

Check List for Hostels and Day Centres providing accommodation (including centres providing showering facilities) for people who are Homeless

Legionnaires' disease: Minimising the Risk

Legionnaire's disease is a rare though serious form of pneumonia which can be prevented through the application of an active *Legionella* control programme. Every year a number of cases of legionnaires' disease are notified in Ireland, see <http://www.hpsc.ie/AZ/Respiratory/Legionellosis/SurveillanceReports/>. People who are homeless are particularly vulnerable to the disease because many of them have one or more of the risk factors for Legionnaires' disease such as smoking, a history of excess alcohol intake, chronic illnesses, a weakened immune system, male gender and age over 40.

The risk from legionnaires' disease can be reduced by careful attention to a number of simple measures (see sections 4 to 6 below).

1. What is Legionnaires' disease?

Legionnaires' disease is a form of pneumonia which kills between 5 and 15% of those infected and is caused by *Legionella* bacteria. *Legionella* bacteria can also cause less serious illness such as Pontiac fever.

2. Symptoms

The illness usually starts with a fever, chills, headache and muscle pain. This is followed by a dry cough and breathing difficulties that may progress to severe pneumonia. Between 25 and 50% of those infected will also have diarrhoea or vomiting and about 50% become confused or delirious. Any client exhibiting ill-health should be referred immediately to a doctor.

The diagnosis of legionnaires' disease requires specific laboratory tests which are arranged by a doctor.

3. How is Legionnaires' disease caught?

Legionnaires' disease is caught through breathing in air containing the *Legionella* bacteria in an aerosol that may not be visible. Aerosols can be formed from fine droplets generated from water containing the bacteria by, for example, running a tap or shower, or flushing a toilet. The bacteria can live and multiply in water at temperatures of 20°C to 45°C. They can be found in the natural

environment such as rivers, lakes and moist soil but usually in low numbers. High numbers occur in inadequately maintained man-made water systems.

Legionella bacteria do not appear to multiply below 20°C and are killed within a few minutes at temperatures above 60°C. They may, however, remain dormant in cool water and multiply when temperatures reach a suitable level.

- Chlorination of water supplies does not guarantee elimination of *Legionella* bacteria.
- Spread of *Legionella* from one person to another (person-to-person transmission) has very rarely been documented.

4. Where are the potential risk areas in Hostels and facilities providing showers?

Wherever water droplets can be created there is a risk of infection e.g.:

- Showers and taps
- Cooling towers and evaporative condensers, even if situated on the roof or in the grounds of the accommodation site
- Humidified food displays.
- Ornamental fountains, particularly indoors

5. Where can Legionella bacteria multiply?

- Hot and cold water systems including storage tanks/cisterns
- Any system or part of a system where the water is warm, i.e. between 20° C and 45°C, and particularly when above 30°C
- Pipes with little or no water flow (this includes unoccupied rooms)
- Slime (biofilm) and dirt on pipes feeding showers and taps and tank surfaces
- Rubber and natural fibres in washers and seals
- Flexible hoses and artificial rubber seals
- Water heaters and hot water storage tanks
- Scale and corrosion in storage vessels, pipes, showers and taps.

These situations and conditions encourage the growth of *Legionella* bacteria and increase the risk of infection to clients and staff.

6. Reducing the risk

The risk of legionnaires' disease can be minimised. Any organisation or premises (work-related or leisure-related) should have an active programme to control the growth of *Legionella* bacteria. The programme should comprise the following:

1. Have one named person responsible for *Legionella* control.
2. Ensure that the named person is trained in the control of *Legionella* and that other staff are trained to be aware of the importance of their role in controlling *Legionella*.
3. Keep hot water circulating at all times at 50°C-60°C¹ (too hot to put hands into or under for more than a few seconds).
4. Keep cold water cold at all times throughout the system. It should be maintained at temperatures below 20°C.
5. Run all taps and showers in rooms for several minutes at least once a week whether occupied or unoccupied, and always prior to occupation.
(See Chapter 5, Section 5.2.1, National Guidelines for the Control of Legionellosis in Ireland, 2009 at [http://www.hpsc.ie/hpsc/A- Z/Respiratory/Legionellosis/Publications/](http://www.hpsc.ie/hpsc/A-Z/Respiratory/Legionellosis/Publications/))
6. Keep showerheads and taps clean and free from scale.
7. Clean and disinfect pipes used in air conditioning systems (if applicable) regularly - at least twice a year.
8. Clean and disinfect water heaters (calorifiers) and hot water storage tanks at least once a year.
9. Disinfect the hot water system with high level (50mg/l) chlorine for 2-4 hours after work on water heaters.
10. Clean and disinfect all water filters regularly - every one to three months.
11. Inspect water storage tanks and visible pipework monthly. Ensure that all lids and coverings are intact and firmly in place.

¹ Where these temperatures cannot be achieved due to local conditions, suitable alternative residual disinfection procedures must be used and supported by regular (at least quarterly) testing for Legionella. Residual disinfection procedures that have been used include chlorine dioxide and copper/silver ionisation

12. Inspect the inside and outside of the cold water tanks at least once a year and clean. If they contain a deposit or are otherwise dirty, disinfect with 50mg/l chlorine for a minimum of 1 hour.²
13. Ensure that any system modifications or new installations do not create pipework with intermittent or no water flow or insufficient capacity to cope with surges in requirements.

Further advice about specific controls should be sought from experts in this field who can carry out a full risk assessment of the site (see also Chapter 8, Section 8.5, National Guidelines for the Control of Legionellosis in Ireland, 2009 at <http://www.hpsc.ie/hpsc/AZ/Respiratory/Legionellosis/Publications>).

7. Legionella testing

Testing for *Legionella* (which is not compulsory) can be misleading. Samples should only be collected by trained personnel and preferably examined by laboratories accredited for testing water for Legionella bacteria. A negative test does not necessarily mean that the Hostel or Day Centre is clear of *Legionella* or that there is no risk.

8. Water treatment systems

There are a number of effective water treatment systems known to be beneficial in controlling water quality and safety. The type of system best suited to your site will depend on a number of different factors relating to the size and type of your operation. Independent advice should always be sought from reputable and qualified people before choosing a system and it is important to remember that no system will work if not maintained and checked regularly.

Further information

Further information can be obtained from:

- Health Protection Surveillance Centre: <http://www.hpsc.ie/AZ/Respiratory/Legionellosis/Guidance/>
- Public Health England: <https://www.gov.uk/government/collections/legionnaires-disease-guidance-data-and-analysis>

² National Guidelines for the control of Legionellosis in Ireland 2009 at <http://www.hpsc.ie/AZ/Respiratory/Legionellosis/Guidance/>