HEAT AS A THREAT TO HEALTH – STRENGTHENING OUR RESPONSE AND BUILDING RESILIENCE

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A warm summer day is often a cause for cheer among the British public. However, we know that hot weather can be harmful and, due to climate change, it's becoming an increasingly significant threat to health in the UK. Although many people may be familiar with heat-related illnesses such as heat exhaustion and heat stroke, higher temperatures also exacerbate existing chronic illnesses and increase likelihood of heart attacks, strokes and respiratory problems[1]. Initial analysis shows that there were 2,295 deaths due to heat last summer,[2] following a peak of almost 3,000 deaths in 2022[3]. In future, these impacts are only projected to grow, with the UK looking at more than 20,000 deaths due to heat each year by the 2070s[4] (figure 1) under a worst-case scenario (with limited decarbonisation or adaptation). Though substantial, these numbers don't capture the long shadow cast by the impact of

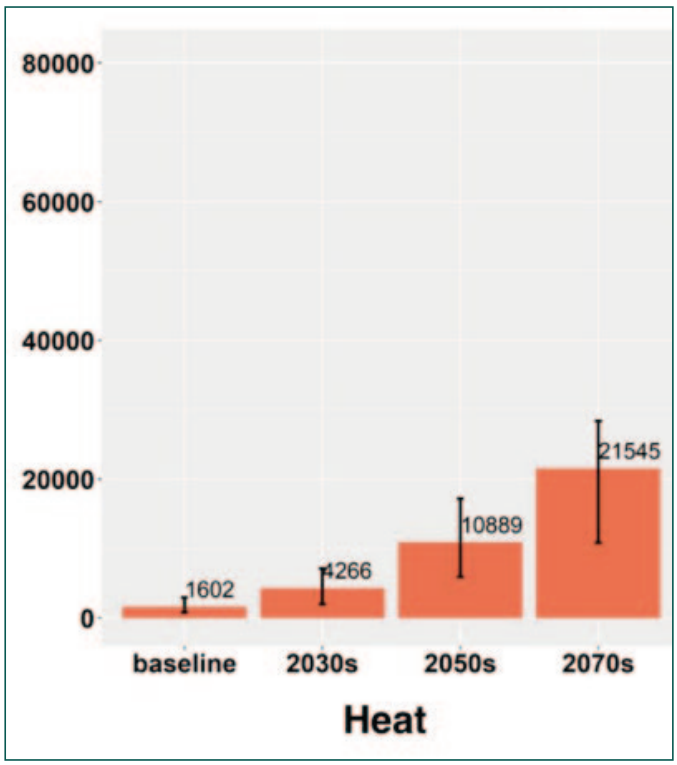

Figure 1: projected heat-related mortality in the UK by decade. From UKHSA's Health Effects of Climate Change 2023, Chapter 2: Temperature effects on mortality in a changing climate

heat on health service demand and delivery. It's been estimated that there are as many as 102 admissions for every death due to heat[5].

The scientific evidence that heat is a current and growing health problem is clear. What, then, are the solutions? Fortunately, harms from high temperatures are not inevitable. They can be prevented by individual, organisational and societal level adaptations, many of which also have other benefits for public health. In response to the growing challenge of heat, in a context where many other types of weather are growing more extreme due to climate change, our organisation the UK Health Security Agency (UKHSA) launched the Adverse Weather and Health Plan in spring 2023[6]. This programme of work includes the plan itself, the supporting evidence that informs it, guidance for the public and professionals, and the Weather-Health Alerting System[7]. This approach represents a step forward internationally, by addressing several types of extreme weather together. Another innovation was the introduction of impact-based alerting for the Weather-Health Alerting System. This means alert levels reflect not only the risk to health posed by a temperature threshold being breached, but also the possible impact of temperature given other risks that may be present across the health and care system[8]. For example, the impact of hot weather could have more of an effect on people's health when it coincides with large outdoor sporting or music events, or when health services are dealing with an increased number of COVID-19 patients.

Even with these advances, we recognise that we all need to do more to protect health as the planet warms. So we were glad to be part of the discussion in November 2023, when the Parliamentary and Scientific Committee hosted an event reflecting on the record-breaking summer heat of 2022. There, The Physiological Society[9] (and others[10]) shared research on the UK's hottest summer so far, and called for a national heat resilience strategy. This would supplement work started by the Adverse Weather and Health Plan, which recognises that heat preparedness needs to be a year-round activity, and organisations across health and care sector need to understand and engage with relevant guidelines ahead of time. This includes working with the public (for example through WeatherReady[11] and Beat the Heat[12] materials), who need to be able to understand the risks heat poses to their health and how to minimise them.

