

# EXTREME RAINFALL AND DROUGHT



Climate change poses many risks to human health. Some health impacts of climate change are already being felt in the United States. We need to safeguard our communities by protecting people's health, wellbeing, and quality of life from climate change impacts. Many communities are already taking steps to address these public health issues and reduce the risk of harm.

## BACKGROUND

When we burn fossil fuels, such as coal and gas, we release carbon dioxide (CO<sub>2</sub>). CO<sub>2</sub> builds up in the atmosphere and causes Earth's temperature to rise, much like a blanket traps in heat. This extra trapped heat disrupts many of the interconnected systems in our environment.

Increases in precipitation extremes, either heavy rainfall events or droughts, can impact our health. Warmer temperatures cause more water to evaporate into the air and allow that air to hold more water. This sets the stage for heavier downpours. At the same time, global temperatures influence the way heat and moisture move around the planet, meaning drier conditions will occur in some regions of the world.

## THE CLIMATE-HEALTH CONNECTION

Precipitation extremes create many safety hazards and health risks.

- Over the last several decades, we have already seen an increase in the number of heavy precipitation events in the U.S. These events have contributed to more severe flooding in certain regions. Floods are one of the deadliest weather-related hazards in the U.S. – second only to heat.
- Other hazards can appear after a storm has passed. For example, a damp or flooded building can develop mold. Mold affects indoor air quality. Living with poor air quality and in damp conditions has been shown to increase health problems. These health problems include aggravation of asthma and other upper respiratory tract symptoms such as coughing and wheezing due to mold exposure. They also include lower respiratory tract infections like pneumonia.
- People living in drought conditions may be more likely to encounter certain dangerous situations. These can range from dust storms to flash floods. Wildfires associated with drought conditions greatly reduce air quality. This poor air quality affects people's health in a number of ways. Wildfire smoke exposure increases respiratory and cardiovascular hospitalizations and medical visits for lung illnesses. It also increases the need for treatments for asthma, bronchitis, and other breathing problems.



# ACTIONS WE CAN TAKE TO PREPARE FOR CLIMATE CHANGE

We can responsibly manage the problems facing our environment by taking sensible steps toward protecting human health and safety. Whether measures are meant to reduce future climate change impacts or address the health impacts of climate change that are happening already, early action provides the greatest health benefits. It makes sense to invest in creating the strongest climate-health adaptation and preparedness programs we can.

Reducing the release of heat-trapping gases like CO<sub>2</sub> can help protect our health and wellbeing by decreasing impacts on our climate system. Activities that reduce the amount of heat-trapping CO<sub>2</sub> in the atmosphere are many of the same things we already know prevent health problems. Active modes of transport like biking or walking can help reduce traffic-related air pollution and encourage physical activity, which has public health benefits including reduced rates of obesity, heart disease, and diabetes.

# ACTIONS WE CAN TAKE TO MANAGE PRECIPITATION EXTREMES

We also can take actions to prepare our communities for the present and future effects of climate change. Some communities are already implementing effective programs to address climate-sensitive health issues associated with precipitation extremes. When it comes to managing the health threats associated with precipitation extremes, there are approaches that we know work:

- ◆ Land-use planning can reduce the risks associated with floods. This planning can include restricting development in flood-prone areas, and incorporating design elements that better handle storm water run-off, such as permeable paving materials.
- ◆ Communities can create greenways to protect streams and flood plains. Storm water that is channeled directly into streams increases the volume of water in the stream, which creates surges in the amount of water flowing through downstream communities and increasing the risk of flooding. When storm water is allowed to spread out and soak into the ground, stream flows become more even and ground water is stored.
- ◆ Relocating buildings and roads that have experienced repeated flooding can reduce future risk.
- ◆ Never driving through flooded roads will reduce the risk of injury or drowning.



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