HSP 12 Water hygiene

Procedure Index

1. Introduction

This procedure identifies the safe management of water systems within the care home environment. It identifies how to manage and reduce risk from a number of potential waterborne pathogens (*Legionella, Pseudomonas & Stenotrophomonas*).

Legionella is a bacterium that lives in water and is responsible for Legionnaires disease. Problems arise when these micro-organism are allowed to multiply in water systems. Large buildings, such as care homes are more vulnerable to Legionella contamination because they have larger, more complex water supply systems in which the bacteria can quickly spread. Legionnaires disease results from the inhalation of fine water mist contaminated with *Legionella* bacteria. *Pseudomonas* is more opportunistic and can enter water systems via outlets within the building such as taps and shower heads and colonise the pipework.

2. What the Regulations require

There is a duty to consider the risks from *Legionella* and other water borne pathogens that may affect employee and residents in your care. A full risk assessment must be carried out on the hot and cold water systems and specific controls put in place to make conditions unsuitable for pathogen growth. Legionnaires disease is a reportable disease and all confirmed cases by a doctor must be notified to the Local Authority.

3. Assessing the risk - the Legionella & Water Safety Risk Assessment

Each home requires a documented *Legionella* Risk Assessment that reviews all parts of the home. It is recommended this is repeated every 2 years or if there has been significant change to the layout of the home. The risk assessment identifies the hazards and assesses the physical and managerial controls in place to reduce the *Legionella* risks to as low as reasonably practicable.

The Risk Assessment follows the standard format and is completed by an external consultancy. Copies of the latest risk assessment are stored on EFHL's intranet and as a hardcopy in the home.

The degree of microbial growth within the water system, depends on a number of interrelated factors – these include water temperature, the residence time within the system and availability of nutrients.

4. Temperature Control

The most common method of managing Legionella risk within the care home is through temperature control. The following temperatures should be achieved:

- Hot water storage should be kept above 60^{o}C.
- Circulated hot water should be kept above 55^{o}C.
- Stored and circulated cold water temperatures should be under 20^{o}C.

Maintaining the water at these temperatures will prevent growth of micro-organisms within the system.

Legionella : Little growth at under 20C, killed at temperatures above 50C.

Pseudomonas : Will grow down to 5C, killed at temperatures above 50C.

5. Water residence time

Keeping the water moving around the circulation system reduces opportunities for micro-organisms to multiply – it also reduces the effect of localised heating of the water. Areas of stagnation provide opportunities for micro-organism growth and should be identified and eliminated.

Dead–ends:
Defined as a length of pipe permanently closed at one end through which no water passes. These locations provide ideal areas for micro-organism to colonise and should be identified and the pipework cut back to the nearest live spur. Any length of pipe greater than 1.5 times the diameter of the pipe is considered a dead end.

Little used outlets:

These are outlets not in regular use such as outlets in empty resident rooms or a seldomly used sink. Rooms which are occupied but where residents do not use the showers are also classified as little used outlets and need to be regularly flushed.

The under use of taps encourages colonisation and growth of Pseudomonas, Legionella and other waterborne organisms.

Conventional showers of the mixer valve type are widely believed to be the single largest source of Legionnaires' disease when not in regular weekly use. Weekly flushing of these devices for several minutes at the highest temperature setting can significantly reduce the number of Legionella discharged from the outlet. Once started, this procedure has to be sustained and logged, as lapses can result in a critical increase in Legionella at the outlet.

6. Nutrients within the system

Legionella bacteria requires a source of nutrients if they are going to multiply. Typical nutrient sources within the water system are rust, scale, sediment and slime. Controlling and limiting nutrients within the water system will reduce opportunities for micro-organism growth.

Cold water storage cisterns

Cold water tanks should be clear from any debris, rust and silt. The tank should be insulated with a secure lid which prevents egress of contaminates. The cold water tanks should be cleaned and disinfected annually by an external contractor.

Hot water tanks (Calorifer)

Hot water tanks are susceptible to scale formation and build up of rust. Any build up of sludge provides additional nutrients for micro-organism growth and can create lower temperature areas within the tanks. It is recommended that the drain valves located at the bottom of the tank, are opened annually by a competent contractor and a record kept of the quality of water discharged. If there is an indication of sludge build-up, the tanks should be drained and cleaned.

Showers

Shower heads often have fine spray nozzles which become easily blocked by debris and limescale. If not cleaned regularly these can become ideal environments for micro-organism growth including *Legionella.*

Adjustable showerheads where flow can be adjusted by selecting different sets of nozzles (fine spray, pulsating flow etc) can create possible stagnation problems and lead to *Legionella*

growth. Where these units are present it is prudent to flush through all the different spray patterns. Any new showerheads purchased should be of the fixed spray pattern variety.

All showerheads should be dismantled, descaled and cleaned, quarterly. This includes kitchen spray washers.

Scaled taps

Limescale deposits on taps can provide an environment for both *Legionella* and *Pseudomonas* to grow and any deposits should be removed by a chemical limescale remover. Care should be taken not to damage coating of the taps.

Flexible hoses

Flexible hoses have an enhanced risk of harbouring *Legionella* bacteria and other harmful waterborne micro-organisms and should not be used within healthcare environments due to the plastic inner lining breaking down over time. For all new plumbing work hard copper tails should be installed. The exception to this is the flexible hoses used within the hair salon and on baths which need to be flexible. .

Flexible hoses or coil.

