Royal United Hospital

Heatwave Guidance

Version 1, May 2013
1. Introduction

A Heatwave is described as a period of abnormally high ambient temperature lasting for a couple of days or more. 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. Climate change means heatwaves are likely to become more common in England. In one hot spell in London in August 2003, deaths among people aged over 75 rose by 60%. There were approximately 300 excess summer deaths; the majority of these deaths occurred in the over 75 year olds. The Climate Change Act 2008 now make it a requirement for all statutory sectors, including the health sector, to have robust adaptation plans in place to manage Heatwave situations.

1.1 The Heat-Health Watch system

A heat-health watch system will be in operation 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. The Heat-Health Watch system now comprises five main levels (Levels 0-4), from long-term planning for severe heat, through 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 2013, and in this document.

Figure 1. Heatwave Alert Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Long-term planning</th>
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<tbody>
<tr>
<td>Level 0</td>
<td>All year</td>
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</table>
| Level 1| Heatwave and Summer preparedness programme  
          1 June – 15 September |
| Level 2| Heatwave is forecast – Alert and readiness  
          60% risk of heatwave in the next 2–3 days |
| Level 3| Heatwave Action  
          Temperature reached in one or more Met Office National Severe Weather Warning Service regions |
| Level 4| Major incident – Emergency response  
          Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health |

NB: In the Southwest, the trigger temperatures for Level 2 and above are 30ºC during the day and 15ºC overnight.

At the RUH, Key staff are signed up to receive Heatwave alerts, contact emails are updated annually before the Heatwave season (1st June- 15th September) and held by Public Health England and the Dept. of Health. Updates should be sent to Summer_Heatwave_Alerts@dh.gsi.gov.uk.
Figure 2. Notification route for Heatwave alerts
2. Trust Activity at Heatwave Alert Levels 1-4

**Level 1: Summer preparedness and long term planning**
During the summer months, the Trust needs to ensure that awareness and background preparedness are maintained by 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. Changes to the built environment should introduce ways to cool buildings and make them more energy efficient.

**Level 2: Alert and readiness**
This is triggered as soon as the Met Office forecasts that there is a 60% 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 death 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 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 level 4 is made at a national level and will be taken in light of a cross-Government assessment of weather conditions, coordinated by the Cabinet Office.
3. Health Guidance for practitioners during a Heatwave

There are a number of key messages for the care and protection of patients, staff and visitors during a heatwave. Heatwave conditions can result in the following illnesses:

- **Heat cramps** – caused by dehydration and loss of electrolytes, often following exercise
- **Heat rash** – small, red, itchy papules
- **Heat oedema** – mainly in the ankle, due to vasodilation and retention of fluid
- **Heat syncope** - dizziness and fainting, due to dehydration, vasodilatation, cardiovascular disease and certain medications
- **Heat exhaustion** – is more common. It occurs as a result of water or sodium depletion, with non-specific features of malaise, vomiting and circulatory collapse, and is present when the core temperature is between 37°C and 40°C. Left untreated, heat exhaustion may evolve into heatstroke.
- **Heatstroke** – can become a point of no return whereby the body’s thermoregulation mechanism fails. This leads to a medical emergency, with symptoms of confusion; disorientation; convulsions; unconsciousness; hot dry skin; and core body temperature exceeding 40°C for between 45 minutes and 8 hours. It can result in cell death, organ failure, brain damage or death. Heatstroke can be either classical or exertional (e.g. in athletes).

**Figure 2. Medications that can provoke or exacerbate the effects of heatstroke**

| Those causing dehydration or electrolyte imbalance | Diuretics, especially loop diuretics  
Any drug that causes diarrhea or vomiting  
(calcitriol, antibiotics, codeine) |
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<tbody>
<tr>
<td>Those likely to reduce renal function</td>
<td>NSAIDS, sulphonamides, indinavir, cyclosporin</td>
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<tr>
<td>Those with levels affected by dehydration</td>
<td>Lithium, digoxin, anti-epileptics, biguanides, statins</td>
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<tr>
<td>Those that interfere with thermoregulation: by central action</td>
<td>Neuroleptics, serotonergic agonists</td>
</tr>
<tr>
<td></td>
<td>by interfering with sweating</td>
</tr>
</tbody>
</table>
| Anticholinergics – atropine, hyoscine  
– tricyclics  
– H1 (first generation) antihistamines  
– certain antipsychotic drugs  
– certain antispasmodics  
– neuroleptics  
– disopyramide  
– antimigraine agents |
| Vasoconstrictors |  |
| Those reducing – beta blockers  
cardiac output – diuretics |
| by modifying basal metabolic rate | Thyroxine |
| Drugs that exacerbate the effects of heat | All antihypertensives  
Antihypertensives |
| by reducing arterial pressure |  |
| Drugs that alter states of alertness (including those in section 4 (Central Nervous System) of the British National Formulary): particularly 4.1 (Hypnotics and Anxiolytics) and 4.7 (Analgesics). |
3.1 At-risk Groups

