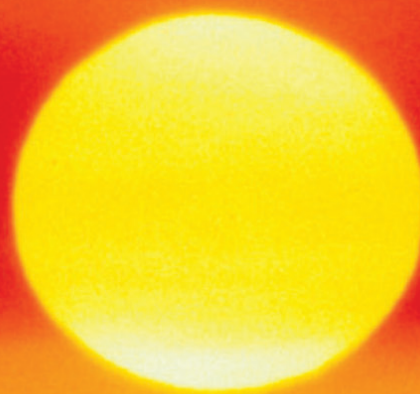


# heatwave<sup>☀</sup>

PLAN FOR ENGLAND 2012



PROTECTING HEALTH AND  
REDUCING HARM FROM SEVERE  
HEAT AND HEATWAVES



DH INFORMATION READER BOX	
<b>Policy</b>	Estates Commissioning IM & T Finance Social Care/Partnership Working
HR/Workforce Management Planning/ Clinical	
<b>Document Purpose</b>	Best Practice Guidance
<b>Gateway Reference</b>	17602
<b>Title</b>	HEATWAVE PLAN: 2012
<b>Author</b>	Department of Health
<b>Publication Date</b>	18 May 2012
<b>Target Audience</b>	PCT Cluster CEs, SHA Cluster CEs, Local Authority CEs
<b>Circulation List</b>	NHS Trust CEs, Care Trust CEs, Foundation Trust CEs, Medical Directors, Directors of PH, Directors of Nursing, Directors of Adult SSs, Special HA CEs, Allied Health Professionals, GPs, Communications Leads, Emergency Care Leads, Directors of Children's SSs, Voluntary Organisations/NDPBs, LA Directors of Housing and Planning, Professional Bodies (RCGP, RCP, RPSGB, RCN, CPHVA, Community and District Nursing Association), Care Associations (National Care Association, ECCA, Registered Nursing Homes Association and Carers UK), Domiciliary Care Organisations, Monitor, DCLG Resilience and Emergencies Division, Cabinet Office Civil Contingencies Secretariat
<b>Description</b>	The Heatwave Plan for England 2012 is to be re-issued in May 2012 to raise both public and professional awareness of the effects of severe heat on health. The purpose of the Plan is to enhance resilience in the event of a heatwave. It is an important component of overall emergency planning and wider health promotion activity.
<b>Cross Ref</b>	N/A
<b>Superseded Docs</b>	Heatwave Plan 2011
<b>Action Required</b>	N/A
<b>Timing</b>	N/A
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<b>For Recipient's Use</b>	

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## Foreword

With a number of major events and celebrations, 2012 will be a summer to remember.

Although we do not know whether or not there will be a heatwave over the course of the summer, we do want to make sure that everyone takes simple precautions during hot spells and when in the sun to stay healthy. In this Olympic year the crowds on transport and at venues may exacerbate the impact of hot weather.

The Heatwave Plan remains a central part of the Department of Health's support to the NHS and local authorities, providing guidance on how to prepare for and respond to a heatwave which can affect everybody's health, but particularly the most vulnerable people in society.

This Plan builds on over eight years of previous experience of developing and improving the ability of the NHS and its partners to deal with significant periods of hot weather.

The purpose of this Heatwave Plan is to reduce summer deaths and illness by raising public awareness and triggering actions in the NHS, social care and other community organisations to support vulnerable people who have health, housing or economic circumstances that increase their risk. The Plan is also intended to mobilise communities and civil society to help their neighbours, friends and relatives to protect against avoidable harm to health during the summer.

We know that the Heatwave Plan has successfully helped individuals, communities and authorities better to prepare and plan for summer heatwaves. We want people to enjoy the summer and to reduce the adverse impact of heatwaves on those most at risk for now and in the future.



PROFESSOR DAME SALLY C DAVIES  
Chief Medical Officer  
Chief Scientific Adviser  
Department of Health

## Executive Summary

The Heatwave Plan is a public health plan. It aims to prepare for, alert people to and prevent the major avoidable effects on health during periods of severe heat in England.

It recommends a series of steps to reduce the risks to health from prolonged exposure to severe heat for:

- the NHS, local authorities, social care, and other public agencies;
- professionals working with people at risk; and
- individuals and local communities.

The Heatwave Plan has been published annually since 2004. This year's plan builds on over 8 years of experience of developing and improving the ability of the NHS and its partners to deal with significant periods of hot weather.

The Heatwave Plan has been significantly re-shaped for 2012 from previous years. However it continues to be underpinned by a system of heatwave alerts, developed with the Met Office. The Heatwave Plan describes the **Heat-Health Watch system** which operates in England from 1 June to 15 September each year. During this period, the Met Office may forecast heatwaves, as defined by forecasts of day and night-time temperatures and their duration.

The Heat-Health Watch system comprises four main levels (Levels 1-4), from summer and heatwave preparedness to a major national emergency. Each alert level should trigger a series of appropriate actions which are detailed in the Heatwave Plan 2012.

## Section 1

### Why this plan is needed...

Bright, hot summer days are what many of us look forward to for the rest of the year – especially in cold, wet England!

However, while we're enjoying the balmy days of summer, we should not forget that the temperature can get too high, that it can become uncomfortably hot, and for some, it can become dangerously hot.

The evidence about the risks to health from heatwaves is very extensive from around the world. Excessive exposure to high temperatures can kill. During the summer heatwave in Northern France in August 2003, unprecedentedly high day and night-time temperatures for a period of three weeks resulted in 15,000 excess deaths. The vast majority of these were among older people.

In England that year there were over 2,000 'excess deaths' over the 10-day heatwave period which lasted from 4–13 August 2003, compared to the previous five years over the same period.

The first Heatwave Plan for England was published in 2004 in response to this event. Since that time we have had a significant heatwave in 2006 (when it was estimated that there were about 680 excess deaths compared to similar periods in previous years). In 2009 there were approximately 300 excess summer deaths during a heatwave compared to similar periods in previous years.

Excess deaths are not just deaths of those who would have died anyway in the next few weeks or months due to illness or old age. There is strong evidence that these summer deaths are indeed 'extra' and are the result of heat-related conditions.

In contrast to deaths associated with cold snaps in winter, the rise in mortality as a result of very warm weather follows very sharply – within one or two days of the temperature rising.

This means that:

- by the time a heatwave starts, the window of opportunity for effective action is very short indeed, and therefore;
- advanced planning and preparedness is essential.

We know that effective action, taken early, can reduce the health impacts of exposure to excessive heat. Most of these are simple preventive measures which, to be effective, need to be planned in advance of a heatwave.

The aim of this plan is to raise public awareness of the dangers of excessive heat to health and to ensure that health, social care and other voluntary and community organisations and wider civic society is prepared and able to deal with a heatwave when it comes so as to protect the most vulnerable.

## 1.1 Making the Case: The impact of heat on health – *now and in the future*

Readers who are familiar with previous editions of the Heatwave Plan will find that we have significantly changed its shape and structure. We have brought it into greater alignment with the Cold Weather Plan for England ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_130564](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_130564)).

In line with the Cold Weather Plan, in this publication, we have focused more on the actions and have placed a lot of the supporting material in a separate companion volume entitled, '**Making the Case: The impact of heat on health – now and in the future**' (<http://www.dh.gov.uk/health/category/policy-areas/public-health/>).

As in previous years, the Heatwave Plan is also supported by a series of Information Guides published online (at: <http://www.dh.gov.uk/health/category/policy-areas/public-health/>) which aim to provide an authoritative source of additional information about the effects of severe hot weather on health for:

- looking After Yourself And Others During Hot Weather (for Individuals, families and carers);
- supporting Vulnerable People before and during a Heatwave: Advice for Health and Social Care Professionals; and
- supporting Vulnerable People Before And During A Heatwave: Advice For Care Home Managers And Staff.

The latter two guides, available online, have been updated to reflect changing responsibilities during this transitional year to full implementation of the Health and Social Care Act (2012). An 'Easyread' and large print version of the Heatwave Plan will also be published on-line.

## Section 2

### The Heatwave Plan – a public health plan

The Heatwave Plan sets out what should happen before and during periods of severe heat in England. It spells out what preparations both individuals and organisations can make to reduce health risks and includes specific measures to protect at-risk groups.

The arrangements spell out what needs to be done by health and social care services and other bodies to raise awareness of the risks relating to severe hot weather and what preparations both individuals and organisations should make to reduce those risks.

The Plan provides good practice and advice on how to respond and what to do once severe hot weather has been forecast. It also explains the responsibilities at national and local level for alerting people once a heatwave has been forecast, and for advising them how to respond and what to do during a heatwave.

The Plan is primarily for health and social care services and other public agencies and professionals who interact with those most at risk from excessive heat during heatwaves.

**At-risk groups** include older people, the very young and people with pre-existing medical conditions as well as those whose health, housing or economic circumstances put them at greater risk of harm from very hot weather. Some medications make the skin especially sensitive to sunlight with potential harm caused by ultraviolet rays (see Section 1.2 in the accompanying document, 'Making the Case', for more information on risk groups).

The Plan is also intended to mobilise individuals and communities to help to protect their neighbours, friends, relatives, and themselves against avoidable health problems during spells of very hot weather. Broadcast media and alerting agencies may also find this plan useful.