7. Risk of Scalding

High water temperatures can create a scalding risk to vulnerable people who cannot react appropriately or quickly enough to prevent injury. It only takes a very short exposure to high temperatures to cause injury. 50ºC will cause a partial thickness burn in about 90 seconds whereas a temperature of 65ºC will cause a burn in about 2 seconds. Therefore to protect against scalding residents thermostatic mixing valves (TMV's) are installed where appropriate.

Thermostatic Mixing Valves (TMV's)

Thermostatic mixing valves (TMV's) work by mixing a controlled amount of cold and hot water and discharging it at a set temperature. TMV's must be of TMV3 specification – these are designed to be pre-set and will fail to safe – shutting off hot water if the cold water supply fails.

Recommended temperatures are;

Outlets	**Temperature control**
Baths	TMV_3 set to 43ºC
Showers	TMV3 set to 41ºC
Washbasins	TMV3 set to 41ºC
Hair Salon	TMV3 set to 41ºC

A maximum of 44C should not be exceeded.

It is recommended that non handwashing outlets with no risk of resident scalding do not have TMVs installed (these include staff only showers, sluices, kitchen & laundry taps).

Water temperature which is not controlled within the home should be labelled with caution signage (as below).

Assisted Bathing & Showering

Where residents are subjected to whole body emersion, carers must test the water temperature with a thermometer before the resident is bathed to ensure it is under 44ºC. This should be recorded on the bathing sheet.

8. Operational checks

A number of checks / inspections are required to be completed within the care home.

Summary checklist for water systems

Check	Standard to meet	Frequency
Temperature of hot water storage cylinders	Hot water leaving cylinder >60ºC. Return water to cylinder >55ºC	Monthly
Temperature of hot water at nearest and furthest outlets (sentinel outlets)	Temperature should be >55ºC within a minute of running the water.[1]	Monthly
Temperature of residents outlets (washbasins, showers)	Temperature should be less than 44ºC to prevent scalding.[1]	Each outlet sampled twice a year.
Temperature of cold water tanks (inlet / tank stored)	Temperature should be less than 20ºC.[1]	Twice a year.
Hot water cylinder clean	Drain some water from base of cylinders and check for debris.(External contractor).	Annually
TMV valve service	TMV blending water under 44C. Shut off valve works and strainers cleaned.	Annually by external contractor
Cold water tank inspection & Clean	Cleanliness of tank, good fitting of lid and insulation. Disinfection of tank.	Annually by external contractor
Flush infrequently used outlets	Flush each outlet at hottest temperature for several minutes.	Weekly
Shower descale	Clean showerheads so they are free from scale.	Quarterly
Legionella sampling	Legionella bacteria levels should be typically less than 100cfu/litre.	Annually by external contractor

[1] Where water temperatures are outside recommended range, an attempt should be made to rectify and if unsuccessful the General Manager should be notified.

9. Modifications to water systems & Water Regulations

The Water Supply (Water Fittings) Regulations 1999 are designed to protect drinking water supplies from contamination and they document arrangements required to prevent backflow. Typically air gaps in tanks and discharge pipes and non return valves are installed to prevent backflow contamination. Equipment which typically has back-flow prevention are baths, potato rumblers, water softeners, ice machines and dishwashers. Shower hoses must be retained by a clip so they are unable to reach toilets or shower trays.

Under the Water Supply (Water Fittings) Regulations 1999 significant modifications to the hot and cold water distribution systems need to be notified to the water supply company prior to the installation commencing. This should be completed in liaison with Estates or Health & Safety Manager.

10. Legionella training

Individuals required to carry out control measures such as temperature checking or flushing should have received basic *Legionella* training.

11. Water Documentation

There are a number of associated documents that the care home needs to have available. Table below summarises this documentation. All records relating the control of *Legionella* and maintenance of water hygiene are required to be kept for 5 years.

Reference		Description of document	Location of document
HSP 12A	Water Log Book	The Log Book is a formal way to keep records for the home. It is a series of record keeping forms available in loose leaf format kept in the care homes water folder. It must be kept readily available for inspection. Within the Log Book there are a number of associated forms.	Maintenance Office
HSP 12B	Legionella & Water Safety Risk Assessment	Formal assessment of Legionella risk for the building. Completed by external contractor.	Electronic version on H&S home page.
HSP 12C	Flushing of Little used outlets	Record of weekly flushing of empty rooms and little used outlets. Note: Occupied rooms cleaning involves water draw off.	Within Water Log book.
HSP 12D	Temperature records	Record of water temperatures Monthly: Flow and return from Hot water tanks and Sentinel taps.	Within Water Log book.

		6 Monthly: Resident taps with TMVs.	
HSP 12E	Showerhead descale	Record of showerhead descale	Within water Log book.
HSP 12F	Cold Water tank inspection	Record of water tank inspection – twice a year.	Within Water Log Book

11. Associated documents

12. A Summary of the main points

Check that:

- A Water Risk Assessment has been completed and is still relevant for the care home.
- Regular temperature checks are being completed and recorded.
- Little used outlets are flushed weekly.
- Cold water tanks are cleaned and disinfected once a year.
- Hold water tank drain valves are discharged annually.

13. Document history

Author	Steve Andrews (Health & Safety Manager)
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Issue	Date	Author	Reason
1.0	16/11/2017	Steve Andrews	Updated document replaces old HSP07
2.0	10/01/2018	Steve Andrews	Full document review – no changes
3.0	13/01/2020	Steve Andrews	Full document review – no changes
4.0	27/02/2024	Steve Andrews	Updated banner