Legionnaires' Disease: - Minimising the Risk

Check List for Hotels and other Accommodation Sites

Legal claims for legionnaires' disease can be a significant cost e.g. a man who became infected in a hotel was recently awarded € 21,000 compensation. The illness is often fatal and the publicity attracted by such cases can severely harm the hotel business. The risk from legionnaires' disease can be reduced by careful attention to a number of simple measures. Nearly 700 cases of legionnaires' disease in European residents were reported to be associated with staying in hotels or other holiday accommodation in 2002.

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.

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 in usually in low numbers. High numbers occur in inadequately maintained man-made water systems.

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 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 hotel that does not have an active programme to control the growth of legionellae is negligent in ensuring the safety of their guests. This programme should include the following:

- Have one named person responsible for legionella control.

- Ensure the named person is trained in control of legionella and other staff is trained to be aware of the importance of their role in controlling legionella.

- Keep hot water hot and circulating at all times: 50°C - 60°C (too hot to put hands into or under for more than a few seconds).[1]

- Keep cold water cold at all times. It should be maintained at temperatures below 25°C.[1]

- Run all taps and showers in guestrooms for several minutes at least once a week if they are unoccupied and always prior to occupation.

- Keep shower heads 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.

[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.

- 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 every season.

- Clean and disinfect all water filters regularly - every one to three months.

- Inspect water storage tanks, cooling towers and visible pipe work monthly. Ensure that all coverings are intact and firmly in place.

- Inspect the inside of 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 system modifications or new installations do not create pipework with intermittent or no water flow.

- If there is a spa pool (synonyms whirlpool spas, "Jacuzzis", spa baths) ensure:
  - It is continuously treated with 2-3mg/l chlorine or bromine and the levels are monitored at least three times a day.
  - Replace at least half of the water each day.
  - Backwash sand filters daily.
  - Clean and disinfect whole system once a week.

- Keep daily records of all water treatment readings such as temperature and chlorine concentrations and ensure they 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.

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. Further information

Further information can be obtained from the European Guidelines for Control and Prevention of Travel Associated Legionnaires' Disease.