The Plan focuses on the effects of severe hot weather on health and wellbeing. However, severe and extended heatwaves can also cause severe disruption to general services. For this reason, multi-agency **Local Resilience Forums** will have a critical role in supporting the delivery of this plan at a local level on preparations and response to a heatwave, working closely with the emerging **health and wellbeing boards** on longer term strategic planning.



## 2.1 The Heatwave Plan and existing arrangements

This Heatwave Plan builds on existing measures taken by the Department of Health, the NHS and local authorities to protect individuals and communities from the effects of severe heatwaves. These include:

**Emergency and Resilience Planning:** The Heatwave Plan builds on the principles of local planning which encourages resilience within the community. At local level emergency planning arrangements run by local government and the NHS are brought together in the Local Resilience Forum which has many years of experience of the Heatwave Plan and Heat-Health Watch alert system.

The **Department of Health** will make advice available to the public and health and social care professionals in affected regions, in preparation for an imminent heatwave, via NHS Direct, NHS Choices, and the Met Office, Health Protection Agency and Department of Health websites:

- **NHS Choices** ([www.nhs.uk](http://www.nhs.uk)) – the main NHS website provides reliable advice and guidance throughout the year on how to keep fit and well. It includes information on how to stay well in hot weather; and
- **information for the public:** as in previous years, *Looking After Yourself And Others During Hot Weather* will be available to be downloaded from the Department of Health web address: (<http://www.dh.gov.uk/health/category/policy-areas/public-health/>). The same advice will also be posted on NHS Direct's website ([www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)), NHS Choices ([www.nhs.uk](http://www.nhs.uk)), with links to the Health Protection Agency ([www.hpa.org.uk](http://www.hpa.org.uk)), and Department of Health websites ([www.dh.gov.uk](http://www.dh.gov.uk)). We will seek to ensure that the Heatwave Plan is widely communicated using a variety of channels to ensure maximum publicity.

### 2.1.1 Future Arrangements

This Plan outlines the key areas where public, independent and voluntary sector health and social care organisations should work together to maintain and improve integrated operational arrangements for planning and response in order to deliver the best outcomes possible during a heatwave in summer 2012. It reflects the structures and roles of the NHS and public health organisations in England during the transition period and will need updating to reflect the new structures post 2013.

It is the responsibility of each local area to ensure that preparedness and response plans are drawn up and tested.

Clustered PCTs and SHAs will continue to have responsibility for the health aspects of emergency preparedness and response in this transition period. They will continue to work with the wider Government resilience hubs established by the Department for Communities and Local Government, including the Local Resilience Forums (LRFs) which provide the focus of multi-agency planning to emergencies (and which become Strategic Coordinating Groups (SCG) when responding to emergencies).

## 2.2 The core elements of the Plan

The Heatwave Plan depends on having well coordinated plans in place for how to deal with severe hot weather before it strikes. It builds on our own experience in England and on expert advice from the WHO and the EuroHEAT project (ref Section 9) in developing other national heatwave plans. The core elements of the Plan are:

### 2.2.1 Strategic Planning

*The climate is changing and current analysis in the first national Climate Change Risk Assessment (UK CCRA 2012<sup>1</sup>) suggests that summers are going to get hotter in the future (See 'Making the Case'). Long term planning now is essential to support:*

- coordinated long-term planning between agencies to protect people and infrastructure from the effects of severe hot weather and thus reduce excess summer illness and death. In the future this could involve health and wellbeing boards and, could be considered within in Joint Strategic Needs Assessments (JSNAs) and Joint Health and Wellbeing Strategies (JHWSs); and
- long-term multi-agency planning to adapt to and reduce the impact of climate change, including 'greening the built environment', building design (eg increasing shading around and insulation of buildings), increasing energy efficiency (eg reducing carbon emissions); and transport policies.

### 2.2.2 Alert System (Advance warning and advice over the summer)

- A Heat-Health Watch alert system operating from 1 June to 15 September, based on Met Office forecasts, which will trigger levels of response from the Department of Health and other bodies and communicate risks.
- Advice and information from the Department of Health for the public and health and social care professionals, particularly those working with at-risk groups. This includes both general preparation for hot weather and more specific advice when a severe heatwave is forecast.

1 <http://www.defra.gov.uk/environment/climate/Government/risk-assessment/>

### 2.2.3 Heatwave and Summer Preparedness

- Agree a lead body to coordinate multi-agency collaboration and to direct the response. For example, in 2012, the Strategic Health Authority cluster (SHA) role in a heatwave is to ensure that local NHS services have the capacity and capability to deliver their functions as laid out in this plan. The SHA will hold the local NHS to account for implementation.

Other elements which local NHS and social care organisations will oversee:

- action to reduce indoor heat exposure (medium and short term);
- particular care for vulnerable population groups; and
- preparedness of the health and social care system – staff training and planning, appropriate healthcare and the physical environment.

**2.2.4 Communicating with the public:** Working with the media to get advice to people quickly, both before and during a heatwave.

- A local heat-related health information plan – what is communicated, to whom and when.
- There are general duties under the Civil Contingencies Act 2004 to warn and inform the public before, during and after an emergency.
- Raising awareness of how excessive exposure to severe heat affects health and what preventive action people can take, both throughout the year and during heatwaves to stay cool. This is particularly important for caregivers of the old and infirm and parents of infants.

### 2.2.5 Working with Service providers

- **Hospitals and care, residential and nursing homes to provide cool areas and monitor indoor temperatures to reduce the risk of heat-related illness and death in the most vulnerable populations.**
- Helping GPs and district nurses and social workers to identify vulnerable patients and clients on their practice lists by providing them with heatwave information and good practice advice.
- Ensuring that health and social care organisations and voluntary groups implement measures to protect people in their care and reduce heat related illness and death in those most at risk.
- Supporting staff to remain fit and well during spells of hot weather.

## 2.2.6 Engaging the community

- Providing extra help, where possible, to care for those most at risk, including isolated older people and those with a serious illness or disability. This could come from local authorities, health and social care services, the voluntary sector, communities and faith groups, families and others. This is determined locally as part of the person's individual care plan and will be based on existing relationships between statutory and voluntary bodies.
- Additional help to ensure that people are claiming their entitlements to benefits should be signposted.

## 2.2.7 Monitoring/Evaluation

- Real-time surveillance and evaluation, such as that provided by the Health Protection Agency (see Section 7).

## 2.3 The Heat-Health Watch Alert Service

A Heat-Health Watch Alert system will operate in England from 1 June to 15 September each year. During this period, the Met Office may forecast heatwaves, as defined by forecasts of day and night-time temperatures and their duration.

The Heat-Health Watch system comprises four main levels (Levels 1-4) outlined in Figure 1 and described in further detail. Levels 1-3 are, based on threshold day and night-time temperatures as defined by the Met Office. These vary from region to region, but the average threshold temperature is 30°C during the day and 15°C overnight. Details of individual regional thresholds are given in **Annex 1**. **Annex 2**: shows the core messages to be broadcast as official Department of Health warnings alongside national and regional weather forecasts at different heatwave alert levels. They may be expanded or otherwise refined in discussion with broadcasters and weather presenters.

While Heat-Health Watch is in operation, The Health Protection Agency will routinely monitor outputs from real-time syndromic surveillance systems. They will produce outputs for DH, Met Office, and Syndromic surveillance data providers (NHS Direct and QSurveillance). The HPA will also produce three key mortality outputs for heatwave monitoring in the event of a heatwave and share these as internal reports to DH. Further detailed information on these outputs in line with the Heat Health Levels can be found in Section 7.

**Level 1: Heatwave and Summer preparedness and long-term planning**

During the summer months, social and healthcare services need to ensure that awareness and background preparedness are maintained by implementing the measures set out in the Heatwave Plan. Long-term planning includes year-round joint working to reduce the impact of climate change and ensure maximum adaptation to reduce harm from heatwaves. This involves influencing urban planning to keep housing, workplaces, transport systems and the built environment cool and energy efficient.

**Level 2: Alert and readiness**

This is triggered as soon as the Met Office forecasts that there is a 60 per cent chance of temperatures being high enough on at least two consecutive days to have significant effects on health. This will normally occur 2–3 days before the event is expected. As death rates rise soon after temperature increases, with many deaths occurring in the first two days, this is an important stage to ensure readiness and swift action to reduce harm from a potential heatwave.

**Level 3: Heatwave action**

This is triggered as soon as the Met Office confirms that threshold temperatures have been reached in any one National Severe Weather Warning Service (NSWWS) region or more. This stage requires specific actions targeted at high-risk groups.

**Level 4: National Emergency**

This is reached when a heatwave is so severe and/or prolonged that its effects extend outside health and social care, such as power or water shortages, and/or where the integrity of health and social care systems is threatened. At this level, illness and death may occur among the fit and healthy, and not just in high-risk groups and will require a multi-sector response at national and regional levels.

