UK Health Security Agency

Met Office

User guide

Weather-health alerting system

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Version control

Version number	Date	Type of change	Description
2.2	1 April 2025	Minor review	Information added on: • importance of yellow alerts • other minor edits for consistency and accessibility
2.1	6 June 2024	Minor review	Information added on: • display of alerts on the UKHSA Data Dashboard • HHA action card for national government • other minor changes
2.0	31 October 2023	Major review	Information added on: • decision-making process to issue Weather-Health Alert (WHA) • Cold-Health Alerts impacts and thresholds • heat-health thresholds • impact-based alerting added as appendix • Local Resilience Forum (LRF) regions added as appendix • relationship between the WHA and National Severe Weather Warning System (NSWWS) • acronyms • level of collaboration between the Met Office and UKHSA (Service Level Agreement (SLA) provisions and responsibilities under the Civil Contingencies Act (CCA) 2004) • other minor structural changes
1.1	1 June 2023	Minor review	Corrected core alerting season dates for the Heat-Health Alerts (HHAs) and the Cold-Health Alerts (CHAs).
1.0	1 June 2023	Publication	Not applicable.

Acronyms

AWHP	Adverse Weather Health Plan
CCA	Civil Contingencies Act
CHA	Cold-Health Alert
COBR	Cabinet Office Briefing Room
DHSC	Department of Health and Social Care
EH	Extreme heat
EMARC	Environment Monitoring and Response Centre
GP	General practitioner
HHA	Heat-Health Alert
HWB	Health and Wellbeing Boards
ICB	Integrated Care Boards
ICP	Integrated Care Partnerships
ICS	Integrated Care Systems
LGA	Local Government Association
LHRP	Local Health Resilience Partnership
LRF	Local Resilience Forum
NHS	National Health Service
NSWWS	National Severe Weather Warning System
SLA	Service Level Agreement
UKHSA	UK Health Security Agency
VCS	Voluntary and Community Sector
WHA	Weather-Health Alert

Overview of the Weather-Health Alert system

The Weather-Health Alert (WHA) system was developed as part of a joint collaboration between the UK Health Security Agency (UKHSA) and the Met Office and was launched on the 1 June 2023.

The Heat-Health Alert (HHA) operates from 1 June to 30 September and the Cold-Health Alert (CHA) operates from 1 November to 30 March. An out-of-season alert may still be issued if impacts from adverse weather on health (heat or cold) are expected.

Within these core alerting periods heat-health or cold-health planners are also issued every Monday and Friday to provide weather-health horizon scanning for the following 5 days, 6 to 15 days, and 16 to 30 days.

During both the summer and winter seasons, UKHSA and the Met Office monitor the weather forecasts and where episodes of hot or cold weather are identified using predefined evidence-based considerations, a joint dynamic risk assessment is carried out and the appropriate alert issued.

HHA, CHA and weather-health planners are issued by UKHSA in collaboration with the Met Office. Individuals and organisations that wish to receive the impact-based Weather-Health Alerts must register to receive the alerts where users can specify which regions they wish to receive alerts for.

Both systems are based on:

- weather forecasts provided by the Met Office Environment Monitoring and Response Centre (EMARC) to UKHSA, as part of Service Level Agreement (SLA)
- a joint dynamic risk assessment conducted by the UKHSA Extreme Events and Health Protection team, the Met Office EMARC or Met Office senior advisors, and, if of relevance, other governmental departments, as part of the common responsibilities under the Civil Contingencies Act (CCA) 2004

Depending on the level of alert, a response is triggered to communicate the risk to NHS England, the government, and the public health system. Advice and information are sent to the public and health and social care professionals, particularly those working with at-risk groups, after an alert is issued or updated. This includes both general preparation for hot or cold weather and more specific advice when a severe heat or cold event has been forecast.

The system aims to cover the spectrum of action from different groups. In general terms these are:

- green (preparedness) – no alert is issued as the conditions are likely to have minimal impact on health; business as usual; summer or winter planning and preparedness activities
- yellow (response) – these alerts cover a range of situations; yellow alerts may be issued during periods of heat or cold that would be unlikely to impact most people but could impact those who are particularly vulnerable
- amber (enhanced response) – an amber alert indicates that weather impacts are likely to be felt across the whole health service, with potential for the whole population to be at risk; non-health sectors may also start to observe impacts and a more significant coordinated response may be required
- red (emergency response) – a red alert indicates significant risk to life for even the healthy population

Since June 2023, the WHAs moved from the previous systems based on probabilities of reaching threshold temperatures to impact-based alerts. Impact-based alerting provides users with information beyond just the hazard and gives an indication of the impacts likely to be observed as a result of the weather. Impact-based alerting allows users to understand the likely impacts and make informed decisions about actions they should take. The impact-based WHAs contain:

- headline weather conditions expected in the coming days
- an outline of what impacts might be expected
- a brief overview of regional impact assessment
- links to additional information, advice and guidance

More information on impact-based alerting can be found in Appendix 1.

