

Safety Information Portal (SIP) - Issue Aug 2010

National Association for Safety and Health in Care Services

Hot Water – Risk of Scalding – What do I have to do?

Background.

High water temperatures can create a scalding risk to vulnerable people who use care services, including the elderly, those with reduced mental capacity, reduced mobility and anyone with sensory impairment, or who cannot react appropriately, or quickly enough, to prevent injury.

It can take only very short exposure to high temperatures to cause injury:

65°C a partial thickness burn in about 2 seconds.

60°C a partial thickness burn in about 5 seconds.

55°C a partial thickness burn in about 15 seconds.

50°C a partial thickness burn in about 90 seconds.

One of the main reasons given for maintaining high water temperatures (i.e. stored at 60°C or above and circulated at 50°C or above) is to control the growth of Legionella bacteria.

See SIPS Controlling risk of Legionella – What do I have to do?

Other reasons for having water at these temperatures include kitchen/laundry use, to cater for long pipe runs, or to ensure proper boiler operation.

The potential risks presented by whole body immersion in hot water to vulnerable service users are well known and publicised.

It has been suggested that the need to control legionella bacteria and the need to prevent/control the risk of scalding may be in conflict with each other.

Legal considerations.

- General requirements of Section 3 of the Health and Safety at Work Etc Act 1974.
- Risk assessment requirements of the Management of Health and Safety at Work Regulations (Reg. 3).
- The Provision and Use of Work Equipment Regulations 1998 (PUWER) also set out requirements for work equipment including suitability and maintenance, and instruction and training.
- Care Quality Commission – Essential Standards of Quality and Safety.
 - Outcome 4: Care and Welfare of People who use Services.
 - Outcome 10: Safety and Suitability of Premises.
 - Outcome 11: Safety, Availability, and Suitability of Equipment.

Managing the Risk.

A risk assessment must be carried out to determine the risk of scalding from hot water for all those considered vulnerable.

Questions to be asked may include:

- Can the person using the care service get in/out, sit up and/or wash themselves unaided?
- Is the person using the care service sensitivity to temperature impaired?
- Is the person using the care service mental state such that they can recognise a bath that is too hot?
- Is the person using the care service capable of summoning assistance if needed?
- Will any lifting or other aids limit the patient's mobility in the bath?
- Is the person using the care service liable to try and run a bath/add water when unattended?

The results of the risk assessment may be recorded on individual care plans of those using the care service.

Where the risk assessment warrants it, engineering controls should be provided that ensures:

- water is delivered to the **bath outlet** at no more than **44°C** or
- water is delivered to the **shower outlet** at no more than **41°C**
- water is prevented from being discharged at more than **44°C** from **basin taps**

One of the most effective engineering controls is the fitting of a thermostatic mixing valve (TMV) at, or close to, the hot water outlet.

TMVs work by mixing a controlled amount of cold water with the hot water and discharging the water at a set temperature.

They must be fitted as close to the outlet as possible to reduce the risk of legionella growth in that section of pipe work in which the cooler water flows.

NHS Estates Health Guidance Note (HGN)

'Safe' hot water and surface temperatures' 1998 edition

recommends how to meet employer's legal duty of care in respect of the risk of scalding and burning from hot water. It applies in all healthcare premises and those premises registered under the Registered Homes Act 1984. The guidance gives maximum hot water temperatures for a range of applications.

These are shown in the table below.

Bidet **38°C**
 Shower **41°C**
 Washbasin **44°C**
 Bath **44°C**

The guidance also specifies particular standards of thermostatic mixing valve (TMV) for different applications.

Care must be taken to choose the correct TMV for a particular application

– there is a certification scheme to help identify the different levels of service to be expected. The ones that are applicable to the Care Sector are **TMV2** and **TMV3**.

- If a thermostatic mixer valve is labeled as **TMV2** it certifies that the valve, usually for domestic properties, meets the requirements of BS EN 1111 and/or BS EN 1287 as well as various other standards.
- If a thermostatic mixer valve is labeled as **TMV3** it is certified as complying with the higher specification of D O8 (NHS specification). This valve is approved for use in situations where the user is less able to respond appropriately to the risks of very hot water. The valve will maintain water temperature stability at all times and will fail to safe – shutting off hot water immediately if the cold water supply fails.

It must be remembered that it is **not only the emerging hot water that is the problem** – the pipes, tanks, and radiators that carry hot water are also a risk to vulnerable people.

The risk posed by exposed pipe work, tanks, and un-guarded radiators must be assessed and control measures introduced; this is usually the enclosing of the pipe work or exposed surface.

Maintenance

It is particularly important that where thermostatic mixing valves (**TMVs**) are provided they are maintained to at least the standard recommended by the manufacturer. A documented maintenance schedule which takes into account local conditions (e.g. hard water) and the risk of valve failure, should be followed and recorded.

Training

Adequate training and supervision should be provided to ensure that staff involved in bathing people who use care services understand the risks and precautions. This will include, in particular, filling the bath before the person gets into it and monitoring the outlet temperature of the bath/shower water using a bath thermometer. If it is necessary to add hot water whilst the person using the care service is in the bath, this should be done slowly and the water should be tested as it is added.

Staff should be instructed that water in excess of **44 °C** coming from a basin or bath tap should be reported to a responsible person, and access to the bath concerned restricted until repairs to the thermostatic mixing valve have been carried out.

NASHiCS Interpretation

- **A risk assessment** must always be conducted to determine the risk of scalding from hot water. If appropriate, action must be taken to prevent scalding, often by fitting a **TMV**.
- **Appropriate action** must also be taken to prevent exposure to surfaces made hot by water at high temperatures.
- **Advice must be sought** as to the correct type, operating range, and location of the **TMV** to be fitted. **TMVs** must be maintained and used in accordance with manufacturers instructions.

- **Where thermostatic mixing valves are not fitted** it may be that other steps, such as locking bathroom doors or removal of the hot tap head, have been taken. Because such precautions rely solely on adherence to a safe system of work, and have failed in the past, these measures must only be used as short term measures, pending the fitting of thermostatic mixing valves.

There is no conflict between the prevention of legionella and the protection of vulnerable people from scalding.

Both are essential and can the risks can, and should, be minimised at all times.

Further information

This may be found at the following:-

The Chartered Institute of Plumbing & Heating Engineering
'Safe Hot Water Temperature'.

<http://www.ciphe.org.uk/Global/Databyte/Safe%20Hot%20Water.pdf>

Care Quality Commission 'Essential Standards of Quality and Safety' what providers should do to comply with the section 20 regulations of the Health and Social Care Act 2008.

http://www.cqc.org.uk/db/documents/Essential_standards_of_quality_and_safety_FINAL_081209.pdf

Modern Building Services 'Making hot water safe water'

[.http://www.modbs.co.uk/news/fullstory.php/aid/5096/Making_hot_water_safe_water.html](http://www.modbs.co.uk/news/fullstory.php/aid/5096/Making_hot_water_safe_water.html)

HSE publication 'Scalding risks from hot water in health and social care' SIM 7/2007/08.

<http://www.hse.gov.uk/foi/internalops/sectors/public/070708.htm>

HSE/Local Authorities Enforcement Liaison Committee (HELA) 'Scalding risks from hot water in health and social care'.

<http://www.hse.gov.uk/lau/lacs/79-5.htm>

Health and Safety Executive 'Balanced decision-making for people who use care services' SIM 07/2008/03.

<http://www.hse.gov.uk/foi/internalops/sectors/public/070803.htm> .

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