In moderate heatwave conditions it is mainly high-risk groups noted below who are affected. However, during extreme heatwave conditions normally fit and healthy people can also be affected. There are certain factors that increase an individual’s risk during a heatwave. These include:

- **Older age**: especially those over 75 years old, or those living on their own and who are socially isolated, or in a care home.
- **Chronic and severe illness**: including heart conditions, diabetes, respiratory or renal insufficiency, Parkinson’s disease or severe mental illness. Medications that potentially affect renal function, sweating, thermoregulation or electrolyte balance can make this group more vulnerable to the effects of heat.
- **Inability to adapt behaviour to keep cool**: having Alzheimer’s, a disability, being bed bound, too much alcohol, babies and the very young.
- **Environmental factors and overexposure**: living in a top floor flat, being homeless, activities or jobs that are in hot places or outdoors and include high levels of physical exertion.
- Some medications make the skin especially sensitive in sunlight.

3.2 Advice for Keeping Cool

The body normally cools itself using four mechanisms:

- Radiation in the form of infrared rays
- Convection via water or air crossing the skin
- Conduction by a cooler object being in contact with the skin
- Evaporation of sweat

Ways to reduce the effects of excessive heat:

- Keep out of the sun between 11am and 3pm
- Wear loose fitting clothing
- Ensure patients have light cotton bedding
- Ensure windows are opened to their fullest extent
- Keep wards and bed spaces shaded where practicable
- Take a cool shower, bath or body wash. Sprinkle water over skin or clothing
- Drink plenty of cold fluids, avoid caffeine and hot drinks
- Offer cold foods particularly salads and fruit with high water content
- Turn on air conditioning/fans if available
- Ensure alternative fluids are prescribed and administered appropriately for those unable to drink e.g. IV, NG
- Maintain accurate fluid balance charts for those at risk of dehydration
- Ensure that you identify those patients with chronic illnesses as described above
- Ensure there are ward thermometers
4. Divisional/ Departmental Roles and Responsibilities at Heatwave Alert Levels 1-4

Alert Level 1:
The primary level of responsibility of the Divisions/Departments at this stage is to raise awareness amongst staff about the health problems related to a heatwave and the steps that can be taken to reduce this risk. In addition the Heatwave plan for England states a number of actions that the Trust must take at this stage of preparedness:

- Indoor thermometers should be installed in areas that are responsible for looking after vulnerable people.
- During a heatwave thermometers should be monitored at least four times a day.
- Temperatures throughout the hospital must not exceed 26°C
- Cool areas and cool rooms must be identified with a constant temperature of less than 26°C particularly for high-risk patients
- Sufficient staff should be available in the event of a heatwave
- The Trust must consider shading, insulating and ‘greening’ the environment
- The Resilience Manager is the nominated person for receiving and communicating heatwave emergency information.
- The Resilience Manager works with partner organisations to ensure heatwave planning is in place and that the Trust’s Business Continuity Plan is updated.
- The Trust’s Communications Team will issue press releases to update the media and public on the Hospital’s preparedness for dealing with heatwave situations.

Alert Level 2:
- Ensure cool rooms/areas have been identified and ready to receive patients
- Ensure that thermometers are in place and procedures established to check and record temperatures at least four times a day
- Identify naturally cooler rooms which can be used if necessary
- Identify particularly vulnerable individuals who may be prioritised for time in a cool room
- Obtain and ensure that sufficient supplies of ice/cool water are available
- Examine staffing and ensure that staffing levels are sufficient to cover the anticipated heatwave period
- Reiterate messages on risk and protective measures to staff
- Continue with level 1 responsibilities

Alert Level 3:
- Implement appropriate protective factors, including regular supplies and assistance with cold drinks
- Ensure cool rooms are consistently below 26°C as this is the temperature threshold at which many vulnerable patients find it difficult to cool themselves
- Check that indoor temperatures are recorded four times a day for all patient areas
- Identify particularly vulnerable individuals 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
- 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
- Use cross ventilation to cool but staff should be aware of the potential for cross infection
- Continue with Level 1 and 2 responsibilities
Alert Level 4:
It is possible that a major incident may be declared at this level. In the event of a major incident being declared, all existing emergency procedures will apply in addition to the Alert levels 1-3 guidance above.
5. Trust Management Roles and Responsibilities at Heatwave Alert Levels 1-4

Level 1:
- Currently in the RUH some wards and departments have a thermometer available to monitor temperature. It is the individual ward/department manager’s responsibility to purchase a thermometer, ensure it is correctly calibrated and to perform readings at the required intervals. See Appendix 2 (Temperature recording template) taken from Appendix 3 of the Trust Business Continuity plan.
- Within each ward/department area the manager must identify an area that can be cooled sufficiently to less than 26°C. If no such area is available than ward managers are tasked with identifying particularly vulnerable patients and providing bedside cooling for such patients e.g. with the use of fans.
- In areas that cannot be sufficiently cooled e.g. Labs alternative strategies must be sought. Security presence will need to be increased to enable windows to be left open overnight to ensure adequate cooling of the environment.
- Patient areas that are known to be hotter than other parts of the hospital will be prioritised for allocation of fans. The ward manager/nurse in charge must identify particularly vulnerable patients to the site manager to be moved (where possible and clinically appropriate) to alternative cooler areas, e.g. top floor OPU wards.
- All heatwave communication must be via the Resilience Manager.
- All planned development within the hospital site will take into account the need for cooling, reducing climate change, reducing the carbon footprint and increasing the greenness of the environment.
- The Trust’s Communications team will ensure that information is cascaded to the public in line with the organisation’s responsibilities to warn and inform the public.