The WHAs are issued at the NSWWS regional resolution. More information on the alignment with the Local Resilience Forums (LRFs) and NHS England boundaries can be found in Appendix 2.

Weather-Health Alert decision-making process

Unlike the previous alert systems, this impact-based system does not employ hard temperature thresholds for issuing alerts but rather uses temperature thresholds as decision-making aids. These thresholds were agreed upon based on the epidemiological evidence of the relationship between temperatures and mortality, observed impacts across the health and social care system during adverse weather episodes in the last decade, and the long-term weather trends of each region of England. The temperatures themselves are only a component of the joint dynamic risk assessment conducted, in its initial stages, by UKHSA and the Met Office.

This approach allows a level of flexibility that allows each event to be assessed using more information than before to make alerting decisions. In addition, this additional detail can be used by local organisations to make informed decisions about the resources required for an appropriate response.

The other criteria to be considered during the joint dynamic risk assessment, alongside temperatures, are:

- concurrent, cascading and compounding risks, such as drought, air pollution, wildfires, flooding
- other weather indicators of relevance (for example warm nights, high humidity, wind speed)
- duration of the event
- likelihood of escalation
- previous alerts and action undertaken (for example existing news story)
- local, regional and national action required (for example strategic coordinating groups, lead government department teleconference or Cabinet Office Briefing Room (COBR))
- spatial extent of the risk (for example more than one region affected)
- significant political or media interest
- resource availability
- timing of the alerts (for example early or late in the season)
- time of year (for example mass gatherings, public holidays)

The combination of all of these factors leads to a joint decision on the likelihood of possible impacts being observed during a relevant adverse weather event.

Heat-Health Alert overview

Heat-Health Alert temperature thresholds decision-making aid

Another distinction between the previous alerting system and this impact-based system is that all regions apart from London have the same decision-making thresholds. Table 1 illustrates the decision-making aid temperature thresholds for the HHAs based on maximum daytime temperatures and overnight temperatures.

Table 1. Heat-Health Alert temperature thresholds

Region	Impact level	Percentage increase in mortality above expected levels	Maximum daytime temperature	Night-time temperature
London	Very low	Not applicable	<28.0°C	95th percentile or higher*
	Low	10%	28.0°C to 31.9°C	
	Medium	20%	32.0°C to 39.9°C	
	High	50%	40.0°C<	
All other regions	Very low	Not applicable	<27.0°C	95th percentile or higher*
	Low	10%	27.0°C to 29.9°C	
	Medium	20%	30.0°C to 37.9°C	
	High	50%	38.0°C<	

* Top 5% of night-time temperature. Ninety-fifth percentile indicates evenings on which the night-time temperature is higher than 95% of all other summer nights. Only the top 5% of evenings in any summer are likely to fall within this upper range of night-time temperatures.

Heat impacts overview

The text within Table 2 indicates the level of impact which, when combined with likelihood of those impacts occurring, would lead to the selection of a warning level (yellow, amber or red). The impacts outlined within the table are not exhaustive and do not include specific impacts that may occur within other sectors apart from health.

Table 2. Heat impact criteria

	Very low	Low	Medium	High
Population at risk	Little impact observed on health, healthcare services and social care provision.	Increased mortality amongst vulnerable population groups (for example an increase in those aged 65 years and over daily mortality dependant on time of year).	Observed increase in mortality across the population, particularly in those aged 65 years and over or those with health conditions, but impacts may also be seen in younger age groups.	Increased mortality expected across the whole population with significant mortality observed in older age groups.
Demand for and impacts on health and social care services		Potential for increased usage of healthcare services by vulnerable population. Internal temperatures in care settings (hospitals and care homes) maybecome very warm increasing risk of indoor overheating.	Increased demand for GP services, ambulance call out, remote healthcare services (NHS111) likely. Impact on ability of services delivered due to heat effects on workforce possible. Many indoor environments likely to be overheating, risk to vulnerable people living independently in community as well as in care settings. Staffing issues due to external factors. Patient medication regime may lead to increased risk of dehydration.	Significant increased demand on all health and social care services. Impact on ability of services to be delivered due to heat effects on workforce. Indoor environments likely to be hot makingprovision of care challenging and leading to increased risk of heatstroke and dehydration.

