Global Warming and Health

As our climate changes, the risk of injury, illness, and death from the resulting heat waves, wildfires, intense storms, and floods rises.

Extreme heat. If high temperatures, especially when combined with high relative humidity, persist for several days (heat waves), and if nighttime temperatures do not drop, extreme heat can be a killer. Of all climate-related projections by scientists, rising temperatures are the most robust. Higher temperatures are also the most influenced by human behavior: the fewer heat-trapping emissions we release into the atmosphere, the cooler we can keep our planet. Because winter temperatures are rising faster than summer ones, cold-related deaths are likely to decline.

- **"Natural" disasters**. Projected changes in temperature and precipitation under global warming are likely to lead to other effects that threaten human health and safety. For example, changing precipitation patterns and prolonged heat can create drought, which can cause forest and peat fires, putting residents and firefighters in danger. However, a warming atmosphere also holds more moisture, so the chance of extreme rainfall and flooding continues to rise in some regions with rain or snow. In many heavily populated areas, sea-level rise is more likely to put people in the path of storm surges and coastal flooding. Warmer ocean waters may spawn more intense tropical hurricanes and typhoons while ocean cycles continue to be a factor in the frequency of tropical cyclones.
- **Poor air quality**. Three key ingredients—sunlight, warm air, and pollution from power plants and cars burning coal and gasoline—combine to produce ground-level ozone (smog), which humans experience as poor air quality. Higher air temperatures increase smog, if sunlight, fossil fuel pollution, and air currents remain the same.
- **Allergens and other nuisances**. Warmer temperatures and higher concentrations of carbon dioxide in the atmosphere stimulate some plants to grow faster, mature earlier, or produce more potent allergens. Common allergens such as ragweed seem to respond particularly well to higher concentrations of CO2, as do pesky plants such as poison ivy. Allergy-related diseases rank among the most common and chronic illnesses that can lead to lower productivity.
- **Spreading diseases**. Scientists expect a warmer world to bring changes in "disease vectors"—the mechanisms that spread some diseases. Insects previously stopped by cold winters are already moving to higher latitudes (toward the poles). Warmer oceans and other surface waters may also mean severe cholera outbreaks and harmful bacteria in certain types of seafood. Still, changes in land use and the ability of public

health systems to respond make projecting the risk of vector-borne disease particularly difficult.

People do not bear the health risks of climate change equally because:

- **Climate trends differ by region**. People who live in floodplains, for example, are more likely to see river or coastal flooding. Similarly, people who live in regions with poor air quality today are at greater risk from poor air quality days in the future.
- **Some people are more vulnerable to illness or death**. Young children, the elderly, and those who are already ill are less able to withstand high temperatures and poor air quality, for example. Temperature extremes and smog hit people with heart and respiratory diseases, including asthma, particularly hard.
- **Wealthy nations are more likely to adapt** to projected climate change and recover from climate-related disasters than poor countries. Even within nations, less economically fortunate individuals are more vulnerable because they are less likely to have air conditioning and well-insulated homes, and because they have fewer resources to escape danger.

Better planning—through investments in infrastructure and public health strategies—can help communities become more resilient in a warming world. However, the costs of coping with health risks linked to severe climate change are often higher than the costs of curbing heat-trapping emissions in the first place.

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