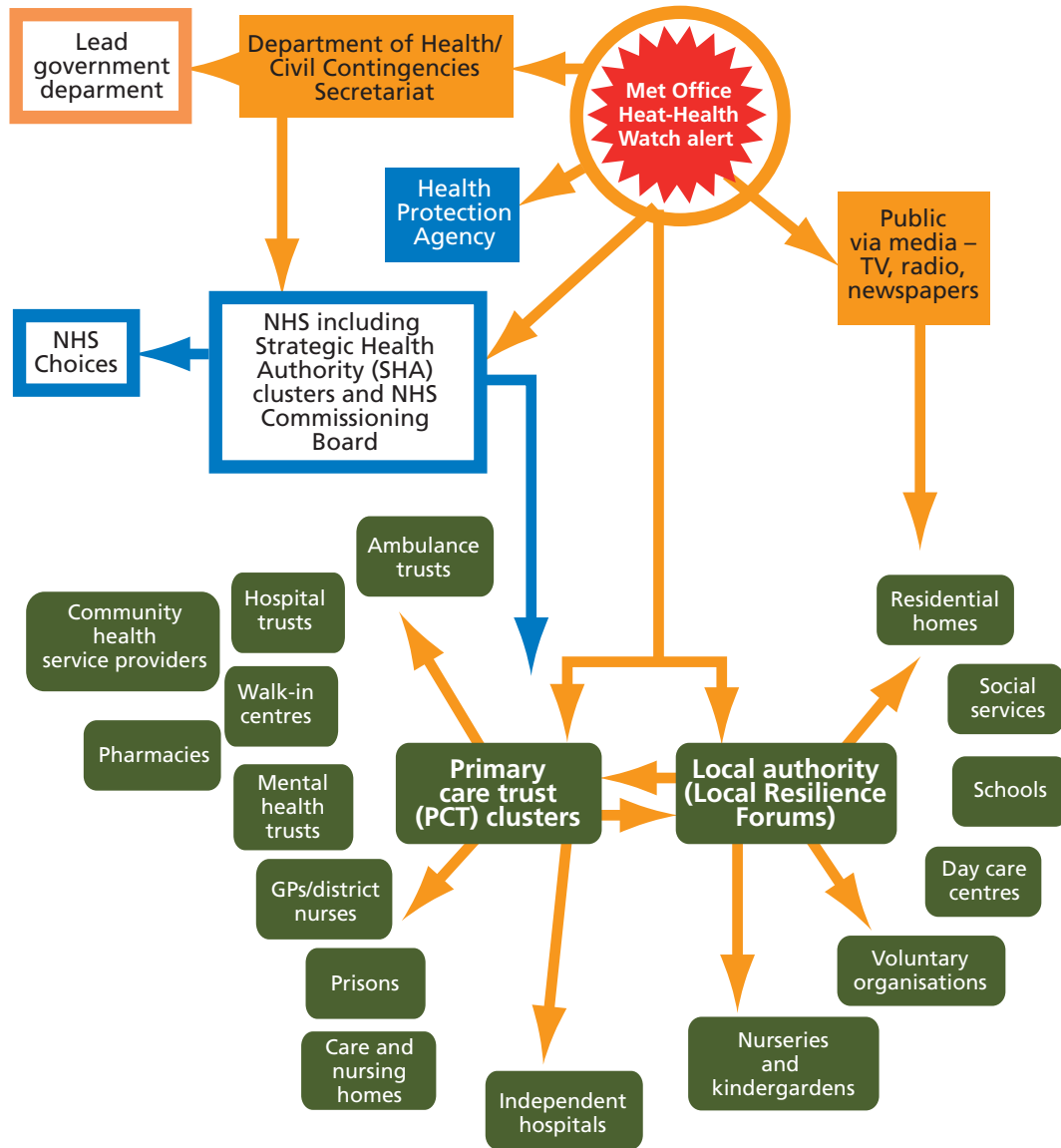
The decision to go to a Level 4 is made at national level and will be taken in light of a cross-Government assessment of the weather conditions, coordinated by the Civil Contingencies Secretariat (Cabinet Office).

Figure 2 (Pg 16) illustrates how heatwave alert messages should be cascaded throughout the local community and nationally as appropriate. Local Resilience Forums and health and social care organisations will want to develop this into a specific cascade system that is appropriate for their local area.

Figure 1: Summary of Heatwave Plan levels and actions

Alert trigger	Health, social care and local authorities	Care Homes and Hospitals and Professional Staff (all settings)	Community and Voluntary Sector & Individuals
<b>LEVEL 1</b> Long-term planning <i>All Year</i>	<ul style="list-style-type: none"> <li>Work with partner agencies to develop long term plans to prepare for, adapt to, and mitigate the impact of future heatwaves, including:</li> <li>How to identify and improve the resilience of those individuals and communities most at risk</li> <li>Ensuring that a local, joined-up programme is in place covering issues such as:</li> <li>Housing (inc loft and wall insulation and other plans to reduce internal energy use and heat production)</li> <li>Environmental action: (eg Increase trees and green spaces; External shading; Reflective paint; Water features)</li> <li>Other infrastructure changes (eg porous pavements)</li> <li>Engaging the community and voluntary sector to support development of local (neighbourhood) community emergency plans</li> </ul>	<b>Care Homes and Hospitals</b> Work with service commissioners to develop longer term plans to prepare for heatwaves Make necessary environmental improvements to be able to provide a safe environment for patients/ clients in the event of a heatwave Prepare business continuity plans to cover the event of a heatwave (eg covering storage of medicines: computer resilience; etc) Work with partners and staff to raise awareness of the impacts of severe heat on health and on risk reduction awareness (eg storage of medications), information and education <b>Professional Staff (all settings)</b> <ul style="list-style-type: none"> <li>Develop systems to identify and improve the resilience of high-risk individuals</li> </ul>	<b>Community Groups</b> <ul style="list-style-type: none"> <li>Develop a community emergency plan to identify and support vulnerable neighbours in event of a heatwave</li> <li>Assess the impact a heatwave might have on the provision and use of usual community venues</li> </ul> <b>Individuals</b> <ul style="list-style-type: none"> <li>Make environmental improvements inside and outside the house which reduce internal energy and heat</li> <li>Install loft and wall insulation</li> <li>Identify cool areas in the house to use in the event of a heatwave</li> <li>If on medications, ensure that these can be stored at safe levels in a heatwave</li> </ul>
<b>LEVEL 1</b> Heatwave and Summer preparedness programme <i>1 June–15th September</i>	<ul style="list-style-type: none"> <li>Work with partner agencies and businesses to coordinate heatwave plans</li> <li>Work with partners and staff on risk reduction awareness (eg storage of medications), information and education</li> <li>Continue to engage the community and voluntary sector to support communities to help those most at risk</li> <li>Ensure other institutional establishments (eg prisons; schools) are aware of heatwave guidance</li> </ul>	<b>Care Homes and Hospitals</b> <ul style="list-style-type: none"> <li>Ensure business continuity plans are in place and implement as required</li> <li>Identify cool areas</li> <li>Install thermometers</li> </ul> <b>Professional Staff (all settings)</b> <ul style="list-style-type: none"> <li>Identify high-risk individuals on your caseload</li> <li>Include risk in care records</li> <li>Increase awareness of supervised staff</li> </ul>	<b>Community Groups</b> <ul style="list-style-type: none"> <li>Further develop community emergency plan</li> <li>Support the provision of good information about health risks especially with those vulnerable groups and individuals</li> </ul> <b>Individuals</b> <ul style="list-style-type: none"> <li>Find good information about health risks and key public health messages to stay healthy during spells of severe heat</li> <li>Look out for vulnerable neighbours</li> </ul>
<b>LEVEL 2 Alert and Readiness</b> 60 per cent risk of heatwave in 2–3 days*	<ul style="list-style-type: none"> <li>Communicate public media messages – especially to 'hard to reach' vulnerable groups</li> <li>Communicate alerts to staff and make sure that they are aware of heatwave plans</li> <li>Implement business continuity</li> <li>Increase advice to health and social care workers and other community staff</li> </ul>	<b>Care Homes and Hospitals</b> <ul style="list-style-type: none"> <li>Check that indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside; Communicate alerts to staff and make sure that they are aware of heatwave plans</li> <li>Implement business continuity</li> <li>Prepare cool areas</li> <li>Ensure sufficient staffing</li> <li>Identify high-risk people</li> <li>Sufficient cold water and ice</li> </ul> <b>Professional staff (all settings)</b> <ul style="list-style-type: none"> <li>Check high-risk people have visitor/phone call arrangements in place</li> <li>Reconfirm key public health messages to clients</li> <li>Check client's room temperature if visiting</li> </ul>	<b>Community Groups</b> <ul style="list-style-type: none"> <li>Keep an eye on people you know to be at risk</li> <li>Stay tuned into the weather forecast and keep stocked with food and medications</li> <li>Check ambient room temperatures</li> </ul> <b>Individuals</b> <ul style="list-style-type: none"> <li>Stay tuned into the weather forecast</li> <li>Check ambient room temperatures – especially those rooms where disabled or high risk individuals spend most of their time</li> <li>Keep an eye on people you know to be at risk – ensure they have access to plenty of cool liquids</li> <li>Look out for vulnerable neighbours</li> </ul>
<b>LEVEL 3 Heatwave Action</b> Heatwave temperature reached in one or more National Severe Weather Warning Service (NSWWS) region	<ul style="list-style-type: none"> <li>Media alerts about keeping cool</li> <li>Support organisations to reduce unnecessary travel</li> <li>Review safety of public events</li> <li>Mobilise community and voluntary support</li> </ul>	<b>Care Homes and Hospitals</b> <ul style="list-style-type: none"> <li>Activate plans to maintain business continuity – including a possible surge in demand for services</li> <li>Check that indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside</li> <li>Ensure staff can help and advise clients and patients</li> </ul> <b>Professional staff (all settings)</b> <ul style="list-style-type: none"> <li>Visit/phone high-risk people</li> <li>Reconfirm key public health messages to clients</li> </ul>	<b>Community Groups</b> <ul style="list-style-type: none"> <li>Activate community emergency plan</li> <li>Check those you know are at risk</li> </ul> <b>Individuals</b> <ul style="list-style-type: none"> <li>Follow key public health messages</li> <li>Check those you know are at risk</li> </ul>
<b>LEVEL 4**</b> Exceptionally severe Heatwave. Central Government might consider declaring a Level4 alert if a wide area of England and Wales, or several sectors, are affected by the threshold temperatures	<b>NATIONAL EMERGENCY</b> Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health and if requiring coordinated multi-agency response		
<b>High-risk Groups</b> Community: Over 75, female, living on own and isolated, severe physical or mental illness; urban areas, south-facing top flat; alcohol and/or drug dependency, homeless, babies and young children, multiple medications and over-exertion Care home or hospital: over 75, female, frail, severe physical or mental illness; multiple medications; babies and young children.			
*Because Level 2 is based on a projection, there may be jumps between levels. Following Level 3, wait until temperatures cool to Level 1 before stopping Level 3 actions. ** Level 4: The decision to issue a Level 4 alert at national level will be taken in light of a cross-Government assessment of the weather conditions, coordinated by the Civil Contingencies Secretariat (Cabinet Office).			