	Very low	Low	Medium	High
Other sectors			Non-health sectors starting to observe impacts (for example travel delays).	National critical infrastructure failures – power outages or major roads and rail lines closed due to melting roads or overheating rail lines.

Interaction with NSWWS extreme heat

In England there are 2 early warning systems related to high temperature: HHA and the extreme heat (EH) warnings as part of the National Severe Weather Warning Service (NSWWS). Since summer 2021 UKHSA and the Met Office have collaborated to ensure that the HHA and EH warnings are aligned and work together to communicate the expected impacts so that users act to minimise the potential impact. Each system has a slightly different target audience yet work together to help focus the messages being transmitted.

The HHA primarily targets the health and social care sector and responder community, while the NSWWS has a wider audience that includes the responder community, but also the general public. Due to the fact that the health sector is likely to observe impacts before other sectors, the HHA can issue yellow to red alerts, whereas NSWWS only issues amber and red alerts for EH. Table 3 provides more information on the interactions between NSWWS and the impact analysis of the HHAs.

To ensure both systems are aligned, UKHSA and the Met Office work together to undertake a combined risk assessment to determine the expected impacts and the likelihood of those impact occurring. This partnership working ensures consistency across the systems, and a single overall message to users.

It should be noted that the HHA and NSWWS EH system are both separate to the Met Office Heatwave Definition. The Met Office provides an explanation for the difference between these systems.

Table 3. Interaction between the HHA and NSWWS extreme heat

HHA impact level	NSWWS
Very low	Not applicable
Low	Not applicable
Medium	Potential for amber extreme heat warning within high impact column – that is potential for severe impacts
High	Potential for red extreme heat warning

Cold-Health Alerts overview

Cold-Health Alert temperature thresholds decision-making aid

Table 4 provides further detail on the thresholds and considerations used as decision-making aids for CHAs in a joint dynamic risk assessment between UKHSA and the Met Office. The same temperature thresholds, based on average temperature forecasts, are used in all regions of England.

Table 4. Cold-Health Alert temperature thresholds

Impact level	Temperatures
Very low	Average temperatures >2.0°C
Low	Average temperature of 2.0°C or below for 48 hours or more
Medium	1. Average temperatures below 2.0°C for 5 days 2. Average temperatures below 0.0°C for 48hrs or more
High	1. Average temperatures below 0.0°C for 5 days 2. Average temperatures below –2.0°C for 48hrs or more

Cold impacts overview

As with heat, and based on the epidemiological evidence, experience and professional opinion, the possible levels of potential impacts from low temperatures are described in Table 5. The text within the table indicates the level of impact which, when combined with likelihood of those impacts occurring, would lead to the selection of a warning level (yellow, amber or red). The impacts outlined within the table are not exhaustive and do not include specific impacts that may occur within other sectors apart from health.

Table 5. Cold impact criteria

	Very low	Low	Medium	High
Population at risk	Little impact observed on health, healthcare services and social care provision.	Increasing mortality among vulnerable groups (for example those aged 65+ dependent on the time of year) in line with observed winter patterns.	Increasing mortality observed population-wide, focused on those aged 65+ and some other vulnerable groups (for example those sleeping rough) but with some observed effects among other groups (for example those with health conditions), and also may be seen in younger age groups.	Increased mortality expected across the whole population with significant mortality observed in older age groups and some other vulnerable groups (for example those sleeping rough).
Demand for and impacts on health and social care services	No discernible change in demand.	Increased health and social care service utilisation by those aged 65+ may be observed, in line with observed winter patterns.	Increased demand for GP services, ambulance call out, remote healthcare services (NHS111) may occur although this may be with a significant time lag. Staffing issues may arise due to external factors (for example transport disruption). Those using domiciliary care may not be able to access services because carers can no longer move easily between properties.	Significant increased demand on all health and social care services, though likely with a time lag. Impact on ability of services to be delivered due to cold effects on workforce – either through workforce attrition due to illness, or because staff are unable to visit those living at home.

