Fact Sheet

OFFICIAL

Managing *Legionella* risk and responding to *Legionella* detection in care facilities

There is risk associated with *Legionella* in any water distribution system. Of greatest concern are systems that automatically deliver warm water for washing and bathing at approximately 45°C to prevent scalding, as they have the most potential to become colonised with *Legionella* bacteria. These systems are used in care facilities such as supported residential facilities, retirement villages, residential aged-care facilities, hospitals, and respite facilities.

This fact sheet informs care facility operators of potential *Legionella* risks and recommended responses to *Legionella* detections.

Legionnaires' disease

Legionella bacteria must be inhaled into the lungs to cause illness. Most people exposed to *Legionella* do not become ill. Legionnaires' disease, a serious and sometimes fatal form of pneumonia, most commonly occurs in the elderly and people with severe chronic disease or suppressed immune systems, smokers and it is more common in men.

Legionnaires' disease can also occur following inhalation of aerosolised water droplets or micro-aspiration of water from consumed ice or chilled drinking water.

To prevent the risk of scalding, AS/NZS 3500.4:2003 Plumbing and drainage - Heated water services require heated water at outlets of sanitary fixtures used primarily for personal hygiene purposes to be dispensed at a maximum of 45°C in healthcare buildings. While the prevention of scalding is an essential safety measure, the reduced temperature may provide conditions suitable for the growth of *Legionella* on the internal surfaces of pipes if not properly maintained.

Legionella in water systems

Warm water systems distribute or recirculate warm water through the majority of branches at a nominal temperature of 45°C by means of a temperature controlling device. As warm water systems pose the greatest risk, they are regulated under the South Australian Public Health (Legionella) Regulations 2013 (the Legionella Regulations), which prescribe mandatory system operation and maintenance requirements. However, as any water distribution system can become colonised with *Legionella*, it is essential that operators of health and aged care facilities are aware of the risks and how to manage them.

This factsheet applies to all water distribution systems (cold, warm, and hot) in all care facilities, regardless of whether they are subject to regulation. Facility operators should contact an environmental health officer (EHO) at their local council if they are unsure if they have regulated systems.

Legionella risk management in care facilities

Due to the presence of highly susceptible people, operators of care facilities have a heightened duty to minimise *Legionella* related public health risks through the ongoing management of water distribution systems. Care facility operators should ensure all components of their water systems, including chilled water dispensers, ice machines, dental chairs, decorative fountains, misters, and therapeutic devices containing water such as humidifiers, are assessed and risks relating to *Legionella* growth are identified.

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Care facility water system components should be effectively maintained, through the development of an appropriate monitoring and maintenance regime, to ensure the risks are controlled. Factors that should be considered, assessed, monitored, and managed are:

- **water temperatures** - identifying areas of possible heat transfer between hot/warm and cold-water pipes, solar pre-heating systems or direct sun exposure of pipes and location of pipes in hot areas such as roof spaces.
- **water flow** - including frequency of outlet use and possible areas of water stagnation including obsolete pipe work or “dead legs”.
- **water quality** - including whether there is any residual disinfection from the water supply and presence of nutrients and biofilm.
- **system configuration** - backflow prevention and anti-microbial and anti-corrosion systems, programs, and measures and microbial, temperature and chemical sampling programs and verification.

What should I do if Legionella is detected in water in my facility?

The detection of *Legionella* in a water sample from a care facility requires an immediate response. If the sample was collected from a regulated warm water system, the system must be immediately shut down or decontaminated by a competent person and the relevant authority (local council) notified within 24 hours.

Regardless of whether the *Legionella* detection came from a regulated system, local council EHOs, who are authorised under the *South Australian Public Health Act 2011* (the Act), should be contacted immediately to discuss the detection, and provide advice and directions to protect public health. An EHO will assist your review of the water system and make any recommendations that are necessary.

Failure to manage *Legionella* in a care facility constitutes a risk to public health, an offence under the Act, and in regulated systems it is also an offence under the Regulations.

Clinicians at the facility should be made aware of the detection, so they can consider implementing a testing regime for Legionellosis for clients displaying symptoms of pneumonic illness.

Verifying the efficacy of decontamination and maintenance regime

Whenever *Legionella* is detected, thorough investigations should be conducted to identify and rectify any controllable factors that may have resulted in the colonisation. Decontaminating the water system is only part of the response, as *Legionella* control requires ongoing management.

Verification samples should be collected and tested for *Legionella* 3-7 days following the completion of the decontamination procedure.

Importantly, the water system maintenance, monitoring and treatment programs should be reviewed and opportunities to improve them identified and implemented.

Ongoing detection of *Legionella*

Often, *Legionella* will not be detected in the immediate post decontamination samples, but it will be detected again in later samples. This indicates ongoing colonisation of the system and that the decontamination procedure, whilst temporarily reducing *Legionella* concentration at the outlets, was inadequate to remove *Legionella* in biofilm on the surfaces of pipes. As biofilm layers build up in pipes over time, this is a common issue in older facilities with large and complex water distribution systems that have been inadequately managed and maintained.

In circumstances where the distribution system cannot be appropriately managed or modified to reduce *Legionella* risks, it may be necessary to implement long term controlled low residual chemical (most commonly chlorine) dosing. This should be thoroughly investigated, as it may compromise the current water treatment processes implemented by the water distributor. Investigations into on-site dosing should include the water distributor, water treatment specialists, infection control specialists and relevant government departments.

Legionella colonisation of cold-water pipes

Cold-water systems which are poorly designed, installed, and maintained may be at risk of *Legionella* colonisation. This is often caused by the heating of water within the cold-water pipework through inadequate system design, insulation, and backflow prevention. Temperature profiling (i.e., regular systematic testing of temperature from water outlets) of the cold-water pipework will help determine if this is an issue.

If *Legionella* colonisation of the cold-water is suspected or confirmed, the water should not be used for drinking by people at risk of aspiration pneumonia. If cold-water pipework is contaminated, the cold and heated pipework and all outlets will require decontamination. This should be undertaken by a person or company with specialised knowledge, experience, and equipment to ensure the process is successful.

Conclusion

Legionnaires' disease is a potentially fatal disease caused by *Legionella* bacteria. There is risk associated with *Legionella* in water systems. It is particularly important that water systems in care facilities that service vulnerable populations are effectively managed to minimise *Legionella* risk. Proper design and maintenance of care facility water systems will help reduce the colonisation and proliferation of *Legionella* and therefore reduce the risk of Legionnaires disease in care facilities.

The local council is the relevant public health authority, and a council EHO can assist with responses to detections. If *Legionella* is detected in a water sample from a regulated warm water system, the system must be immediately shut down or decontaminated and the relevant public health authority notified within 24 hours.

Further information

Guidelines for the Control of *Legionella* in Manufactured Water Systems is available on SA Health's website:

www.sahealth.sa.gov.au/legionella

Also refer to the enHealth guidance – Guidelines for *Legionella* control in the operation and maintenance of water distribution systems in health and aged care facilities.

For technical plumbing information contact the Office of the Technical Regulator.
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For more information

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