

Climate Change: What's Public Health Got to Do With It?

DEFINITIONS

Greenhouse Gases (GHG)

Gases which absorb infrared radiation and trap its heat in the atmosphere. Both natural and industrial gases exhibit these greenhouse properties, like carbon dioxide and methane.



This is the first in a series of five Guides designed to help public health professionals understand:

Guide 01

Climate Change: What's Public Health Got to Do With It?

Guide 02

Health and Equity Co-Benefits of Addressing Climate Change

Guide 03

Climate Change and Health Equity

Guide 04

How Public Health can Address Climate Change

Guide 05

Getting Involved in Climate Change Action Planning

What is Climate Change?

Global warming refers to the rise in global average temperature near Earth's surface. It is one aspect of climate change, which refers to major changes in temperature, precipitation, or wind patterns that last for a long time. Human activities are a major cause of climate change, especially through the release of large amounts of carbon dioxide and other greenhouse gases into the atmosphere; burning fossil fuels to produce energy is the major source of greenhouse gases, which act like a blanket around the earth, and trap heat in the atmosphere.ⁱ

Why is Climate Change a Public Health issue?

"Climate change is the biggest global health threat of the 21st century."ⁱⁱ It threatens the very systems on which human life depends – our water, our food, our shelter, and our security. As public health professionals charged with protecting and promoting the health of the population, we have a responsibility and an obligation to educate our communities about the health impacts of climate change, to support action to reduce greenhouse gas emissions, and to enhance the ability of our communities to be ready for and resilient in the face of climate change. Taking action on climate change now will save lives, improve the health of our communities, and reduce health inequities. Guide 2 will address the health co-benefits of many strategies to address climate change.

How does Climate Change affect health?

Climate change has many direct health impacts. These include injuries and displacement due to more severe storms, more heat illness as extreme heat events become more frequent and severe, more asthma due to increased ozone levels associated with higher temperatures, and changes in the distribution of infectious disease. Climate change also causes serious health impacts related to reductions in the availability of clean water, disruptions in global food supply due to drought and extreme weather and mental health problems associated with the stress of displacement.

Climate change disproportionately impacts already vulnerable populations, such as the very young, the elderly, those with chronic illness, people of color, and those with low-income. Climate change will likely increase the health inequities that we are already seeing in our communities. Guide 3 will address the health equity implications of climate change in more detail.

CLIMATE CHANGE IMPACTS IN THE UNITED STATESⁱⁱⁱ

Climate Change Impacts	Health Impacts
Increased Frequency of Extreme Heat Events	<ul style="list-style-type: none"> • Premature death • Aggravation of cardiovascular and respiratory disease • Heat-related illnesses such as heat stroke, heat exhaustion and kidney stones
Increased Air Pollution (Ozone and Particulate Matter) and Pollen	<ul style="list-style-type: none"> • Increased asthma, chronic obstructive pulmonary disease (COPD), other cardiovascular, and respiratory diseases and allergies
Wildfires	<ul style="list-style-type: none"> • Injuries and death from burns and smoke inhalation • Eye and respiratory illnesses due to smoke • Exacerbation of asthma, allergies, chronic obstructive pulmonary disease (COPD), and other cardiovascular and respiratory diseases • Risk from erosion and land slippage after wildfires • Displacement and loss of homes
Severe Weather, Extreme Rainfall, Floods, Water Issues	<ul style="list-style-type: none"> • Population displacement, loss of home and livelihood • Death from drowning • Injuries • Drinking water contamination, damage to wastewater, water treatment and irrigation systems, resulting in decrease in quality/quantity of water supply and disruption to agriculture • Water- and food-borne diseases from sewage overflow
Increased Average Temperature	<ul style="list-style-type: none"> • Cardiovascular disease • Increased number and range of: <ul style="list-style-type: none"> • Vector-borne disease such as West Nile virus, malaria, Hantavirus, or plague • Water-borne disease such as cholera and E. coli • Food-borne disease such as salmonella poisoning • Harmful algal blooms causing skin disease and poisoning • Allergies caused by pollen, and rashes from plants such as poison ivy or stinging nettle • Vulnerability to wildfires and air pollution
Agricultural Changes	<ul style="list-style-type: none"> • Changing patterns and yields of crops, pests, and weed species, resulting in higher prices for food and food insecurity, possibly greater use of pesticides, hunger, and malnutrition • Changes in agriculture/forestry, leading to lost or displaced jobs and unemployment
Drought	<ul style="list-style-type: none"> • Hunger and malnutrition caused by disruption in food and water supply, increased cost, and conflict over food and water • Water- and food-borne disease • Emergence of new contagious and vector-borne disease
All Impacts	<ul style="list-style-type: none"> • Mental health disorders (i.e. depression, anxiety, Post-Traumatic Stress Disorder, substance abuse, and other conditions) caused by: <ul style="list-style-type: none"> • Disruption, displacement, and migration • Loss of home, lives, and livelihood • Health Care impacts: <ul style="list-style-type: none"> • Increased rates of illness and disease, emergency room use, and related costs borne by employers, health plans, and residents • Damage to health facilities



It is the mission of the Bay Area Regional Health Inequities Initiative (BARHII) to transform public health practice for the purpose of eliminating health inequities using a broad spectrum of approaches that create healthy communities.

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- ii. Coastello, Anthony, et. al. "Lancet and University College London Institute for Global Health Commission: Managing the Health Effects of Climate Change." *The Lancet* 373 (2009): 1693-1733. Web.
- iii. Public Health-Related Impacts of Climate Change in California, A Report From: California Climate Change Center, March 2006

OTHER RESOURCES

Global Climate Change Impacts in the United States, Cambridge University Press, Centers for Disease Control and Prevention, Climate and Health Program