	Very low	Low	Medium	High
Other sectors	No or minimal wider sectoral impacts.	Contained impacts, for example disruption to public transport.	Non-health sectors starting to observe impacts which may have knock-on effects for delivery of key public services leading to short-term closures (for example for schools).	A broad spectrum of impacts may be observed in other sectors, for example: • widespread and severe disruption to public transport systems, with knock-on effects for public service delivery, for example school closures • critical infrastructure failures, for example power outages, water supply, gas supply shortages and disruption to communications networks • disruptions to critical supply chains influencing service provision in other sectors including health

Interaction with other Met Office NSWWS warnings

Unlike heat, there is currently no extreme cold weather warning issued as part of the NSWWS by the Met Office. However, warnings can be issued by the Met Office for a range of high-impact weather events, including rain, fog, wind, thunderstorms, and, potentially of most relevance to CHA, snow and ice. While NSWWS does not consider cold temperature explicitly, these warnings can provide information at a more specific geographical level about snow or ice forecasts and provide a holistic view of the weather picture over an alerting period that the public and emergency planners may find useful.

As with heat, situational awareness is supported through regular updates between UKHSA and the Met Office throughout the winter season. This ensures the earliest possible issuing of CHAs and the maximum possible warning time.

Specific NSWWS warnings can also serve as contributing factors to the level of alert being issued. Table 6 provides more information on the interactions between NSWWS and the impact analysis of the CHAs.

Table 6. Interaction between the CHA and other Met Office NSWWS warnings

CHA impact level	NSWWS
Very low	Not applicable
Low	Potential for yellow weather warnings – in the low impact columns – for example snow, ice, wind
Medium	Potential for yellow or amber weather warnings in place (snow, ice, wind, and so on) within the medium or high impact columns – that is potential for significant and severe impacts or potential for significant flood warnings
High	Potential for amber weather warnings in place (snow, ice, wind, and so on) within the high impact column – that is potential for severe impacts or potential for red weather warning for snow, ice or wind or any flood warnings indicating significant or severe impacts occurring at the same time and same place

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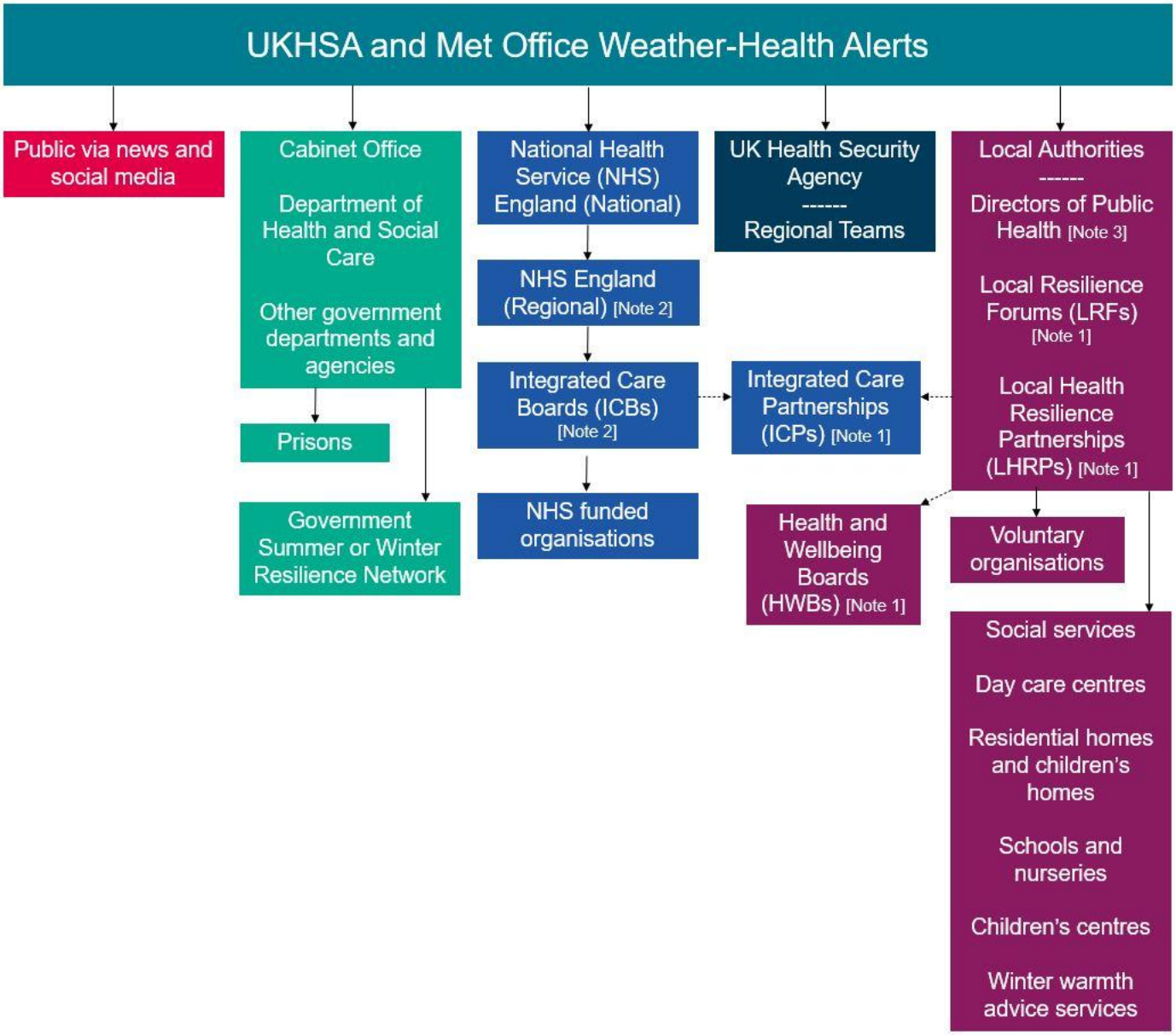
Weather-Health Alert cascade

