



European health experts warn of climate change's effects on disease

Climate change will affect the spread and risk of many infectious diseases in Europe, according to a recent survey of leading health experts. The results suggest that more needs to be done to prepare for the expected changes in infectious disease levels, such as improved monitoring of disease.

Changes to temperatures and rainfall in Europe as a result of climate change will influence patterns of food and water-borne diseases, as well as diseases carried by 'vectors', such as mosquitoes and ticks. This change in distribution of infectious diseases is difficult to predict and only a few studies have been able to link changes in disease patterns to climate change.

The researchers surveyed national health experts in all 27 Member States of the EU, and Norway, Iceland and Lichtenstein, to explore the potential impacts of climate change on infectious diseases. The surveys took the form of two questionnaires, given in 2007 and 2009/2010, to officials in charge of institutions or scientific bodies that provide independent scientific or technical advice for the prevention and control of infectious diseases, including governmental health protection agencies, ministries of health and governmental infectious disease surveillance centres. The study also looked at how prepared national institutions are to deal with changes in infectious disease levels as a result of climate change.

The questionnaires asked the participants to indicate which infectious disease they thought would be most likely to be affected by climate change, based on their expert opinion. In addition, they were asked which outbreaks in the previous 10 years could be attributed to the effects of climate change.

The majority of representatives believed that climate change would have an impact on all major categories of infectious diseases. For example, vector-borne diseases judged likely to be affected by climate change in the future included Lyme borreliosis, West Nile fever, and tick-borne encephalitis. Around a quarter of respondents also believed outbreaks or increases in the incidence of these diseases during the last decade could be attributed to climate change.

Water-borne diseases thought most likely to be affected include Leptospirosis and cryptosporidiosis. For example, more rainfall in northern regions could increase the numbers of the parasite that causes cryptosporidiosis in water treatment and distribution systems.

Food-borne infections, such as *Salmonella* and *Campylobacter*, have a distinct seasonal pattern that has been linked to climate. Approximately three quarters of the survey respondents believed that food-borne infections will be affected by future climate change. However, respondents did not attribute food-borne outbreaks in their countries to recent temperature changes.

Despite each country carrying out research on infectious diseases, few national institutions are in place to monitor climate-sensitive infectious diseases. Experts from just seven countries indicated that they had conducted a national climate change assessment that covered infectious diseases adequately. A total of 80% of government officials admitted that current surveillance activities need improvement.

The researchers claim that in the absence of scientific certainty, expert assessment gathered in this way can provide important information for policymakers to prioritise areas for action and make informed decisions. The results of recent research confirmed the experts' opinions and highlighted the reliability and value of the information collected in the surveys.

Source: Semenza, J.C., Suk, J.E., Estevez, V., *et al.* (2012) Mapping Climate Change Vulnerabilities to Infectious Diseases in Europe. *Environmental Health Perspectives*. 120(3): 385-392. This study is free to view at: <http://ehp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.1103805>

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

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To cite this article/service: "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.