Figure 2: Typical cascade of heatwave alerts



Adapted from: Anthea Sanyasi, HPA Health Emergency Planning Adviser, London

## Section 3

### Responsibilities at Level 1: Heatwave and Summer Preparedness

Heatwave Plan Levels	
Level 1	Long-term Planning <i>All Year</i>
	Heatwave and Summer Preparedness <i>1 June–15 September</i>
Level 2	Heatwave is forecast – Alert and Readiness <i>60% risk of heatwave in the next 2–3 days</i>
Level 3	Heatwave Action <i>Temperature reached in one or more Met Office National Severe Weather Warning Service regions</i>
Level 4	Major Incident – Emergency Response <i>Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health.</i>

**Level 1 includes long-term strategic planning activities that can take place throughout the year as well as more specific heatwave preparedness actions.**

#### 3.1 Long-term Planning

Preparing for heatwaves should be a year-round activity. Long-term planning needs to encompass health improvement plans which can only be addressed jointly by partners in a multi-agency context, for example by the health and wellbeing board, to reduce the impact of climate change and ensure maximum adaptation to reduce harm from heatwaves. This involves influencing community planning to enhance the natural environment and to keep housing, workplaces, transport systems and the built environment cool and energy efficient.

Other work which can take place includes, for example:

- **Health and social care services and professionals** should work with partner agencies to set up systems which will allow them to identify those most at risk from excessive heat, and to improve their resilience to very hot weather. The companion volume to the Heatwave Plan, '**Making the Case: The impact of heat on health – now and in the future**', gives further detailed information about vulnerable and at-risk groups. A comprehensive evidence-base review



undertaken as part of the Equality Analysis for those groups with 'protected characteristics' is also being published with this plan.

- **Individuals, families and communities** should consider what they can do in advance to prepare for very hot periods of weather, such as insulating their homes and making sure that those at risk are receiving the benefits they are entitled to.

At national level, the Department of Health will continue to work with other Government Departments on a range of measures to link heatwave planning with other adaptation, mitigation, and response measures for climate change through the development and implementation of the National Adaptation Programme (NAP)<sup>2</sup>. The DH will work in partnership with the health and social care sectors at sub-national/regional and local levels to ensure awareness and preparedness for heatwave planning and enhance long-term planning.

## 3.2 Summer preparedness

### 3.2.1 Key Public Health Messages

The key message for preventing heat-related illness and death is to keep cool! The best ways to do this include the following:<sup>3</sup>

2 <http://www.defra.gov.uk/environment/climate/Government/>

3 With acknowledgements to WHO. Public Health Advice on preventing health effects of heat ([http://www.euro.who.int/\\_data/assets/pdf\\_file/0007/147265/Heat\\_information\\_sheet.pdf](http://www.euro.who.int/_data/assets/pdf_file/0007/147265/Heat_information_sheet.pdf))

**Stay out of the heat:**

- keep out of the sun between 11.00am and 3.00pm;
- if you have to go out in the heat, walk in the shade, apply sunscreen and wear a hat and light scarf;
- avoid extreme physical exertion; and
- wear light, loose-fitting cotton clothes.

**Cool yourself down:**

- have plenty of cold drinks, and avoid excess alcohol, caffeine and hot drinks;
- eat cold foods, particularly salads and fruit with a high water content;
- take a cool shower, bath or body wash; and
- sprinkle water over the skin or clothing, or keep a damp cloth on the back of your neck.

**Keep your environment cool:**

- Keeping your living space cool is especially important for infants, the elderly or those with chronic health conditions or who can't look after themselves;
- Place a thermometer in your main living room and bedroom to keep a check on the temperature.
- Keep windows that are exposed to the sun closed during the day, and open windows at night when the temperature has dropped;
- Close curtains that receive morning or afternoon sun. However, care should be taken with metal blinds and dark curtains, as these can absorb heat – consider replacing or putting reflective material in-between them and the window space;
- Turn off non-essential lights and electrical equipment – they generate heat;
- Keep indoor plants and bowls of water in the house as evaporation helps cool the air;
- If possible, move into a cooler room, especially for sleeping; and
- Electric fans may provide some relief, if temperatures are below 35°C.<sup>3</sup>

*Longer term:*

- consider putting up external shading outside windows;
- use pale, reflective external paints;
- have your loft and cavity walls insulated – this keeps the heat in when it is cold and out when it is hot; and
- grow trees and leafy plants near windows to act as natural air-conditioners (see 'Making the Case').

**Look out for others:**

- keep an eye on isolated, elderly, ill or very young people and make sure they are able to keep cool;
- ensure that babies, children or elderly people are not left alone in stationary cars;
- check on elderly or sick neighbours, family or friends every day during a heatwave; and
- be alert and call a doctor or social services if someone is unwell or further help is needed.

**If you have a health problem:**

- keep medicines below 25°C or in the refrigerator (read the storage instructions on the packaging); and
- seek medical advice if you are suffering from a chronic medical condition or taking multiple medications.

**If you or others feel unwell:**

- try to get help if you feel dizzy, weak, anxious or have intense thirst and headache; move to a cool place as soon as possible and measure your body temperature;
- drink some water or fruit juice to rehydrate;
- rest immediately in a cool place if you have painful muscular spasms (particularly in the legs, arms or abdomen, in many cases after sustained exercise during very hot weather), and drink oral rehydration solutions containing electrolytes;
- medical attention is needed if heat cramps last more than one hour; and
- consult your doctor if you feel unusual symptoms or if symptoms persist.

4 NOTE: Use of Fans: At temperatures above 35°C fans may not prevent heat-related illness. Additionally fans can cause excess dehydration. The advice is to place the fan at a certain distance from people, not aiming it directly on the body and to have regular drinks. This is especially important in the case of sick people confined to bed.

### 3.2.2 National and Sub-national: Summer Preparedness

National preparations will be the overall responsibility of the Department of Health, in collaboration with the Met Office, the Health Protection Agency and NHS bodies, including NHS Direct/NHS Choices.

The **Met Office** will develop and publicise the NSWWS regional threshold temperatures in preparation for Level 2 and will ensure that forecasts are disseminated when there is a 60 per cent chance that thresholds will be exceeded, as appropriate to the Department of Health and NHS via national, regional and local weather forecasts.

The **Health Protection Agency** will routinely monitor syndromic and mortality outputs from a range of surveillance systems. Further details of these specific systems and the outputs generated at different alert levels are given in Section 7 and in *Making the Case: The impact of heat on health – now and in the future*.

#### **Department of Health**

The **Department of Health** publishes the national Heatwave Plan and related factsheets and will work with other Government departments and the Cabinet Office Civil Contingencies Secretariat to ensure that their agreed cross-Government response services are able to be mobilised as required. DH will inform and ensure awareness of the Heatwave Plan with the SHAs and NHS, regional HPA director and the Department of Communities and Local Government (DCLG) Resilience and Emergencies Division (RED). DCLG will share information with local responders through its contacts with Local Resilience Forum (LRF) and represent Government at local or multi-area strategic coordination groups in the event of a significant emergency.

**Strategic Health Authority clusters** will ensure that healthcare providers are aware of all the guidance on minimising and coping with heat-related health risks. In particular, the SHA cluster's role is to ensure that:

- national guidance is cascaded to local services;
- all organisations engage in preparing for a heatwave;
- all NHS trusts and providers of NHS care should include heatwave planning on their risk register; and
- local Primary Care Trust clusters (PCT) identify which local healthcare organisations are most vulnerable to the effects of heatwaves.