It is anticipated that organisations will initiate cascade of alerts within their organisations and to partner organisations as appropriate and as agreed locally. Figure 1 depicts the typical cascade of WHAs across the system.

Figure 1. Typical cascade of Weather-Health Alerts



Note 1: LHRPs, HWBs and ICPs are strategic and planning bodies, but may wish to be included in local alert cascades.

Note 2: NHS England Regional Teams and ICBs should work collaboratively to ensure that between them they have cascade mechanisms for Heat-Health Alerts to all providers of NHS-funded services in their area, including out of hours.

Note 3: UKHSA would be expected to liaise with directors of public health to offer support, but formal alerting would be expected through usual local authority channels.

Accessible text equivalent for Figure 1. Typical cascade of Weather-Health Alerts

UKHSA and the Met Office Weather-Health Alert is issued and cascaded to:

- the public via news and social media
- the Cabinet Office, the Department of Health and Social Care (DHSC) and other government departments and agencies
- NHS England
- UKHSA and regional teams
- local authorities, including the directors of public health, local resilience forums (LRFs) and local health resilience partnerships (LHRPs)

The Cabinet Office, DHSC and other government departments and agencies cascade the alert to:

- the government summer or winter resilience network
- prisons

The NHS England national team cascades the alert to NHS England regional teams. The NHS England regional teams then cascade the alert to the integrated care boards (ICBs). The ICBs and local authorities work closely within the integrated care partnerships (ICPs). ICBs cascade the alert to the NHS-funded organisations.

Local authorities, including the directors of public health, LRFs, LHRPs cascade the alert to:

- health and wellbeing boards (HWBs)
- social services
- day care centres
- residential homes and children’s homes
- winter warmth advice services
- community and voluntary organisations

Local Health Resilience Partnerships, Health and Wellbeing Boards and Integrated Care Partnerships are strategic and planning bodies, but may wish to be included in local alert cascades.

Further points to note on this cascade are that UKHSA would be expected to liaise with Directors of Public Health to offer support, but formal alerting would be expected through usual Local Authority channels.

NHS England regional teams and ICBs should work collaboratively to ensure that between them they have a cascade mechanism for weather and health alerts to all providers of NHS funded services both in business as usual hours and the out of hours period in their areas.

Alerting colours and risk matrix

In line with other weather warning systems in operation within England (and the UK), WHAs are issued when the weather conditions have the potential to impact the health and wellbeing of the population.

