

Check List for Hotels and other Accommodation Sites including Hostels. 2016

Legionnaires' Disease: - Minimising the Risk

Legionnaires' disease is a rare though severe illness and is preventable through the application of an active *Legionella* control programme. Legal claims for legionnaires' disease can be a significant cost and cases associated with hotels often receive extensive media coverage and can harm the hotel and tourism business. Each year more than 1000 cases of legionnaires' disease associated with staying in hotels or other holiday accommodation (apartments, camping sites) are reported to the European Legionnaires' Disease Surveillance Network (ELDSNet). See:

http://ecdc.europa.eu/en/healthtopics/legionnaires_disease/ELDSNet/Pages/index.aspx

The risk from legionnaires' disease can be reduced by careful attention to a number of simple measures.

1. What is legionnaires' disease

Legionnaires' disease is a form of pneumonia which kills between 5 and 10% of those infected and is caused by *Legionella* bacteria. *Legionella* bacteria can also cause less serious illness such as Pontiac fever. Illness usually develops 2-10 days after infection but may take longer and in rare cases up to three weeks. Not everyone who is exposed to *Legionella* will get ill. People with underlying illness, smokers and older people are at a higher risk of getting ill from *Legionella*.

2. Symptoms

Legionnaires' disease 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. Most patients need to be hospitalised and treated with appropriate antibiotics.

Accurate diagnosis requires specific laboratory tests. The diagnosis is often made after the guests have returned home.

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, flushing a toilet, or from bubbles rising through water in a spa pool. The bacteria can live and multiply when conditions are suitable e.g. stagnant water in man-made water systems at temperatures of 20°C to 50°C. They can also be found in the natural environment such as rivers, lakes and moist soil but usually in low numbers.

Legionella bacteria do not appear to multiply below 20°C and are killed within a few minutes at temperatures above 60°C.

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 hotels?

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

- Showers and taps
- Spa baths, whirlpool baths and hot tubs
- Turkish baths and saunas
- Cooling towers and evaporative condensers used for air conditioning, even if situated on the roof or in the grounds of the hotel or accommodation site
- Ornamental fountains, particularly indoors
- Humidified food displays and other misting devices
- Water systems of garden hoses use for watering plants

5. Where can *Legionella* bacteria multiply?

- Any water system or part of a water system where the water is warm, i.e. between 20 °C and 50°C
- Hot and cold water systems including storage tanks/cisterns
- Pipes with little or no water flow (this includes unoccupied rooms)
- Slime (biofilm) and dirt on pipes feeding showers and taps and tank surface
- 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 hotel guests and staff.

6. Is the accommodation the source of infection?

If a person with Legionnaires' disease is reported to have stayed in specific accommodation, this does not necessarily mean that the patient got the infection there. He or she could have got the infection from a variety of different places. However, when two or more cases stayed at the same accommodation, especially within a short period of time, it is more likely that the accommodation is the source of the infection. In that situation, urgent investigations at the accommodation are needed. As a manager of tourist accommodation you should be aware of the risk of legionnaires' disease and take measures to reduce this risk as much as possible.

7. How do we monitor Legionnaires' disease?

The European Legionnaires' disease Surveillance Network (ELDSNet) carries out surveillance of Legionnaires' disease. It is coordinated by the European Centre for Disease Prevention and Control (ECDC). The network consists of epidemiologists and microbiologists nominated by national public health authorities in the EU and many countries around the world. This network shares information between countries where people became ill and the countries where their infection could have occurred. This network also has procedures to notify clusters of cases to tour operators. You can reduce this risk by having a *Legionella* control plan.

8. Reducing the risk

The risk of legionnaires' disease can be minimised. Any organisation or premises (work-related or leisure-related) that does not have an active programme to control the growth of legionella bacteria are negligent in ensuring the safety of its workers, visitors, guests and others.

A *Legionella* control 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 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°C ¹ (too hot to put hands into or under for more than a few seconds) throughout the entire hot water system
4. Keep cold water cold at all times. It should be maintained at temperatures below 20°C throughout the system to all outlets (this may not be possible when the ambient temperature is high but every effort should be made to ensure that cold water entering the premises and in storage remains as cold as possible)
5. Run all taps and showers in guest rooms and other areas to draw through water (until it reaches the temperatures stated in 3 and 4 above) for several minutes at least once a week if rooms are 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/>)
6. Keep showerheads and taps clean and free from scale
7. Clean and disinfect cooling towers and associated pipes used in air conditioning systems regularly - at least twice a year
8. Clean drain 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 the system and water heaters and before the beginning of every season
10. Clean and disinfect all water filters regularly as directed by the manufacturer, at least every one to three months
11. Inspect water storage tanks, cooling towers and visible pipework monthly. Ensure that all lids and coverings are intact and firmly in place.
12. Inspect the inside and outside of the cold water tanks at least once a year and disinfect with 50mg/l chlorine and clean if containing a deposit or otherwise dirty.
13. Ensure that carrying out system modifications or new installations does not create pipework with intermittent or no water flow and disinfect the system following any work.
14. If there is a spa pool ensure (also known as whirlpool spas, "Jacuzzis", spa bath) that:
 - Free chlorine residual of 3-5 mg/l is maintained in the spa pool water or if bromine is used, 4-6 mgs/l of total active bromine. The levels should be monitored each day before the spa pool is used and thereafter at least every two hours.
 - Replace at least half of the water each day
 - Backwash sand filters daily
 - Clean and disinfect the whole system including the balance tank weekly

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

15. Keep daily records of all water treatment readings such as temperature, pH and chlorine concentrations and ensure that any measurements outside of those specified have been acted upon and are checked regularly by the manager

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

See also UK Health and Safety Executive/Health Protection Agency . Management of Spa Pools: Controlling the risks of infection. <https://www.gov.uk/government/publications/legionnaires-disease-controlling-the-risk-of-infection-from-spa-pools>

9. Legionella testing

Testing for Legionella is a useful tool but only if carried out by trained personnel who in parallel also assess the water system. Samples should only be collected by trained personnel and examined by laboratories accredited for testing water for Legionella bacteria. A negative test does not necessarily mean that the hotel or other accommodation site is clear of *Legionella* or that there is no risk

10. 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:

- EWGLI Technical Guidance for the Investigation, Control and Prevention of Travel associated Legionnaires' disease at :
http://ecdc.europa.eu/en/healthtopics/legionnaires_disease/ELDSNet/Documents/EWGLI-Technical-Guidelines.pdf
- European Legionnaires' disease Surveillance Network (ELDSNet) website at
http://ecdc.europa.eu/en/healthtopics/legionnaires_disease/ELDSNet/Pages/index.aspx
- Irish guidelines for control of Legionellosis at <http://www.hpsc.ie/A-Z/Respiratory/Legionellosis/Guidance/>