All of this requires mobilisation and reorganisation of resources. However, many of the measures for building heat resilience in the UK are impressively good value for money. Total economic costs of heat-related mortality in the 2020s is projected to add up to approximately £6.4 billion pounds per year[13]. The wider costs due to non-fatal harms and lost productivity due to heat will be far larger. Against this costly backdrop, there are a series of solutions that can generate up to £10 of net economic benefits for every £1 invested. This includes heat alerts and hot weather planning, weather and climate services including early warning, and capacity building. These form part of our current package of work at UKHSA, which includes a suite of targeted guidance[14] and training materials[15] for health and care professionals in addition to an alerting system.

But even with this promising picture, there are still research gaps that must be filled. One clear example is improving our understanding of how health

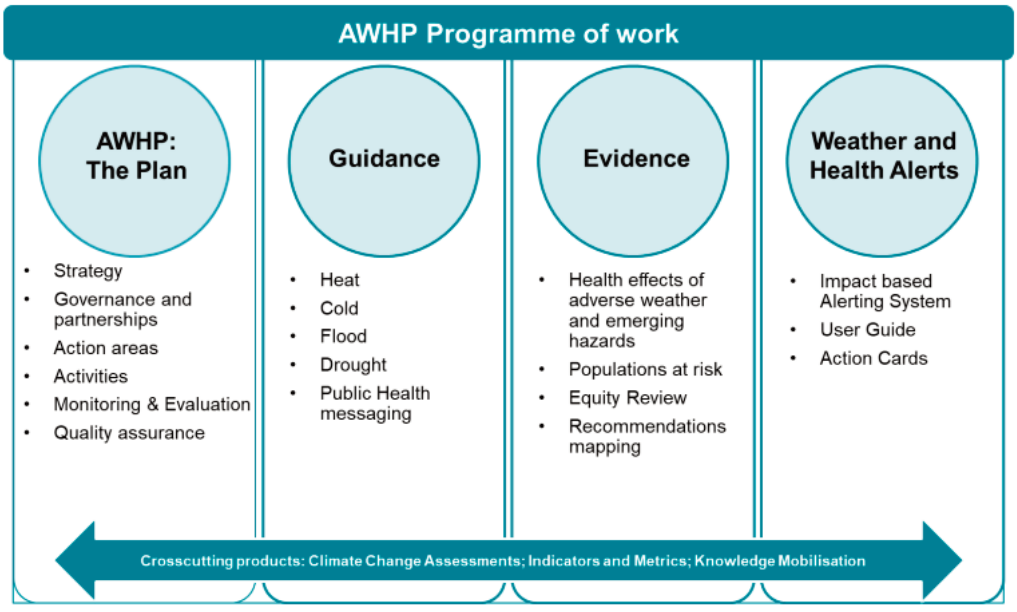

Figure 2: the Adverse Weather and Health Plan programme of work at UKHSA

inequalities in heat-related harm can be reduced[16]. Hot weather does not affect everyone equally, with older individuals, those with existing health conditions, and people who are unable to adapt their behaviours or environments most at risk of illness. In this context, more work is required to understand how best to protect some of the most at-risk and marginalised groups in the heat, including homeless individuals[17].

Figure 3: public facing advice about what to do in hot weather from UKHSA

However, as a crisis professional will tell you, resilience to any threat goes beyond response, and depends on preparing for success with longer term actions. The Adverse Weather and Health Plan can prevent harm to health through supporting behaviour change when temperatures climb. However, the extent to which someone is physically able to change their behaviour to protect themselves from heat can be reduced if they have limited funds, low quality accommodation, or insecure living arrangements, among many other barriers.

This is where building the infrastructure that enables everyone to keep cool is crucial. Evidence points to adaptations like high quality windows, external shading (like shutters) and natural ventilation, as well as increasing green space in cities as being important for bringing down temperatures for all without using more electricity[18]. While interventions like air conditioning may be helpful to protect the health of the most at-risk individuals (such as in hospitals and care homes), passive cooling options can be highly effective in most situations and don't worsen global warming while tackling its effects. These options and more were laid out by the Environmental Audit Committee in January 2024, which recommended the government enable greater access to them[19].

In England we have therefore started the essential work of strengthening our response and resilience to hot weather but, as the Adverse Weather and Health Plan highlights, reducing excess illness and death related to heat is not something that can be tackled without a long-term strategic approach. At UKHSA, we look forward to continuing our work to strengthen England's response to hot weather, while collaborating with researchers, wider government and four nations colleagues to ensure that together we are laying the foundations of heat resilience in our infrastructure, as well as creating strong systems to protect all those at risk.

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