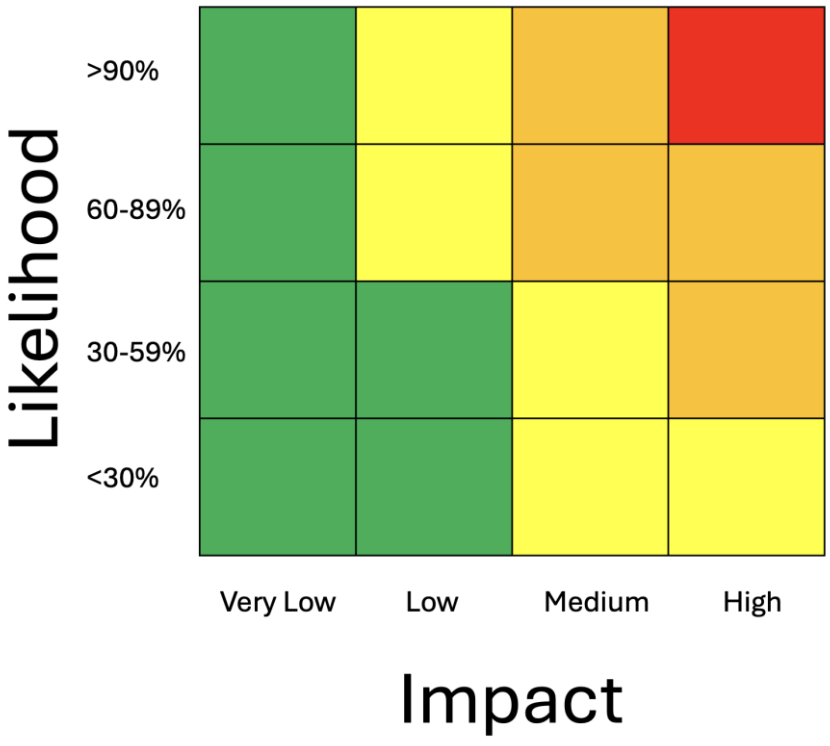
The alerts are given a colour (yellow, amber or red) based on the combination of the impact the weather conditions could have, and the likelihood of those impacts being realised. These assessments are made in conjunction with the Met Office when adverse weather conditions are indicated within the forecast.

Yellow and amber alert assessments cover a range of potential impacts (including impacts on specific vulnerable groups (for example people sleeping rough) through to wider impacts on the general population) as well as the likelihood (low to high) of those impacts occurring. This additional information should aid making decisions about the appropriate level of response during an alert period. Within the alert that is issued, the combination of impact and likelihood is displayed within a risk matrix as illustrated in Figure 2.

Once the decision is made to issue an alert (yellow, amber or red), these are cascaded to those registered to receive the alerts and made available at Weather-Health alerting system. Alerts are issued with as much lead time to the event as possible to allow users time to make their local assessments and to initiate all appropriate actions to reduce harm to health.

Users should review every alert when issued to ensure they fully understand the potential impacts and how likely they are to occur.

Figure 2. Impact and likelihood risk matrix



Accessible description of Figure 2. Impact and likelihood risk matrix

Figure 2 shows the risk matric used to communicate both the potential impact level and likelihood of those impacts being observed which together dictate the colour of the alert. The impact levels include (and are described for both the HHAs and CHAs in tables 2 and 5):

- very low
- low
- medium
- high

The scale used for likelihood range from:

- below 30%
- 30% to 59%
- 60% to 89%
- above 90%

Green (summer or winter preparedness)

No alert is issued as the conditions are likely to have minimal impact on health. However, during periods where the risk is minimal it is important that organisations ensure that they have plans in place and are prepared to respond should an alert (yellow, amber or red) be issued.

The AWHP HHA and CHA action cards provide information on the strategic year-round actions to address health risks from heat and suggested summer preparedness actions.

Yellow (response)

These alerts cover a range of situations. Yellow alerts may be issued during periods of heat in which it would be unlikely to impact most people, however those who are particularly vulnerable (for example the elderly with multiple health conditions and on multiple medications) are likely to struggle to cope, and where action is required within the health and social care sector specifically. A yellow alert may also be issued if the confidence in the weather forecast is low, but there could be more significant impacts if the worst-case scenario is realised. In this situation the alert may be upgraded as the confidence in both the weather forecast and the likelihood of observing those impacts increases.

Amber (enhanced response)

An amber alert represents a situation in which the expected impacts are likely to be felt across the whole health service, with potential for the whole population to be at risk and where other

sectors apart from health may also start to observe impacts, indicating that a coordinated response is required. In addition, in some circumstances a NSWWS warning may be issued in conjunction with and aligned to the WHA, indicating that significant impacts are expected across multiple sectors.

Red (emergency response)

A red alert indicates significant risk to life for even the healthy population. A red health alert would likely be issued in conjunction with a similar appropriate red NSWWS warning, noting that the NSWWS warning also focusses on infrastructure impacts and may have slightly different coverage. Several impacts would be expected across all sectors with a coordinated response essential.

Heat-related mortality shows why yellow alerts should not be ignored

A yellow alert can be issued under a range of scenarios, and therefore it's important for users to read the full alert to fully understand the weather-health alert situation. Evidence suggests that action is less common when a yellow alert is issued when compared with an amber alert.