Level 2:
- Every ward within the Trust has mains drinking water access and most departments have either mains drinking water access or water fountains. In the event of an ongoing heatwave additional supplies of drinking water will be purchased in vac packs from NHS Logistics to supplement supplies.
- The pharmacy stores have sufficient crystalloid fluids available to allow for a 2x increase in consumption of IV fluids for one week. Delivery time for IV fluids is approx 72 hrs, if a heatwave is anticipated Pharmacy stores will give consideration to the volume of fluids in stock and the ordering of further supplies.
- Ward Managers allocate staffing 6 weeks in advance and work in close liaison with senior nurses and staffing solutions.
- Alert level 1 responsibilities continue

Level 3:
- The Trust will liaise closely with partner organisations such as the LAs and CCGs to ensure that all patients are safely discharged and able to manage self care in respect of the heatwave. All patients should be given the leaflet “Looking after yourself and others during hot weather” on discharge from the hospital during a heatwave. This can be downloaded from:

Level 4:
- National alert level – the Trust will respond using heatwave and other plans e.g. Critical Incident Plan/Major Incident Plan
## Appendix 1. Providers – health and social care staff in all settings (community, hospitals and care homes)

<table>
<thead>
<tr>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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<tbody>
<tr>
<td><strong>Long-term planning</strong>&lt;br&gt;All year&lt;br&gt;See accompanying document ‘Making the Case’ for more detail</td>
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<td><strong>Heatwave is forecast – Alert and readiness</strong>&lt;br&gt;60% risk of heatwave in the next 2–3 days</td>
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### Professional Staff (all settings):
- Develop systems to identify and improve resilience of high-risk individuals
- Request an HSSRS assessment from EH for clients at particular risk.
- Encourage cycling/walking where possible to reduce heat levels and poor air quality in urban areas.

### Care Homes and Hospitals
- Work with commissioners to develop longer term plans to prepare for heatwaves
- Make environmental improvements to provide a safe environment for clients in the event of a heatwave
- Prepare business continuity plans to cover the event of a heatwave (e.g. storage of medicines, computer resilience, etc.)
- Work with partners and staff to raise awareness of the impacts of severe heat and on risk reduction awareness (key public health messages – box 1)

### Care Homes and Hospitals
- Ensure business continuity plans are in place and implemented as required; ensure appropriate contact details are provided to LANHSS emergency planning officers to facilitate transfer of emergency information
- Identity or create cool rooms/areas (able to be maintained below 26°C)
- Install thermostats where vulnerable individuals spend substantial time

### Professional Staff (all settings):
- Identify high-risk individuals on your caseload and raise awareness of heat illnesses and their prevention among clients and carers (see key public health messages – box 1)
- Include risk in care records and consider whether changes might be necessary to care plans in the event of a heatwave (e.g. initiating daily visits by formal or informal care givers for those living alone)

### Care Homes and Hospitals
- Check indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside
- Ensure cool areas are below 26°C
- Review and prioritise high-risk people
- Ensure sufficient cold water and ice
- Consider weighing clients regularly to identify dehydration and rescheduling physio to cooler hours
- Communicate alerts to staff and make sure that they are aware of healthcare plans
- Ensure sufficient staffing
- Implement business continuity

### Professional Staff (all settings):
- Visit/phone high-risk people
- Reconfirm key public health messages to clients
- Advise carers to contact Gp if concerned re health

### Care Homes and Hospitals
- Activate plans to maintain business continuity – including a possible surge in demand
- Check indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside
- Ensure staff can help and advise clients including access to cool rooms, close monitoring of vulnerable individuals, reducing indoor temperatures through shading, turning off unnecessary lights/equipment, cooling building at night, ensuring discharge planning takes home temperatures and support into account

### High-risk Groups

**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 (hospitals).

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*Because Level 2 is based on a prediction, there may be jumps between levels. Following Level 3, wait until temperatures cool to Level 1 before stopping Level 3 actions.*

**Level 4:** A decision to issue a Level 4 alert at national level will be taken in light of a cross-government assessment of the weather conditions, co-ordinated by the Civil Contingencies Secretariat
Appendix 2. Temperature Recording Template

<table>
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<th>Ward/Department Name:</th>
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<table>
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<th>Temperature °C</th>
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