

Sector Perspective

- In the UK, health and wellbeing provision is delivered by a wide range of organisations, including publicly funded bodies, private sector companies, charities and local authorities. The key organisation in the health sector, the National Health Service (NHS), deals with an average of 1 million patients every 36 hours.¹ It also employs over 1.7 million people, including 120,000 hospital doctors, 400,000 nurses and 40,000 general practitioners. Responsibility for the NHS and healthcare services in the UK is largely devolved.
- In meeting future needs, the health sector will potentially be affected by a wide variety of social and economic factors. Some of these (e.g. the health needs of an expanding and ageing population) may be more challenging than climate change.
- Climate change may, however, have a range of impacts on human health in the UK, mainly due to higher average temperatures and an increase in the frequency and severity of extreme weather events (e.g. floods and heatwaves). In some cases, the effects of climate change may exacerbate, or be exacerbated by, other pressures on the sector.
- Although awareness of the risks posed by climate change is gradually increasing within the health sector, risks for the sector may be modified by adaptation actions within other sectors. Furthermore, sectors such as the built environment, agriculture and floods and coastal erosion have a direct bearing on people's health, so their adaptation to climate change will have a significant influence on health and wellbeing across the UK.

¹ NHS Confederation statistics, 2011.



Health

Climate change is projected to result in changes in temperature, rainfall patterns and sea levels, as detailed in the UK Climate Projections (UKCP09) analysis. While milder winters may bring benefits, warmer summers in particular may have a negative impact on both health and healthcare provision in the UK.

The Climate Change Risk Assessment (CCRA) has completed an assessment of a range of impacts for which this sector may need to prepare. Some of the key points from this assessment are summarised here.

The results presented here do not take account of changes in society (e.g. population growth, economic growth and developments in new technologies); nor do they take account of responses to climate risks (e.g. future or planned Government policies or private adaptation investment plans). All results presented are based on current population figures and, unless indicated, apply to the whole UK.

Focus on... Cold

In an average year, around 26,000 to 57,000 deaths and several million patient-days in hospital are currently attributable to cold. Warmer winters may lead to a substantial fall in these figures. However, even if cold spells become less common, short periods of low temperatures might affect health adversely because people would be less used to cold weather.

Confidence

M Decrease in cold-related deaths each year: between around 1300 and 12,000 by the 2020s, between around 3900 and 24,000 by the 2050s and between around 5700 and 36,000 by the 2080s.

Healthcare provision may also be affected by heatwaves if temperatures in hospital wards, care homes and medicine stores are not effectively controlled, affecting both patient recovery and the performance of staff. In addition, warmer temperatures may contribute to some increased risk from water-borne and food-borne diseases as well as diseases carried by insects and parasites.

Confidence

H Increase in heat-related deaths each year: between around 130 and 1700 by the 2020s, between around 580 and 5900 by the 2050s and between around 1000 and 14,000 by the 2080s.

Focus on... Heat

The effects of heat currently account for an average of around 1100 deaths and many thousand patient-days in hospital every year, with much larger figures in exceptionally hot years. Around 2000 excess deaths were recorded in England and Wales during the heatwave of August 2003.

Rising temperatures, mainly during the summer, may result in an increase in deaths and hospital admissions due to cardio-vascular and respiratory illnesses. This may particularly affect vulnerable groups such as the elderly. South-east England may be the region most affected.

Focus on... Ozone Levels

Ground-level ozone is formed by a series of chemical reactions taking place in the presence of sunlight. Acute exposure can irritate the eyes and nose and may, in some cases, cause respiratory problems. An increase in summer temperatures and heatwaves may lead to a rise in the number of deaths and hospital admissions resulting from respiratory conditions aggravated by ground-level ozone.

The biggest increases are projected to occur in south-east England and there may be a particularly high risk for people with pre-existing illnesses such as asthma. However, climate change may also result in a fall in winter air pollution, reducing the number of deaths and associated illnesses that this causes.



Confidence

M Increase in deaths each year caused by ground-level ozone: between 650 and 2900 by the 2080s (this increase is from the current average of 10,000 deaths a year).

M Increase in hospital admissions each year caused by ground-level ozone: between 2300 and 10,000 by the 2080s (this increase is from a current average of 33,000 admissions a year).

Focus on... Flooding and Storms

Flooding (all types) and coastal wave activity result in an average of 18 deaths each year. Sea level rises and more intense downpours may lead to an increase in this figure. Moreover, evidence is emerging that flooding can have a substantial impact on mental health, causing anxiety and depression, which can be long-lasting in some cases.

As 7% of hospitals and 9% of surgeries and health centres in England, for example, are built in flood risk areas, floods may also increasingly disrupt healthcare services.

