental problems and academic decline. Stress resulting from climate change may result in behavioral health outcomes of stress disorders and increased substance abuse, as well as personal and interpersonal violence.

#### Sources:

The National Climate Assessment, 2014, <http://nca2014.globalchange.gov/>

Climate and Health Program, CDC, 2014

<http://www.psyr.org/about/programs/climate/mentalhealth.php>



Source: Climate and Health Program, CDC, 2014