Managing infectious disease under climate change

Health experts have called for a proactive, joined-up approach to public health in Europe under a changing climate. A recent study has examined the evidence for the influence of the climate on infectious disease and proposes a new integrated network for environmental and health data.

The impacts of climate change on health in Europe could be considerable, and include deaths and injuries resulting from heat waves, blizzards and floods. It could also lead to changes in the incidence and spread of infectious diseases through impacts on the agents or pathways which transmit disease, such as arthropod vectors (for example, mosquitoes and ticks), rodents, food, water and air.

Although the researchers conclude that there is still much uncertainty, by assessing what is currently understood about the climate’s effects on a wide range of infectious disease, they provide information to help guide adaptation and public health strategies.

For instance, it is understood that some arthropod vectors are shifting their geographical range in line with rising temperatures. This introduces illnesses to new areas, such as Lyme disease, carried by ticks which have progressively moved into more northern parts of Sweden and more mountainous areas of the Czech Republic. This illustrates the importance of integrated meteorological, ecological and health surveillance.

Pest control could become more important. Rodent populations grow rapidly under increasingly common, warm, wet winters and springs, and heat waves can drive rodents indoors creating greater risk of human contact. This in turn increases the risk of transmission of diseases, such as hantavirus, which can cause kidney failure. Plague, spread by rats, could even return under a new favourable climate in central Asia, posing a threat to eastern Europe.

Water managers also need to play a greater public health role. For example, extreme weather can damage ageing water treatment and distribution systems, encouraging the spread of diseases, including campylobacter, through drinking water. Warmer conditions may also favour cholera, which can spread through flooding. Improvements in infrastructure and environmental protection can avoid these negative health consequences of climate change.

Food poisoning caused by temperature-sensitive bacteria, such as Campylobacter spp and Salmonella spp, could also become more prevalent. However, this could be limited by appropriate food handling and storage. Effective food safety campaigns and regulations will therefore be important.

On the basis of the evidence cited in this analysis and expert consultation, a new infrastructure has been proposed by the EU’s European Centre for Disease Prevention and Control to address the multidisciplinary and complex nature of managing the impacts of climate change on disease. Called the European Environmental and Epidemiology (E³) Network, it is envisaged that it will bring together data from a variety of sources and act as a central hub for information, surveillance and technical support.

1. See: http://ecdc.europa.eu


Contact: jan.semenza@ecdc.europa.eu

Theme(s): Climate change and energy, Environment and health