Confidence

M Increase in deaths each year due to flooding and storms: between 4 and 17 by the 2020s, between 6 and 34 by the 2050s and between 13 and 69 by the 2080s. These figures apply to all types of flooding and are for the whole UK.

M Increase in injuries each year due to flooding and storms: between 80 and 340 by the 2020s, between 120 and 680 by the 2050s and between 270 and 1380 by the 2080s (this increase is from a current average of 360 injuries each year). These figures apply to all types of flooding and are for the whole UK.

M Increase in people affected by flood-related mental health effects each year: between 3000 and 4000 by the 2020s, between 4000 and 7000 by the 2050s and between 5000 and 8000 by the 2080s (this increase is from a current average of between 3500 and 4500 each year). These figures apply to river and tidal flooding only and are for England and Wales only.

The assessment of flood risk for the CCRA has assumed that there are no changes in existing flood and coastal erosion risk management measures; the analysis takes account of current flood defences and protection against coastal erosion, but does not include any future changes as a result of adaptation policies or deterioration of existing flood defences and coastal protection measures.

Focus on... Sunlight

Higher summer temperatures may encourage people to spend more time in the sun (e.g. to take outdoor exercise). It is possible that this may lead to higher levels of vitamin D in the body, but may also increase exposure to ultra-violet (UV) radiation and so cause an increase in the incidence of skin cancer. The large role that human behaviour plays in determining the scale of this threat, such as the total time people spend outdoors and how much they protect themselves from the sun, makes it very difficult to calculate the future level of risk.

Confidence

L Changes in ground levels of UV: potentially greater risk of skin cancer in the south, reducing further north.



¹ Significant flood risk is defined here as an annual flood probability of 1 in 75 or greater.

The Challenge of Adaptation

Climate change adaptation in the health sector will depend upon the availability of resources, as there are other urgent priorities and demands on the sector's time and resources. Nevertheless, commitment to climate change adaptation (and mitigation) is increasing in key organisations such as the NHS.

In assessing the level of adaptation required, there will need to be more clarity on how much people will be able to acclimatise naturally to the changing climate, so that resources are used effectively.

To be effective, adaptation to climate change needs to be factored into:

- The design, construction and maintenance of healthcare infrastructure.
- The allocation of resources.
- Procurement processes.
- Training programmes.

Public health protection measures (e.g. health alerts and public awareness campaigns) may help to reduce the health risks posed by higher temperatures. The Heatwave Plan for England launched in 2004 and updated annually, for instance, already contains guidance both for the general public and for health and social care providers responsible for protecting vulnerable people from the effects of heat. Similarly, air pollution and ozone forecasts and alerts are frequently issued by local authorities and other organisations.

Some adaptation policies and measures (e.g. wider deployment of cooling systems in hospitals and care homes) may have substantial implications in terms of both capital and running costs and energy/carbon emissions. Another major challenge is the uncertainty regarding the precise size, age distribution and socio-economic composition of the UK population over the coming decades.

Specific issues where better understanding is needed include:

- Hospital building designs that would minimise health risks under different climatic conditions.
- How humans might respond physiologically to rising temperatures and the implications of this for mental health and for death rates.
- The long-term mental health effects of flooding.
- The link between temperature-related deaths and social deprivation.

Where to Get Further Information

For copies of the CCRA Health Sector Report, the CCRA Evidence Report and Devolved Administration Reports, please visit www.defra.gov.uk/environment/climate/government/

How the CCRA was conducted

The CCRA reviewed the evidence for more than 700 potential climate impacts on the UK economy, society and environment. Over 100 of these impacts across 11 sectors were taken forward for more detailed analysis, having been selected on the basis of likelihood, potential consequences and how urgently adaptation action may be needed to address them.

A plausible range of climate change scenarios was used in the analysis. Some aspects of socio-economic change (e.g. population growth) were also taken into consideration. Adaptation policies that are planned for the future were not considered, so that the underlying level of risk could first be compared across sectors.

The results presented here are based on the UKCP09 Medium emissions scenario for the 2020s (2010-2039) and the Low, Medium and High

emissions scenarios for the 2050s (2040-2069) and the 2080s (2070-2099). A range of climate projections representing lower, central and upper estimates were considered within each emissions scenario.

Risks are categorised as low, medium or high based on their economic, social and environmental consequences.

The CCRA findings are also categorised as having low, medium or high confidence. The level of confidence is the degree to which the findings are considered valid, based on the type, amount, quality and consistency of the evidence studied.

Further information on how the CCRA results should be interpreted is presented in the CCRA Evidence Report. www.defra.gov.uk/environment/climate/government/