### 3.2.3 Local: Summer Preparedness

During the summer months, social and healthcare services need to ensure that awareness and background preparedness are maintained by the measures set out in the Heatwave Plan.

Preparations at this level include NHS Trusts; Social Services; public health and local authorities, and care, residential and nursing homes as well as community and voluntary organisations.

**PCT clusters with partners in public health and local authorities should:**

- work out how to implement the heatwave plan locally. It is the responsibility of local agencies to ensure that important public health messages as highlighted in this Heatwave Plan and associated factsheets are communicated with the local population and professional staff. A variety of ways should be used to maximise dissemination and raise awareness especially with the most vulnerable and 'hard to reach' in the community; and
- work out how your heatwave plans can target vulnerable or marginalised groups, including frail and isolated people, and other high risk groups

**PCT clusters and local Social Services should support community and primary care staff in:**

- identifying individuals who are at particular risk from extreme heat and encouraging education regarding heat illnesses and their prevention (particularly for caregivers of the old and infirm and parents of infants). Many at-risk individuals are likely to be already receiving care.
- identifying any changes to individual care plans for those in high-risk groups, including those with chronic illness or severe mental illness, which might be necessary in the event of a heatwave, including initiating daily visits by formal or informal carers to check on people living on their own.
- working with the families and informal carers of at-risk individuals to ensure awareness of the dangers of heat and how to keep cool and to put simple protective measures in place, such as installing proper ventilation and ensuring that fans and fridges are available and in working order. The use of fans should be correctly advised on as per Section 3.2.1 above;
- where individual households or care home residents are identified as being at particular risk from hot weather, making a request to Environmental Health to do an assessment using the Housing Health and Safety Rating System (HHSRS). Primary Care Trust clusters can work actively with the local authority lead on the HHSRS to identify and assess those considered most vulnerable

during heatwaves. (For further information see:

[www.communities.gov.uk/documents/housing/pdf/150940.pdf](http://www.communities.gov.uk/documents/housing/pdf/150940.pdf)); and

- cycling and walking should be encouraged as a means of transport as this will help to reduce overall heat levels and poor air quality in urban areas due to car use. If travel is necessary, encourage travel in the night/cooler hours and travel with a supply of water/liquids.

#### Local authorities and Social Care:

- ensure care, nursing and residential homes are aware of the Heatwave Plan; are engaged in preparing for heatwaves; and include heatwave planning on their risk registers. They should raise awareness among care home managers and staff about the very significant heat-related health risks, and encourage additional staff training in line with the DH factsheet; and
- ensure that the organisation of large, outdoor events take account of the dangers of heat by ensuring the provision of shade, cold water and information for individual protection. (See section 3.4 and Annex 3).

**NHS Trusts and care, nursing and residential homes** should raise awareness among staff about the very significant heat-related health risks. Additionally, the following preparations should be made:

- **indoor thermometers** should be installed in each room that vulnerable individuals spend substantial time in (bedrooms, living areas and eating areas) and, during a heatwave, indoor temperatures should be monitored regularly;
- **cool rooms or cool areas should be created.** High-risk groups who are vulnerable to the effects of heat are physiologically unable to cool themselves efficiently once temperatures rise above 26°C. Therefore, every care, nursing and residential home should be able to provide a room or area that maintains a temperature of 26°C or below. Hospitals should aim to ensure that cool areas are created that do not exceed 26°C, especially in areas with high-risk patients;
- if temperatures exceed 26°C, high-risk individuals should be moved to a cool area that is 26°C or below. For patients who can't be moved, or for whom a move might be too disorienting, take actions to cool them down (eg liquids, cool wipes) and enhance surveillance;
- cool areas can be developed with appropriate indoor and outdoor shading, passive cooling and ventilation, the use of indoor and outdoor plants and, if necessary, air-conditioning;
- during the summer months, sufficient staff must be available so that appropriate action can be taken in the event of a heatwave;

- due to the additional risk of psychiatric medications affecting thermoregulation and sweating, mental health trusts and teams need to ensure that hospital environments have a cool room (26°C or below) and that heatwave considerations are included within an individual's risk assessment (eg under the Care Programme Approach); and
- all care, residential and nursing homes should provide appropriate contact details including an email address to local authority/NHS emergency planning officers, to facilitate the transfer of emergency information.

The companion volume to the Heatwave Plan, **'Making the Case: The impact of heat on health – now and in the future'** gives practical advice on:

- cooling of hospital estates and care homes;
- wider Benefits of Creating Green Spaces; and
- how Insulating Homes can also protect against heat.

### Community and Voluntary Groups

Develop a Community Emergency Plan: Check if your local community emergency plan covers what to do to support vulnerable or frail neighbours in the event of a heatwave or other extreme climatic events such as flooding or drought. Your Local Authority Emergency Planning Officer or Parish Council can usually point you in the right direction, or if there isn't a plan they can give you help in developing one.

Part of your plan might be a list of willing volunteers to keep the community safe during such periods and to check on vulnerable or frail neighbours. Further advice on developing community emergency plans has been developed by the Cabinet Office and can be accessed at: <http://www.cabinetoffice.gov.uk/content/community-resilience>

### 3.3 Heatwaves and the Drought

As of May 2012, large parts of England have already been declared drought areas with measures brought in to support businesses and individuals reduce and conserve water consumption. Further information on the potential health impacts of drought can be found on the HPA website <http://www.hpa.org.uk/Topics/EmergencyResponse/ExtremeWeatherEventsAndNaturalDisasters/Drought/>

### 3.4 Heatwaves and Large Public Events

Summer is a time for people to get outside and enjoy themselves. Large scale public events, such as music and arts festivals; sports events; and national celebrations are held up and down the country every summer providing enjoyment to millions of people.

However, especially in this year of the Queen's Jubilee celebrations and, of course, the Olympics and Paralympics Games, England and the rest of the UK will be hosting especially large numbers of outdoor events ('mass gatherings'). The Met Office has advised that based on analysis of climate statistics, there has been, on average, a 20 per cent incidence of a Heatwave occurring during the time of year that the Olympics will take place.

Local agencies are generally well equipped to plan and deal with such events. There is well-trying and tested guidance, especially from the Health and Safety Executive '*Events Safety Guide*' (<http://www.hse.gov.uk/event-safety/index.htm>). The Olympics, in particular, has been subject to extensive testing, planning and preparation involving close working across Government and its agencies and between the NHS, Department of Health and LOCOG (London Organising Committee for the Olympic and Paralympic Games).

However, the effects of excessive heat and sun exposure are sometimes not highlighted enough for such events.

Mass gatherings increase exposure to heat and direct sunlight and can make organisational responses more difficult. Individual behaviours often change (for example, people may be reluctant to use the toilet facilities due to the long queues and so purposely reduce fluid intake). At many large events, people get into a good position to see the event and then reduce fluid intake and heat avoidance behaviours so as not to lose their spot. This can lead to heat-related illness, dehydration and/or collapse.

Annex 3 is a simple checklist which authorities can use to help guide them when planning large events in relation to heat.

## Section 4

### Responsibilities at Level 2: Alert and Readiness

Heatwave Plan Levels	
Level 1	Long-term Planning <i>All Year</i>
	Heatwave and Summer Preparedness <i>1 June–15 September</i>
Level 2	Heatwave is forecast – Alert and Readiness <i>60% risk of heatwave in the next 2–3 days</i>
Level 3	Heatwave Action <i>Temperature reached in one or more Met Office National Severe Weather Warning Service regions</i>
Level 4	Major Incident – Emergency Response <i>Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health.</i>

**A Level 2 alert is triggered as soon as the Met Office forecasts that there is a 60 per cent chance of temperatures being high enough on at least two consecutive days to have significant effects on health. This will normally happen 2–3 days before a heatwave is expected to occur. As most deaths occur in the first two days, this is an important stage at which to ensure readiness and swift action to reduce harm from a potential heatwave.**

#### 4.1 National and Sub-national: Alert and Readiness

The **Met Office** will notify the Department of Health and other organisations with 'Heat-Health Watch' responsibility (SHA clusters, local authorities, PCT clusters, NHS Trusts and Social Services departments) immediately when it is forecast that there is a 60 per cent chance that threshold temperatures will be exceeded for any one region. A warning will also be broadcast to the public via television and radio weather reports. This warning will resemble the examples given at Annex 2.

The **Department of Health** will make advice available to the public and health and social care professionals in affected regions, in preparation for an imminent heatwave, via NHS Direct, NHS Choices, and the Met Office, Health Protection Agency and Department of Health websites.



The **Health Protection Agency** will continue to monitor routine surveillance systems for any increases in heat-related morbidity or mortality. For further details on output frequency see Section 7 and in *Making the Case: The impact of heat on health – now and in the future*.

In collaboration with the **Met Office** and **SHA cluster communications leads**, the **Department of Health** will target the media in affected regions with publicity about Met Office warnings and Department of Health advice to the public.

**Strategic Health Authority** clusters will:

- ensure that local services are notified of a Met Office alert and change of heatwave level;
- liaise with DH and Met Office to ensure, if a priority region, that the media are targeted to provide health advice to the public;
- hold local health services to account for taking actions as laid out in Level 2 preparedness;
- link with their regional HPA service to receive monitoring information;
- brief upwards to DH, as appropriate; and
- ensure DCLG Resilience and Emergencies Division are aware of the change in heatwave alert levels.

