



Llywodraeth Cymru
Welsh Government

www.cymru.gov.uk

heatwave[☀]

Caring for Patients
Before and During a Heatwave
Advice for care home managers and staff

Extreme heat is dangerous to everyone, ESPECIALLY OLDER PEOPLE, AND ESPECIALLY THOSE LIVING IN CARE HOMES. During a heatwave, when temperatures remain abnormally high for longer than a couple of days, it can prove fatal and climate change means that heatwaves are likely to become more common in England and Wales. In one hot nine-day period in south-east England in August 2003, there were nearly 2,000 extra deaths. The biggest increase in risk of death was among those in care homes.

This factsheet has been updated with the latest information from an English evaluation of previous heatwaves and from the World Health Organization's EuroHEAT study. It is part of a national programme to reduce the health risks by advising people what to do in the event of a heatwave, before it happens.

You should be reading this if you work in or manage a care home, where people are especially at risk during a heatwave. You are strongly urged to make the preparations in this factsheet **before** a heatwave is forecast. The effects of heat occur rapidly, and to be effective preparatory action has to be taken **before the beginning of June** (see Advance preparations on page 5).

What are the risks? The effects of heat on health

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; and
- **evaporation** of sweat.

When the ambient temperature is higher than skin temperature, the only effective heat-loss mechanism is sweating. Therefore, any factor that reduces the effectiveness of sweating such as dehydration, lack of breeze, tight-fitting clothes or certain medications can cause the body to overheat. Additionally, thermoregulation, which is controlled by the hypothalamus, can be impaired in the elderly and the chronically ill, and potentially in those taking certain medications, rendering the body more vulnerable to overheating. Older women appear to be more vulnerable to the effects of heat than older men, possibly due to having fewer sweat glands and being more likely to live on their own.

The box on page 4 describes the effects of overheating on the body, which in the form of heatstroke can be fatal.

However, the main causes of illness and death during a heatwave are respiratory and cardiovascular diseases. A linear relationship between temperature and weekly mortality was observed in England in summer 2006, with an estimated 75 extra deaths per week for each degree of increase in temperature. Part of this rise in mortality may be attributable to air pollution, which makes respiratory symptoms worse. The other main contributor is the effect of heat on the cardiovascular system. In order to keep cool, large quantities of extra blood are circulated to the skin. This causes strain on the heart, which for elderly people and those with chronic health problems can be enough to precipitate a cardiac event.

Sweating and dehydration affect electrolyte balance. For people on medications that control electrolyte balance or cardiac function, this can also be a risk. Medicines that affect the ability to sweat, thermoregulation or electrolyte imbalance can make a person more vulnerable to the effects of heat. Such medicines include anticholinergics, vasoconstrictors, antihistamines, drugs that reduce renal function, diuretics, psychoactive drugs and antihypertensives.

The main cause of illness and death during a heatwave are respiratory and cardiovascular diseases. Additionally, there are specific heat-related illnesses including those in the following table:

Heat-related illnesses

- **Heat cramps** - caused by dehydration and loss of electrolytes, often following exercise.
- **Heat rash** - small, red, itchy papules.
- **Heat oedema** - mainly in the ankles, due to vasodilation and retention of fluid.
- **Heat syncope** - dizziness and fainting, due to dehydration, vasodilation, 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 eight hours. It can result in cell death, organ failure, brain damage or death. Heatstroke can be either classical or exertional (e.g. in athletes).

Whatever the underlying cause of heat-related symptoms, the treatment is always the same - move the person to somewhere cooler and cool them down.

Advance preparations

You may like to draw up a checklist based on the actions below, to complete by the end of May each year.

The building and surroundings

- Check that windows can be shaded, preferably by curtains rather than by metal venetian blinds, which can make conditions worse. If these are fitted, check that they can be raised.
- Check that there are no problems opening windows while acknowledging security considerations.
- Increase outside shading, in the form of shutters, shades, trees or leafy plants. Reflective paint can also assist in keeping the building cool. Increase outside greenery, especially in concreted areas, as it increases moisture content and aids cooling as a natural air conditioner.
- Cavity walls and loft insulation help to keep the building warm in winter and cooler in the summer. Contact your local authority's energy efficiency officer or your energy company to see what grants are available.
- Cool areas can be developed with appropriate indoor and outdoor shading, ventilation, the use of indoor and outdoor plants and, if necessary, air-conditioning.
- Ensure that staff know which rooms are the easiest to keep cool and which are the most difficult, and review the distribution of residents according to those most at risk.
- Create cool rooms or cool areas. High-risk groups that 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 at 26°C or below.
- Indoor thermometers should be installed in each room in which vulnerable individuals spend substantial time (bedrooms, living, and eating areas) and, during a heatwave, indoor temperatures should be monitored at least four times a day.
- If temperatures exceed 26°C, high-risk individuals should be moved to a cool area that is 26°C or below.

Facilities

- Check that you have an adequate supply of fans and water sprays.
- Check that water and ice are widely available. Ensure that you have a supply of oral rehydration salts, orange juice and bananas to help maintain electrolyte balance for those on diuretics.
- Arrange for cold drinks to be distributed regularly in the event of a heatwave.
- Plan to adapt menus to cold meals (preferably with a high water content, like fruit and salads) in consultation with residents.

Working arrangements

Work out a protocol for changes to management arrangements in the event of a heatwave, to cover:

- mobilisation of staff, including recalling those on holiday;
- changes to rotas;
- getting extra help from relatives of residents;
- getting extra help from volunteers;
- providing an email address to local authority/NHS emergency planning officers, to facilitate the transfer of emergency information.