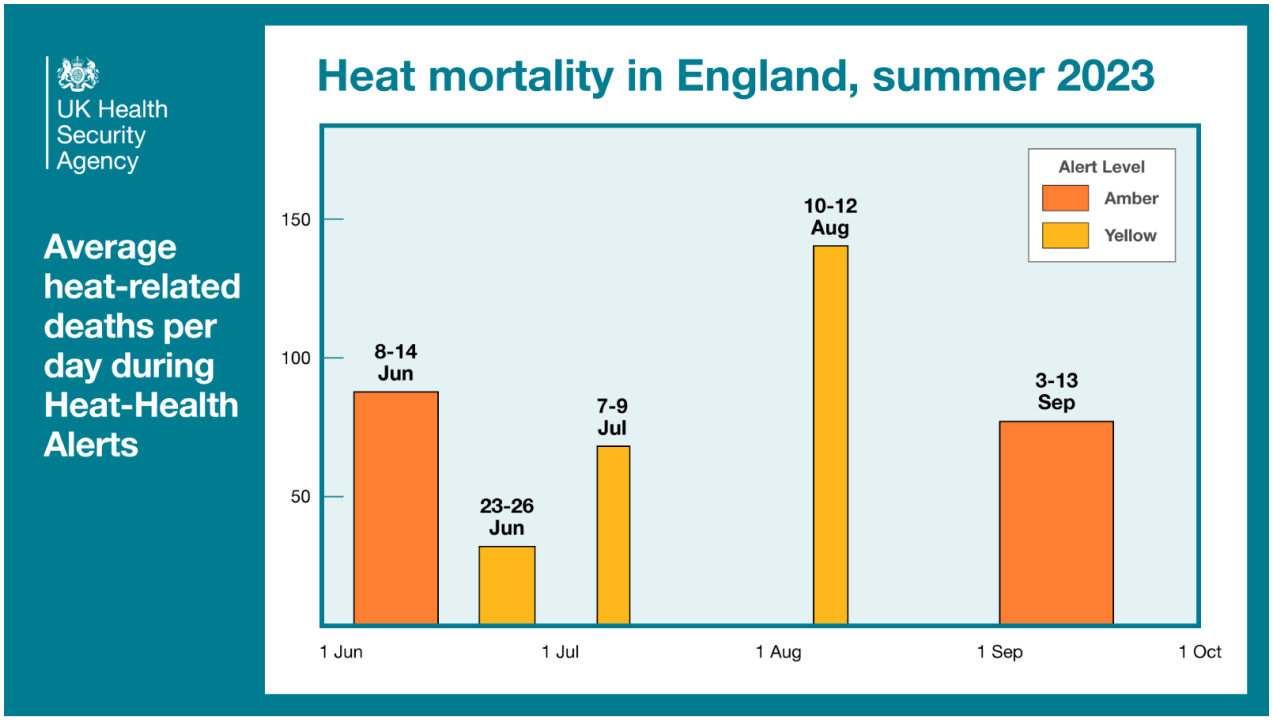
Summer 2023 saw 5 heat episodes that resulted in 2 amber HHAs and 3 yellow HHAs. This resulted in over 2,000 heat-associated deaths in total across all HHA periods, with each heat period observing significant heat-associated deaths. If we look at the average number of heat-associated deaths per day during each heat episode in 2023, the highest number of heat-associated deaths occurred during the third yellow heat-health alert period in early August 2023 (see Figure 3).

This observation highlights the importance of ensuring that proper preparedness and response mechanisms consider yellow alerts, and that appropriate actions are taken to protect the most vulnerable.

Examples of such actions are outlined within the Heat-Health Action Cards and Summary Action Cards. As the heat-associated mortality from 2023 demonstrates, even short periods of less intense heat can still have a significant and negative impact on the health and wellbeing of the population.

Therefore, it is vital that response plans consider yellow alerts and that some action is taken when these are issued. Focusing only on amber or red alerts may overlook the risks posed by yellow alerts which also require action to safeguard the most vulnerable.

Figure 3. Average heat-associated mortality by HHA day, summer 2023



Accessible description of Figure 3: Average heat-associated mortality by HHA day, summer 2023

Figure 3 describes the average number of heat-associated deaths per heatwave day across all heat episodes in 2023, where there were 5 heat episodes in total:

- 91 heat-associated deaths per HHA day, 8 to 14 June 2023 (Amber HHA)
- 30 heat-associated deaths per HHA day, 23 to 26 June 2023 (Yellow HHA)
- 74 heat-associated deaths per HHA day, 7 to 9 July 2023 (Yellow HHA)
- 129 heat-associated deaths per HHA day, 10 to 12 August 2023 (Yellow HHA)
- 85 heat-associated deaths per HHA day, 3 to 13 September 2023 (Amber HHA)

The figure demonstrates that while the HHA period that occurred between 10 and 12 August was shorter, and as a yellow alert was issued suggests it was also less intense than amber HHA periods that occurred in June and September, it was actually this yellow HHA period that was the most impactful when looking at the average number of heat-associated deaths per HHA day.

