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Climate change and health

Key facts

- Climate change affects the fundamental requirements for health – clean air, safe drinking water, sufficient food and secure shelter.
 - The global warming that has occurred since the 1970s was causing over 140 000 excess deaths annually by the year 2004.
 - Many of the major killers such as diarrhoeal diseases, malnutrition, malaria and dengue are highly climate-sensitive and are expected to worsen as the climate changes.
 - Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.
 - Reducing emissions of greenhouse gases through better transport, food and energy-use choices can result in improved health.
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Climate change

Over the last 50 years, human activities – particularly the burning of fossil fuels – have released sufficient quantities of carbon dioxide and other greenhouse gases to trap additional heat in the lower atmosphere and affect the global climate.

In the last 100 years, the world has warmed by approximately 0.75°C. Over the last 25 years, the rate of global warming has accelerated, at over 0.18°C per decade¹.

Sea levels are rising, glaciers are melting and precipitation patterns are changing. Extreme weather events are becoming more intense and frequent.

What is the impact of climate change on health?

Although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative. Climate change affects the fundamental requirements for health – clean air, safe drinking water, sufficient food and secure shelter.

Extreme heat

Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. In the heat wave of summer 2003 in Europe for example, more than 70 000 excess deaths were recorded².

High temperatures also raise the levels of ozone and other pollutants in the air that exacerbate cardiovascular and respiratory disease. Urban air pollution causes about 1.2 million deaths every year.

Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people. Ongoing temperature increases are expected to increase this burden.

Natural disasters and variable rainfall patterns

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60 000 deaths, mainly in developing countries.

Rising sea levels and increasingly extreme weather events will destroy homes, medical facilities and other essential services. More than half of the world's population lives within 60 km of the sea. People may be forced to move, which in turn heightens the risk of a range

of health effects, from mental disorders to communicable diseases.

Increasingly variable rainfall patterns are likely to affect the supply of fresh water. A lack of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills 2.2 million people every year. In extreme cases, water scarcity leads to drought and famine. By the 2090s, climate change is likely to widen the area affected by drought, double the frequency of extreme droughts and increase their average duration six-fold³.

Floods are also increasing in frequency and intensity. Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes. They also cause drownings and physical injuries, damage homes and disrupt the supply of medical and health services.

Rising temperatures and variable precipitation are likely to decrease the production of staple foods in many of the poorest regions – by up to 50% by 2020 in some African countries⁴. This will increase the prevalence of malnutrition and undernutrition, which currently cause 3.5 million deaths every year.

Patterns of infection

Climatic conditions strongly affect water-borne diseases and diseases transmitted through insects, snails or other cold blooded animals.

Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases and to alter their geographic range. For example, climate change is projected to widen significantly the area of China where the snail-borne disease schistosomiasis occurs⁵.

Malaria is strongly influenced by climate. Transmitted by Anopheles mosquitoes, malaria kills almost 1 million people every year – mainly African children under five years old. The Aedes mosquito vector of dengue is also highly sensitive to climate conditions. Studies suggest that climate change could expose an additional 2 billion people to dengue transmission by the 2080s⁶.

Measuring the health effects

Measuring the health effects from climate change can only be very approximate. Nevertheless, a WHO assessment, taking into account only a subset of the possible health impacts, concluded that the modest warming that has occurred since the 1970s was already causing over 140 000 excess deaths annually by the year 2004⁷.

Who is at risk?

All populations will be affected by climate change, but some are more vulnerable than others. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable.

Children – in particular, children living in poor countries – are among the most vulnerable to the resulting health risks and will be exposed longer to the health consequences. The health effects are also expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions.

Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.

WHO response

Many policies and individual choices have the potential to reduce greenhouse gas emissions and produce major health co-benefits. For example, promoting the safe use of public transportation and active movement – such as cycling or walking as alternatives to using private vehicles – could reduce carbon dioxide emissions and improve health.

In 2009, the World Health Assembly endorsed a new WHO workplan on climate change and health. This includes:

- **Advocacy:** to raise awareness that climate change is a fundamental threat to human health.
- **Partnerships:** to coordinate with partner agencies within the UN system, and ensure that health is properly represented in the climate change agenda.
- **Science and evidence:** to coordinate reviews of the scientific evidence on the links between climate change and health, and develop a global research agenda.
- **Health system strengthening:** to assist countries to assess their health vulnerabilities and build capacity to reduce health vulnerability to climate change.

References

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