## 4.2 Local: Alert and Readiness

**PCT clusters and local Social Services will ensure:**

- that health and social care workers have identified those in their community who are at particularly high-risk from a heatwave. They should arrange, where appropriate, for a daily visit/phone call by a formal or informal carer (family, neighbour, friend, voluntary and community sector workers) during the heatwave period (see the section on High-risk factors on page 16). Visits should be considered especially for those living on their own and without the contact of a daily carer;
- distribution of Department of Health advice to community health and social care workers who are in contact with all those defined as at-risk living at home; and
- distribution of Department of Health advice to the managers of local authority funded and private care, residential and nursing care homes.

**Hospitals and care, residential and nursing homes should:**

- ensure that cool rooms are ready and consistently at 26°C or below;
- check that indoor thermometers are in place to ensure that room temperature is monitored regularly during the hottest parts of the day;
- identify naturally cooler rooms that vulnerable patients can be moved to if necessary;
- identify particularly vulnerable individuals (those with chronic/severe illness, on multiple medications, or who are bed bound) who may be prioritised for time in a cool room;
- obtain supplies of ice/cool water – and ensure that patients receive adequate provision of fluids;
- provide water-rich foods such as fruits, yoghurt, and salads;
- hospitals and homes should consider more frequent change of bed linen and storage. Plastic continence pants/pads should be avoided;
- provide regular wet towels/wipes, foot baths;
- weigh regularly – weight loss as a measure of dehydration;
- adjust physiotherapy schedules to occur outside 11:00–16:00 if possible;
- discuss possible adjustments of medications with GP/consultants before heatwave;
- ensure that staffing levels will be sufficient to cover the anticipated heatwave period;
- repeat messages on risk and protective measures to staff; and
- mental health trusts and community teams should ensure that visits or phone calls are made to advise high-risk individuals (those with severe mental illness, living on their own, or without regular contact with a carer).

**Community groups and voluntary sector organisations**

- Implement the Community Emergency Plan (see Level 1 actions).
- Keep an eye on vulnerable people you know.
- Be aware that Ramadan takes place over the summer and that many members of the Muslim community may be fasting (see Box 1).

## Box 1

### Heat Health Advice during Ramadan

Many members of the Muslim community may be fasting during the daylight hours in the month of Ramadan which, this year, takes place between 20 July – 18 August 2012. It is common to have one meal just before sunrise and an evening meal after sunset during Ramadan. During hot weather, dehydration is a common and serious risk. It's important to balance food and fluid intake between fasts and especially to drink enough water.

If you start to feel unwell, disoriented or confused, or collapse or faint, advice is to stop fasting and have a drink of water or other fluid. This is especially important for older adults, those with poorly controlled medical conditions such as low/high blood pressure, diabetes and those who are receiving dialysis treatment. The Muslim Council of Britain has confirmed that breaking fast in such conditions is allowable under Islamic law. Also make sure to check on others in the community who may be at greater risk and keep an eye on children to ensure they are having a safe and healthy Ramadan.

The Department of Health has produced guidance to help ensure that members of the Muslim community have a safe and healthy Ramadan – *Ramadan Health Guide: a Guide to Healthy Fasting produced in association with the NHS* ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_078409](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_078409) 2007) with further information available on NHS Choices: (<http://www.nhs.uk/Livewell/Healthylamadan/Pages/healthyfasting.aspx>)

## Section 5

### Responsibilities at Level 3: Heatwave Action

Heatwave Plan Levels	
Level 1	Long-term Planning <i>All Year</i>
	Heatwave and Summer Preparedness <i>1 June–15 September</i>
Level 2	Heatwave is forecast – Alert and Readiness <i>60% risk of heatwave in the next 2–3 days</i>
Level 3	Heatwave Action <i>Temperature reached in one or more Met Office National Severe Weather Warning Service regions</i>
Level 4	Major Incident – Emergency Response <i>Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health.</i>

**This is triggered as soon as the Met Office confirms that threshold temperatures have been reached in any one region or more. This stage requires specific actions targeted at high-risk groups.**

#### 5.1 National and Sub-national: Heatwave Action

The Met Office will confirm that the high temperature threshold has been reached for any one NSWWS region or more. The forecast will include the likely duration of the heatwave, the likely temperatures to be expected and the probability of other regions exceeding their threshold. The Met Office will continue to monitor and forecast temperatures in each region.

The **Department of Health** will continue to make available advice to the public and health and social care professionals in affected regions (as at Level 2).

The **Health Protection Agency** will continue to monitor routine surveillance systems for any increases in heat-related morbidity or mortality. For further details on output frequency see Section 7 and in *Making the Case: The impact of heat on health – now and in the future*.

In collaboration with the **Met Office** and **SHA cluster communications leads**, the Department of Health will target the media in affected regions with publicity about Met Office warnings and Department of Health advice to the public.

## **Strategic Health Authorities clusters to:**

- continue action as for Level 2;
- muster mutual aid where requested by the local services;
- ensure that updated guidance and monitoring information reaches local services; and
- brief DCLG Resilience and Emergencies Division and central DH emergency preparedness with updates and risks.

## **5.2 Local: Heatwave Action**

### **PCT clusters and local Social Services will:**

- continue to distribute advice to people at risk, and managers and staff of care homes;
- ensure that health and social care staff are aware of risk and protective factors, and consider, where appropriate, daily visits/phone calls for high-risk individuals living on their own who have no regular daily contacts;
- advise social care or informal carers to contact the GP if there are concerns about an individual's health; and
- ensure that Department of Health advice reaches private and local authority funded care, residential and nursing care home managers as soon as a heatwave starts.

### **Hospitals and care, residential and nursing homes should:**

- implement appropriate protective factors, including regular supply and assistance with cold drinks;
- ensure that cool rooms are consistently below 26°C as this is the temperature threshold at which many vulnerable patients find it difficult to cool themselves naturally if sweating is impaired due to old age, sickness or medication;
- check that indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside;
- identify particularly vulnerable individuals (those with chronic/severe illness, on multiple medications, or who are bed bound) for prioritisation in cool rooms;
- monitor and minimise temperatures in all patient areas and take action if the temperature is a significant risk to patient safety, as high risk patients may suffer undue health effects including worsening cardiovascular or respiratory symptoms at temperatures exceeding 26°C;

- reduce internal temperatures by turning off unnecessary lights and electrical equipment;
- consider moving visiting hours to mornings and evenings to reduce afternoon heat from increased numbers of people;
- make the most of cooling the building at night with cross ventilation. Additionally, high night-time temperatures in particular have been found to be associated with higher mortality rates. Due to the potential increased risk of cross infection that may be induced by cross ventilation, ensure increased vigilance of other routine infection control measures;
- in the context of mental health trusts and community teams, ensure that visits or phone calls are made to check on high-risk individuals (those with severe mental illness, living on their own, or without regular contact with a carer);
- seek early medical help if an individual starts to become unwell; and
- ensure that discharge planning takes into account the temperature of accommodation and level of daily care during the heatwave period.

PCT clusters, local authorities, and SHA clusters have a potential role in monitoring whether the above measures are implemented. The Care Quality Commission (CQC) also inspects hospitals, care homes and other health and social care settings against its statutory requirements relating to suitable environments for care and access to appropriate clinical advice and treatment. In doing so, the CQC has regard to national guidance including this Heatwave Plan.

### **Community groups and voluntary sector organisations**

- Implement your heatwave or other neighbourhood continuity plans.
- Make sure that you check on the health status of vulnerable individuals regularly. If you visit, check indoor temperatures and encourage people to stay cool and take cool drinks regularly as per the advice above. Also provide advice about the health effects of prolonged exposure to severe heat and preventive action.

## Section 6

### Responsibilities at Level 4: Emergency

Heatwave Plan Levels	
Level 1	Long-term Planning <i>All Year</i>
	Heatwave and Summer Preparedness <i>1 June–15 September</i>
Level 2	Heatwave is forecast – Alert and Readiness <i>60% risk of heatwave in the next 2–3 days</i>
Level 3	Heatwave Action <i>Temperature reached in one or more Met Office National Severe Weather Warning Service regions</i>
Level 4	Major Incident – Emergency Response <i>Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health.</i>

**Declaring a Level 4 alert indicates a major incident. The Government will decide whether to go to Level 4 when there is a very severe heatwave which will last for a considerable period of time and will also affect transport, food and water, energy supplies and businesses as well as health and social care services.**

The decision to issue a Level 4 alert is made at national level and will be taken in light of a cross-Government assessment of the weather conditions, coordinated by the Civil Contingencies Secretariat (Cabinet Office). A Level 4 alert is not triggered automatically by a greater than 4 day period of severe hot weather.

In the event of a major incident being declared, all existing emergency policies and procedures will apply. All Level 3 responsibilities will also continue.

#### 6.1 Heatwave – cross-Government response

- The decision to issue a Level 4 alert at national level will be taken in light of a cross-Government assessment of the weather conditions, coordinated by the Civil Contingencies Secretariat.
- In undertaking this assessment, the Civil Contingencies Secretariat would consult with a range of interested departments/agencies, including the Department of Health emergency planning functions, the Met Office, the Department for Transport, the Department for Communities and Local Government and as others as required.