How to access Weather-Health Alerts

WHAs are issued by UKHSA in partnership with the Met Office, and users need to register for the alerting system where they can specify the government region they wish to receive alerts for. The current alert status is also publicly available on the UKHSA Data Dashboard.

UKHSA has also developed the Adverse Weather and Health Plan (AWHP) action cards containing a list of potential actions that organisations and responders should consider that are aligned with the yellow, amber and red alerts for HHAs and CHAs.

Additional information and resources

Action cards

Table 7. Summary of the available action cards that support the WHA

	Heat-Health Alerts	Cold-Health Alerts
Commissioners	This HHA action card is intended for commissioners of health or social care (for example commissioners of health and social care services, local authorities, directors of public health, integrated care systems (ICS)).	This CHA action card is intended for commissioners of health or social care (for example commissioners of health and social care services, local authorities, directors of public health, ICS).
Health and social care providers	This HHA action card is intended for providers of health or social care (for example GPs, primary and community healthcare, hospitals, adult social care, children's social care).	The CHA action card is intended for managers and staff working in the following settings: hospitals, adult or children's social care providers in care homes and other residential settings, health and/or social care providers in the community operating from fixed sites such as GP surgeries, services delivering care to people in their homes.

	Heat-Health Alerts	Cold-Health Alerts
Voluntary and community sector (VCS)	This HHA action card is intended for the VCS.	The CHA action card is intended for VCS organisations, covering a wide variety of organisations, including emergency response, campaigners, representative groups, community centres, parish councils, neighbourhood forums and other organisations (focusing on particular conditions, types of service provision, specific client groups or communities).
National Government	This HHA action card is intended for national government.	

Other relevant links

- Adverse Weather and Health Plan
- Adverse Weather and Health Plan: Supporting Evidence
- Cold weather and health guidance
- Hot weather and health guidance and advice
- Met Office NSWWS
- Met Office Weather Forecasts
- WeatherReady

Appendix 1: Impact-based alerting

Users of the HHA and CHA have consistently requested that they move from an old approach based on probability of temperatures occurring to an impact-based alerting system. This brings both the HHA and CHA in line with other weather hazard warning systems in operation in England, namely the NSWWS operated by the Met Office and the Flood Forecasting Centre's Flood Guidance Statement.

Definition

Impact-based alerting provides users with information beyond just the hazard and gives an indication of the impacts likely to be observed as a result of the weather. Impact-based alerting allows users to understand the likely impacts and make informed decisions about actions they should take.

Advantages

The main advantage of the move from threshold-based approaches to impact-based alerts, is that it allows users to better understand the potential impacts to health, services and infrastructure because of the weather. This knowledge can then be used to inform local risk assessment and ultimately guide appropriate allocation of resources during response.

Appendix 2: Alignment of regions and LRFs

NHS England region	NSWWS region	Local resilience forum
North East and Yorkshire	North East England	Durham and Darlington Northumbria Cleveland
	Yorkshire and the Humber	Humber North Yorkshire West Yorkshire South Yorkshire
North West	North West England	Cheshire Cumbria Greater Manchester Lancashire Merseyside
Midlands	West Midlands	Staffordshire Warwickshire West Mercia West Midlands
	East Midlands	Derbyshire Resilience Partnership Leicestershire Lincolnshire Northamptonshire Nottingham and Nottinghamshire
East of England	East of England	Bedfordshire and Luton Cambridgeshire and Peterborough Essex Hertfordshire Norfolk Suffolk
South East	South East England	Sussex Kent Surrey Thames Valley Hampshire and Isle of Wight

NHS England region	NSWWS region	Local resilience forum
South West	South West England	Avon and Somerset Devon, Cornwall and Isles of Scilly Dorset Gloucestershire Wiltshire and Swindon
London	London	London

About the UK Health Security Agency

UKHSA is responsible for protecting every member of every community from the impact of infectious diseases, weather, chemical, biological, radiological and nuclear incidents and other health threats. We provide intellectual, scientific and operational leadership at national and local level, as well as on the global stage, to make the nation health secure.

UKHSA is an executive agency, sponsored by the Department of Health and Social Care.

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