

Check List for Hotels and other Accommodation Sites-2009

Legionnaires' Disease: - Minimising the Risk

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 business. In 2007, 1,283 cases of legionnaires' disease reported to EWGLINET were associated with staying in hotels or other holiday accommodation.

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

1. What is legionnaires' disease

A form of pneumonia which kills about 13% of those infected and is caused by *Legionella* bacteria. *Legionella* bacteria can also cause less serious illness. Illness usually develops 3-6 days after infection but may take longer. Most legionnaires' disease cases are sporadic, while 10-20% of cases can be linked to outbreaks. Any client exhibiting ill-health should be referred immediately to a doctor.

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. About 30% of those infected will also have diarrhoea or vomiting and about 50% become confused or delirious.

Accurate diagnosis requires specific laboratory tests which often will not be done until the guests have returned home.

3. How is legionnaires' disease caught?

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 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.

Person-to-person transmission has never 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 and whirlpool baths
- Turkish baths and saunas
- Cooling towers and evaporative condensers, even if situated on the roof or in the grounds
- Ornamental fountains, particularly indoors
- Humidified food displays.

5. Where can *Legionella* bacteria multiply?

- Hot and cold water tanks/cisterns
- Warm water between 20°C and 45°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
- Water heaters and hot water storage tanks
- Scale in 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. Reducing the risk

The risk of legionnaires' disease can be avoided. Any organisation or premises (work-related or leisure-related) that do not have an active programme to control the growth of legionellae are negligent in ensuring the safety of its workers, visitors, guests and others. The programme should comprise the following:

- Have one person responsible for *Legionella* control
- 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*
- 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)
- Keep cold water cold at all times. It should be maintained at temperatures below 20°C.
- Run all taps and showers in rooms for several minutes at least once a week whether occupied or unoccupied (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/>)
- Keep showerheads and taps clean and free from scale
- Clean and disinfect cooling towers and associated pipes used in air conditioning systems regularly - at least twice a year
- Clean and disinfect water heaters (calorifiers) once a year
- Disinfect the hot water system with high level (50mg/l) chlorine for 2-4 hours after work on water heaters and before the beginning of a season

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

- Clean and disinfect all water filters regularly - every one to three months
- Inspect water storage tanks, cooling towers and visible pipework monthly. Ensure that all coverings are intact and firmly in place.
- Inspect the 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
- Ensure that the system modifications or new installations do not create pipework with intermittent or no water flow.

- If there is a spa pool, ensure 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 weekly
 - Keep daily records of all water treatment readings such as temperature and chlorine concentrations and ensure that the manager checks them regularly.

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>).

7. Legionella testing

Testing for *Legionella* (which is not compulsory) can be misleading. 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 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 the European Guidelines for Control and Prevention of Travel Associated Legionnaires' Disease at <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/LegionnairesDisease/Guidelines/legionnairesdiseaseguidance/> and the Irish guidelines for control of legionellosis at www.hpsc.ie/hpsc/.