Residents

- Make sure you know who is most at risk (see Additional notes on page 9) - ask primary care staff if you are unsure.
- Ensure that you have protocols to monitor residents most at risk and to provide additional care and support (body temperature, pulse rate, blood pressure and dehydration will need to be monitored).
- Ask the GPs of at-risk residents about possible changes in treatment or medication in the event of a heatwave and review residents on multiple medications.
- Check that residents have light, loose-fitting, cotton clothing to wear.

If a heatwave is forecast for your region

- Make sure you have taken the steps outlined above.
- Check local weather forecasts, www.metoffice.gov.uk.
- Check that staff, and others such as volunteers, know what to do during a heatwave.
- Suggest that all residents consult their GP about possible changes to their treatment and/or medication; consider prescribing oral rehydration salts for those on high doses of diuretics.

During a heatwave

Try to keep the care home as cool as possible

- Increase outside shading. Spraying water on the ground outside helps to cool the air (avoid creating slip hazards).
- Keep curtains and windows closed while the temperature outside is higher than it is inside.
- Once the temperature outside has dropped lower than the temperature inside, open the windows. This may not be until very late at night or the early hours of the morning.
- Discourage residents from physical activity and going out during the hottest part of the day (11.00am to 3.00pm).
- Monitor temperatures inside the building at least four times a day.

Monitor residents

- Check body temperature, heart and breathing rates, blood pressure and hydration levels.
- Watch for any changes in behaviour, especially excessive drowsiness.
- Watch for signs of headache, unusual tiredness, weakness, giddiness, disorientation or sleeping problems.

Reduce the health risks of heat

- Encourage residents to remain in the coolest parts of the building as much as possible.
- Move residents so that each spends time in the cool room/area (below 26°C) - give priority and extra time to high-risk residents or any showing signs of distress (including increased body temperature).

- Monitor residents' fluid intake, providing regular cold drinks, particularly if they are not always able to drink unaided. Oral rehydration salts are suggested for those on high doses of diuretics. Bananas, orange juice and occasional salty snacks can also help replace lost salts due to sweating.
- Encourage them to eat more cold food, particularly salads and fruit which contain water (more information on hygienic storage and preparation of these foods can be found at <http://www.eatwell.gov.uk>).
- Encourage residents to wear light, loose-fitting, cotton clothes to absorb sweat and prevent skin irritation.
- Regularly sprinkle or spray cool water on exposed parts of the body. A damp cloth on the back of the neck helps with temperature regulation.
- Arrange cool showers or baths if possible.

Emergency treatment

If you suspect someone has heatstroke, call 999. While waiting for the ambulance:

- take the person's temperature;
- if possible, move them somewhere cooler;
- cool them down as quickly as possible by giving them a cool shower, sprinkling them with water or wrapping them in a damp sheet, and using a fan to create an air current;
- encourage them to drink fluids, if they are conscious; and
- do **not** give them aspirin or paracetamol.

Additional notes

At-risk groups include:

- older people, especially women over 75 years old, those living in a care home;
- those with 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; and
- those who are unable to adapt their behaviour to keep cool, including those with Alzheimer's, a disability, or who are bed bound.

Further information

Heatwave Plan for Wales

The *Heatwave Plan for Wales* can be accessed on the Welsh Government CMO website at <http://wales.gov.uk/docs/phhs/publications/120629heatwaveen.pdf>. It outlines the responsibilities of health and social care organisations at different stages during a heatwave.

NHS Direct Wales

NHS Direct Wales at www.nhsdirect.wales.nhs.uk (Tel: 0845 4647) can provide additional advice on heatstroke and other heat-related conditions.

Information on alert levels

The heatwave alert levels will be triggered by temperature thresholds (see Annex 1 in the Heatwave Plan for Wales) set according to regional variations. Therefore the Met Office website www.metoffice.gov.uk (Tel: 0870 900 0100) will be the first place to display these alert levels. The alert level will also subsequently be displayed on the Welsh Government, Public Health Wales and NHS Direct Wales websites.

Information on air quality

Regular updates on levels of particulate matter (PM10), sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide are available on Teletext (page 156), and at www.airquality.co.uk (UK Air Quality Archive), which also offers health advice to those who may be particularly sensitive to air pollution.

Advice to those with respiratory problems is consistent with the advice to all others during a heatwave - to keep windows shaded and closed when outside temperatures are hotter during the daytime to reduce heat (and ozone) entering the home; and opening windows at night or when it is cooler outside, to aid cooling of their home.

Ozone is the main air pollutant that affects respiratory symptoms and has a diurnal variation, peaking during the hottest period of the day and dropping to very low levels at night. Other air pollutants tend to be at lower levels indoors, and therefore the other main advice to those with respiratory problems is to restrict going outside, especially during the hottest period of the day.

Additional information on air quality can be found from:

- the freephone Air Pollution Information Service - telephone 0800 55 66 77
- Sky News Air Pollution bulletin - which normally airs in the evening around 18.45

Sun protection

You can get advice on skin protection during hot weather from the Cancer Research UK SunSmart campaign website at www.cancerresearchuk.org/sunsmart (Tel 020 7121 6699).

EuroHEAT Project and Heat-Health Action Plan Guidance

The EuroHEAT project, co-funded by the World Health Organization (WHO) and the European Commission, brought together experts from across Europe to share learning in developing national heatwave plans. For more information visit the WHO Euro weblink at:

www.euro.who.int/__data/assets/pdf_file/0009/95913/E92473.pdf.

First published July 2004
Updated June 2012
Produced by the Department of Health

Digital ISBN 978 0 7504 7738 3
© Crown copyright 2012
WG15915