- In line with its approach to all major national incidents, in the event of a Level 4 emergency being declared, the Cabinet Office will nominate a lead Government department to coordinate the central Government response machinery as necessary.
- In practice, while the Department of Health is most likely to be the lead Government department responsible for a Level 4 heatwave emergency, as a prolonged heatwave would primarily be a public health issue, this would need to be confirmed at the time in light of prevailing circumstances.
- The **Health Protection Agency** will continue to monitor routine surveillance systems for any increases in heat-related morbidity or mortality. For further details on output frequency see Section 7 and in *Making the Case: The impact of heat on health – now and in the future*.
- While other issues are likely to arise as part of any heatwave emergency, such as power failures and transport disruption, these would be dealt with by the departments concerned as part of a coordinated response unless they became the overriding concern, in which case the overall central Government department lead may transfer responsibility.
- Response arrangements will need to be necessarily flexible, in order to adapt to the nature of the challenge and other circumstances at the time while applying good practice, including lessons from previous emergencies.

## 6.2 The health sector – national and sub-national action

- The Department of Health's Emergency Protection, Resilience and Response (EPRR) division will coordinate activity for the DH and lead the liaison arrangements with the NHS Operations.
- The DH will continue to work closely with the HPA and Met Office on alerting and monitoring the situation nationally and sub-nationally.
- Strategic Health Authority clusters will provide regular briefings and advice to DCLG Resilience and Emergencies Division and central DH emergency.
- Strategic Health Authority clusters should ensure that the actions described below in Section 6.3 at local level are taking place and provide appropriate advice and support as necessary.

## 6.3 The health and social care sector – local action

- Health and social care services and local authorities should ensure that Level 3 actions continue during the emergency period.



- Measures should be taken to ensure that local health and social care providers that are most vulnerable to extreme heat conditions can continue to operate safely.
- PCT clusters should identify local healthcare providers most vulnerable to heatwaves and ensure that safety measures are taken, for example, the closure of wards that are too hot for vulnerable patients with transfer to safer locations.
- During extreme conditions, it is not only high-risk groups that may be at risk. Therefore, further risk appraisals should be made as to how the wider population is likely to be affected.
- Risk appraisals should be made regarding continuation of public or sporting events, the potential closure of nurseries, schools, provision of local cool centres, reducing urban heat and deteriorating air quality by minimising unnecessary transport and energy use.

## 6.4 Anticipated impacts for other sectors during a heatwave Level 4

Anticipated risks and responses during a heatwave Level 4, according to different sectors, are summarised below.

The previous pages have highlighted the risks to public health from a heatwave. The risks to other important areas of life from four or more days where temperatures have reached threshold values during the day and overnight are equally important. These wider risks, which have the potential to generate disruption at a national, regional and local level, include the following:

### **Transport infrastructure**

- Road surfaces are susceptible to melting under extreme or prolonged temperatures; however, as the surface temperature may not be dependent on the air temperature, melting is more likely to be as a result of direct sunlight.
- Traffic congestion leading to delays on motorways or trunk roads has potentially serious consequences for those stranded in vehicles, particularly vulnerable people such as the elderly or young children.
- The rail network will be susceptible to rails warping or buckling under extreme or prolonged temperatures and this will vary according to specific local factors including local geography and the maintenance status of the track. As a very approximate guide, staged preventative measures begin to be applied when air temperatures reach 22°C. The most extreme precautions would only cut in at air temperatures of 36°C (which is likely to give a railhead temperature of over 50°C).

- Extreme temperatures on the London Underground network could lead to a range of health and safety challenges. London Underground network operations monitor Met Office weather forecasts, and if temperatures are forecast not to fall below 24°C for three days running they will get ready to implement plans to deploy hot weather notices and bottled water supply, as well as measures to prevent track buckling.

### **Power supplies**

- At a time when energy companies traditionally maintain power stations for the winter by standing units down over the summer, rising temperatures increase the demand for supply due to the use of air-conditioning units and reduce the power-carrying capacity of the system, as it is harder to cool conductors – this will restrict the ‘maintenance window’ available and could ultimately require greater redundancy on the system to permit maintenance.
- Rising temperatures cause cooling problems for power stations as they are unable to cool components. This effect has been experienced in France, but not yet to a serious extent in the UK.
- High air temperatures are more of a problem and nuclear reactors can trip out at above 40°C, although this has never yet been reached at any site (38°C being the record).
- Rising temperatures lower power station efficiency. This effect is of lower concern than the two effects above.

### **Environmental pollution**

- Air quality – smogs typically accompany heatwaves as these often occur during periods of limited dispersion and/or easterly continental air masses arriving in the UK. As a result pollutants are less well spread or added to a higher background concentration which can lead to high concentrations of nitrogen dioxide and particulate matter. Heatwave conditions often lead to increased ozone levels following interactions of other pollutants with sunlight.
- Water quality – prolonged sunshine can accelerate the growth of blue-green algae, which can cause problems for aquatic life, including fish, as well as toxic algal blooms, causing problems for public recreational water activities.
- A prolonged heatwave may cause increased health and environmental problems including odour, dust and vermin infestation, increasing public nuisance and complaint. Additional measures would be necessary to mitigate these problems, including more frequent refuse collections and enhanced pollution control measures at landfills and other waste treatment facilities.

## The potential for wildfires

A wildfire is any uncontrolled fire that occurs in the countryside or a wilderness area. Wildfires occur when the necessary elements for a fire are in place: an ignition source, a combustible material such as vegetation, sufficient heat and an adequate supply of oxygen. Many wildfires are attributed to human sources such as arson, discarded cigarettes, sparks from equipment, and power line arcs. The risks during a heatwave can be greater because the vegetation will be that much drier than usual. The smoke and other risks from wildfire can cause the closure of motorways and contributes to local and regional air pollution.

For more information please see the HPA website on response to wildfires:

[http://www.hpa.org.uk/Topics/EmergencyResponse/  
ExtremeWeatherEventsAndNaturalDisasters/](http://www.hpa.org.uk/Topics/EmergencyResponse/ExtremeWeatherEventsAndNaturalDisasters/)

## Animal welfare

- Rising temperatures would require the increase of ventilation requirements for animals temporarily housed at farms, markets and slaughterhouses.
- Rising temperatures lead to changes in transport, markets and temporarily housed animal stocking densities.
- Delays on transport have the potential to lead to increased distress and suffering of animals and increase the number of deaths of animals in transit.
- Slaughterhouses' killing throughput may be affected due to reduced working hours at slaughterhouses and the transport of a lower number of animals.
- There is the potential for an increase in the number of pet fatalities due to irresponsible owners leaving them in restricted enclosures with poor ventilation (eg dogs in cars).

## Water shortages

- Water companies have plans in place to deal with failure in the supply of mains water or sewerage services. These plans are regularly reviewed and tested by the water companies and are independently certified every year.
- In the event of a reduced mains supply, water companies would introduce water saving measures such as reducing water pressure or limiting 24/7 supply. In the event of a loss of mains supply, water companies are required to supply water by alternative means, such as in static tanks or bottled water. There is a requirement to provide not less than 10 litres per person per day, with special attention given to the needs of vulnerable people, hospitals and schools.
- Where an interruption to the piped water supply exceeds five days, the minimum requirement rises to 20 litres per person per day.

- Strong demand during a heatwave has the potential to jeopardise the availability of water supplies, particularly in southern and some other parts of the UK, and could lead to local hose-pipe restrictions if high temperatures persist.

### **Children's sector**

Some schools have had to close classrooms where conditions are too hot. Please refer to: Looking after schoolchildren and those in early years settings during heatwaves: Guidance for teachers and other professionals ([www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1210577610802?p=1204031509010](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1210577610802?p=1204031509010))

### **Crops**

- Horticulture is very sensitive to rising temperatures, as crops start to experience stress due to heat and water shortage, and will die if prolonged.
- Crops may not be harvested at appropriate times and may be lost or quality and nutritional value may be reduced.
- High temperatures may mean crops cannot be sown at appropriate times or need more water.
- Flowering and pollination may be affected, reducing fruit and grains.
- It may become difficult to store crops such as potatoes at the appropriate temperature as machinery has to work harder.

## Section 7

### Monitoring and surveillance

#### 7.1 Role of the Health Protection Agency (HPA)

The **Health Protection Agency (HPA)**, in collaboration with other agencies provides both information on mortality and morbidity due to heatwaves. Much of this is given in 'real-time' to provide agencies with a source of intelligence on how health is affected by a spell of hot weather. Detailed notes about the role of the HPA and the frequency of outputs at each heatwave level are given in the companion document to the Heatwave Plan, **'Making the Case: The impact of heat on health – now and in the future'**.

