



## Legionnaires' Disease: Reducing risks in the home

Many different species of bacteria called *Legionella* are commonly found in the environment and some of these are known to cause illness in people. Infection by *Legionella* causes a disease known as legionellosis.

Infection with *Legionella pneumophila* is called Legionnaires' disease. *Legionella* generally infects the lung causing pneumonia, which is often very severe.

### What is Legionnaires' Disease?

There are many different types of *Legionella* bacteria found in the environment. Legionnaires' Disease from water is caused by the species *Legionella pneumophila*.

*Legionella pneumophila* must be inhaled in an aerosol (i.e. where bacteria are contained in small airborne droplets of water) for Legionnaires' Disease to occur.

Legionnaires' Disease typically infects the lungs and can cause severe pneumonia. Symptoms include:

- fever;
- cough;
- chest pain;
- breathlessness; and
- diarrhoea.

The risk of infection is increased by:

- being male (possibly related to smoking);
- smoking;
- chronic heart or lung disease;
- diabetes;
- kidney failure;
- some forms of cancer;
- immunosuppression, especially if on steroid medication; and
- being over 50.

### Sources of infection

*Legionella pneumophila* have been isolated from many sources, including hot water systems, cooling towers, hot and cold water taps, showers, nebulisers, spa baths, hydrotherapy pools and ornamental fountains.

Inhalation of aerosols created by these sources can serve as an infection route for Legionnaires' Disease.

### Control of Legionnaires' Disease

You can control growth of *Legionella pneumophila* in your home and reduce the risk of illness by following the advice provided below.

#### Hot water systems

Hot water systems have the potential to harbour *Legionella pneumophila* in places where there may be stagnant or warm water (25-50°C). Examples include shower nozzles, hot water taps, hot water storage vessels and hoses or filters attached to shower roses or tap outlets.

Hot water tanks need to be set to store water at 60°C or more to reduce the risk of *Legionella* multiplication. If you are unsure of how to set the temperature of your hot water tank, seek advice from the manufacturer.

Although hot water storage tanks need to be kept at a minimum of 60°C, this temperature may be too hot for water

# Water Quality Fact Sheet

supplied to showers and taps used for washing, as it may cause scalding. This concern applies particularly where children or older people wash.

It is necessary to lower the water temperature at sanitary outlets to 45-50°C to reduce the risk of scalding. This can be achieved by installing water temperature controllers such as thermostatic mixing valves or, in the case of instantaneous water heaters, thermostats that can be regulated to achieve safe water temperatures.

All hot and mixed water sanitary outlets (shower, hand basin, bath taps, laundry sink) that are not used on a daily basis should be flushed weekly (hot water at full flow for at least 15 seconds). Flushing will help eliminate stagnant water and minimise the multiplication of bacteria that may be present.

If the temperature delivered by the hot water system falls, the thermostat may be malfunctioning and may need repair or adjustment.

Hot water systems, filter devices attached to shower roses and tap outlets should be maintained regularly according to the manufacturer's instructions.

## **Spa pools**

Spa pools require careful maintenance, disinfection and frequent cleaning because warm water provides ideal conditions for the growth of *Legionella pneumophila*. Aerosols can be created when spa pool jets are in use.

The correct use of spa pool water chemicals and good management of the disinfection, filtration and recirculation systems and pool surfaces will keep the spa pool water in a clean, safe and healthy condition.

Spa pools and jets should not be used if:

- the disinfectant level and/or pH is outside the recommended range;
- the pool water is dirty or cloudy; or
- the filtration unit and recirculation pump are not operating correctly.

See the Department of Health publication "Guide for Private Spa Pool Owners" for more information on spa pool maintenance at:

[www.health.sa.gov.au/pehs/envirom-health-index.htm](http://www.health.sa.gov.au/pehs/envirom-health-index.htm)

## **Fountains**

Fountains can create aerosols by splashing water, and are a particular risk if the water is warm or heated intermittently by submerged lighting. Regular cleaning is recommended.

## **Nebulisers and humidifiers**

Nebuliser bowls should be rinsed after each use, and the entire chamber and mask washed daily in warm water and dishwashing liquid, rinsed and all components allowed to air dry.

Nebuliser pumps should be serviced and filters changed regularly, in accordance with the manufacturer's instructions.

After each use, humidifiers should be emptied, cleaned in warm water and dishwashing liquid, rinsed and all components allowed to air dry.

## **Spa baths**

Spa baths should be inspected frequently, drained, cleaned and maintained to ensure hygienic operation. The system should be kept dry when not in use.

## **Evaporative air cooling equipment**

Although there have been no reported cases of Legionnaires' Disease connected with the use of evaporative cooling systems, correct maintenance

# Water Quality Fact Sheet

of evaporative air coolers is essential to control the accumulation of sediment, bacteria, moulds and algal growth inside the unit. Growth of these organisms in the system can cause hay fever or allergic responses. You should:

- ensure that an adequate bleed-off rate is maintained to prevent dissolved solids and impurities from accumulating inside the unit; and
- dispose safely of bleed-off water. Connect bleed-off water into a sewerage system or, if in an unsewered area, discharge to soakage areas such as flower beds or lawns. Bleed-off water should never be discharged into gutters which run into drinking water tanks.

At the end of summer:

- drain all water in the unit from the tank and pipes;
- clean the tank and pump filter with a cloth soaked with a chlorine-based household bleach solution and flush with clean water;
- remove the filter pads, clean the filters by hosing with water and allow to dry; and
- dry the internal components, leave the drain-cock open and fit covers to exposed units for off-season storage.

Before summer starts:

- remove the external covers;
- remove the filter pads and thoroughly clean the filters by hosing with water. Renew the filter pads as necessary; and
- close the drain-cock and fill with clean water. Check that the unit is operating correctly.

During use:

- inspect and clean the unit regularly to maintain effective and safe operation.

## Portable evaporative cooling units

Portable evaporative cooling units should be completely drained at least once a week during the summer season.

When units are not being used for an extended period they should be completely drained and cleaned, and left to dry.

## *Legionella longbeachae* Factsheet

A separate fact sheet covering *Legionella longbeachae* is also available, entitled "Enjoy Gardening without the Risk of Legionella" at:

[www.health.sa.gov.au/pehs/environ-health-index.htm](http://www.health.sa.gov.au/pehs/environ-health-index.htm)

## Contact

Applied Environmental Health  
Public Health  
SA Health

1st floor, Citi Centre Building  
11 Hindmarsh Square  
Adelaide SA 5000

PO Box 6, Rundle Mall  
Adelaide SA 5000

Tel 08 8226 7100

Fax 08 8226 7102

ABN 97 643 356 590

Email: [public.health@health.sa.gov.au](mailto:public.health@health.sa.gov.au)

Web: [www.health.sa.gov.au/pehs/environ-health-index.htm](http://www.health.sa.gov.au/pehs/environ-health-index.htm)

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