#### 7.2 Evaluation

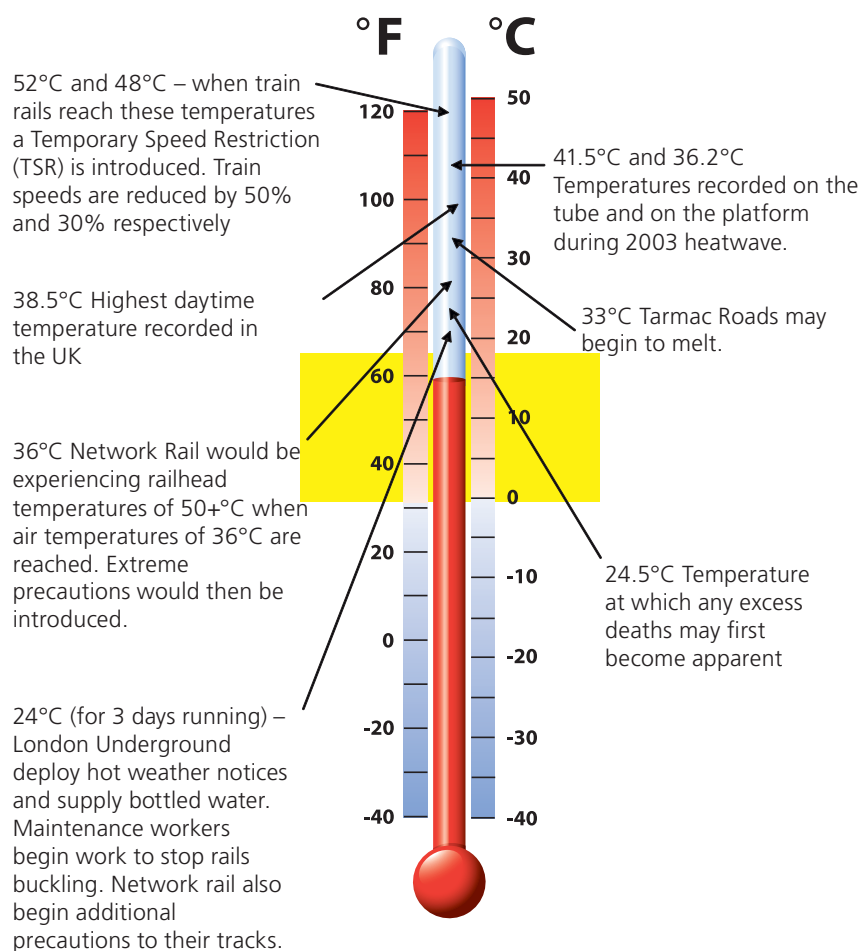
The HPA will work together with the DH to prepare the annual review of the Heatwave Plan which takes place each autumn/winter

From April 2013 it is anticipated that Public Health England (PHE) will prepare, evaluate and monitor the Heatwave Plan on behalf of the Department of Health. The role of the HPA will be amalgamated within the wider work of PHE but there will be a strong focus within the new organisation to deal with the response and planning for the effects of extreme climatic events.

## Annex 1: Key trigger temperatures

Figure 3 summarises the key trigger temperatures during a heatwave. Although excess seasonal deaths start to occur at approximately 25°C, for practical reasons the health heatwave alert system is based upon temperature thresholds where the odds ratio is above 1.15–1.2 (a 15–20% increased risk). The different trigger temperatures for local areas are summarised below with regional variations due to the relative adaptation to heat. However, a significant proportion of excess summer deaths occur before the health heatwave alert is triggered, which emphasises the importance of long-term planning actions by local authorities and the health sector.

**Figure 3. Trigger temperatures**



## Local Threshold temperatures

Threshold day and night temperatures defined by the Met Office National Severe Weather Warning Service (NSWWS) region are set out below.

Temperatures are in degrees centigrade.

NSWWS Region	Day	Night
London	32	18
South East	31	16
South West	30	15
Eastern	30	15
West Midlands	30	15
East Midlands	30	15
North West	30	15
Yorkshire and Humber	29	15
North East	28	15

## Annex 2: Public Health Core messages

These are the core messages to be broadcast as official Department of Health warnings alongside national and regional weather forecasts. They may be expanded or otherwise refined in discussion with broadcasters and weather presenters.

### Level 1: Summer preparedness and long-term planning

No warning required unless there is a 60 per cent probability of the situation reaching Level 2 somewhere in the UK within the next three days, then something along the lines of:

**“If this does turn out to be a heatwave, we’ll try to give you as much warning as possible. But in the meantime, if you are worried about what to do, either for yourself or somebody you know who you think might be at risk, for advice go to NHS Direct Online at [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk). Alternatively ring NHS Direct on 0845 4647.”**

### Level 2: Alert and readiness

The Met Office, in conjunction with the Department of Health, is issuing the following heatwave warning for [regions identified]:

**“Heatwaves can be dangerous, especially for the very young or very old or those with chronic disease. Advice on how to reduce the risk either for yourself or somebody you know can be obtained from NHS Direct Online at [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk) or on 0845 4647, or from your local chemist.”**

### Level 3 and 4: Heatwave action/Emergency

The Met Office, in conjunction with the Department of Health, is issuing the following heatwave advice for [regions identified]:

**“Stay out of the sun. Keep your home as cool as possible – shading windows and shutting them during the day may help. Open them when it is cooler at night. Keep drinking fluids. If there’s anybody you know, for example an older person living on their own, who might be at special risk, make sure they know what to do.”**



## Annex 3: Heatwave Advice and Mass Gatherings

The attached list provides a quick heat-health checklist that can be used when planning large scale public events (mass gatherings). This should be used in conjunction with other more detailed planning advice (eg Health and Safety Executive's: *'Events Safety Guide'* – <http://www.hse.gov.uk/event-safety/index.htm>)

Heat-health risk	Actions to consider
Increased exposure to heat	<ul style="list-style-type: none"> <li>• Provide temporary shaded areas at event locations (umbrellas, tents)</li> <li>• Reduce the need to queue (efficient check in, additional staffing, or staggered ticket entry)</li> <li>• Provide a water spray/mist area/spraying (showers, garden hose)</li> <li>• Make available a map of local public air-conditioned spaces where people can have respite from the heat (consider extending opening hours of these venues)</li> <li>• Divert strenuous activities for cooler days or cooler periods of the day and provide an alternative, less strenuous program for hot days</li> </ul>
Communication barriers	<ul style="list-style-type: none"> <li>• Prepare advice for tourists and distribute around hotels, money exchanges and transport hubs</li> <li>• Produce and distribute heat-health advice printed onto free fans or caps (can be used to fan/protect against sun whilst containing information on protecting against and recognising heat-related illnesses, and provide emergency phone number in case of identified heat related illness)</li> <li>• Inform your audience and/or your members about the health risks and possible preventive measures through digital screens/speakers/ announcements</li> </ul>
Reduced access to water	<ul style="list-style-type: none"> <li>• Distribute water bottles or temporary water dispensers</li> <li>• Ensure an adequate supply of drinking water. On hot days it is advisable to provide free drinking water</li> </ul>

<b>Severe heat emergency</b>	<ul style="list-style-type: none"> <li>• Consider moving date, location or cancel event in extreme heat alert (especially at a Level 4 alert)</li> <li>• Ensure adequate immediate relief for people in emergency and ensure their transport to the first aid/health unit</li> </ul>
<b>Medical needs</b>	<ul style="list-style-type: none"> <li>• Remember that people with asthma, heart disease and/or other additional chronic conditions are additionally health sensitive to ozone and/or heat</li> <li>• Keep in mind that alcohol and some (prescription) drugs can worsen effect of heat</li> <li>• Ensure adequately trained personnel who notify authorities as soon as there are incidences of heat illness observed</li> </ul>
<b>Food needs</b>	<ul style="list-style-type: none"> <li>• Provide water-rich foods such as salads; yogurt and ensure that food is kept cool to prevent contamination</li> </ul>

Adapted using best practice advice from:

1. Lowe D, Ebi K, Forsberg B *Heatwave Early Warning Systems and Adaptation Advice to Reduce Human Health Consequences of Heatwaves*. *Int. J. Environ. Res. Public Health* **2011**, *8*, 4623-4648
2. Plan Nacional de Actuaciones Preventivas de los Efectos del Exceso de temperaturas Sobre la Salud (Spain).
3. Plano De Contingência Para Ondas De Calor (Portugal). Available online: <http://www.dgs.pt/upload/membro.id/ficheiros/i010993.pdf>
4. Dianne Lowe (Personal Communication)
5. Outputs from Discussions at Heatwave Seminar 2012: <http://www.hpa.org.uk/Topics/EmergencyResponse/ExtremeWeatherEventsAndNaturalDisasters/Heatwaves/>

## Acknowledgements

We particularly wish to acknowledge the work of the Steering Group\* and advice of the wider Reference Group in helping us prepare the Heatwave Plan:

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Mervyn Kohler, Age UK

Patrick Sachon, Met Office

Rob Hitchen, DEFRA

Steven Barnes, Cabinet Office

Tim Young, DH (NHS Operations)

We would also like to acknowledge the many individuals and organisations that have also kindly offered their advice and support in developing the Plan. In particular, we would like to acknowledge the strong support given to the publication of this plan by Anh Tran, Claire Williams and Philip Gardiner at the Department of Health, Dr Simon Stockley, Dianne Lowe and all colleagues who participated the Heatwave Seminar held in 2012.

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Severe heat is dangerous to everyone. During a heatwave, when temperatures remain abnormally high over more than a couple of days, it can prove fatal, particularly among certain at-risk groups. In one hot spell in London in August 2003, deaths among people aged over 75 rose by 60 per cent.



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2900040 May 2012

First published July 2004  
Produced by Williams Lea for the Department of Health

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