

Legionnaires' disease

A guide for employers



This is a web-friendly version of leaflet IACL27(rev2), reprinted and redesigned 02/09

What is this leaflet about?

This short and simple guide is written to help you, as an employer, understand the health risks associated with legionella. It explains in general terms how to control those risks. You should consult the Approved Code of Practice (ACOP) and guidance *Legionnaires' disease: The control of legionella bacteria in water systems* for the technical detail on how to manage and control the risks in your system (see Further Information section at the end of this leaflet).

Who is this leaflet aimed at?

The leaflet is intended for employers who manage premises with hot/cold water services and/or wet cooling systems (eg cooling towers and evaporative condensers).

What is Legionnaires' disease?

Legionnaires' disease is a potentially fatal pneumonia caused by legionella bacteria. It is the most well-known and serious form of a group of diseases known as legionellosis. Other similar (but usually less serious) conditions include Pontiac fever and Lochgoilhead fever.

Infection is caused by breathing in small droplets of water contaminated by the bacteria. The disease cannot be passed from one person to another.

Everyone is potentially susceptible to infection but some people are at higher risk, eg those over 45 years of age, smokers and heavy drinkers, those suffering from chronic respiratory or kidney disease, and people whose immune system is impaired.

Where are legionella bacteria found?

Legionella bacteria are common in natural water courses such as rivers and ponds. Since legionella are widespread in the environment, they may contaminate and grow in other water systems such as cooling towers and hot and cold water services.

They survive low temperatures and thrive at temperatures between 20-45°C if the conditions are right, eg if a supply of nutrients is present such as rust, sludge, scale, algae and other bacteria. They are killed by high temperatures.

What are my duties under the law?

Under general health and safety law, you have to consider the risks from legionella that may affect your staff or members of the public and take suitable precautions. As an employer or a person in control of the premises (eg a landlord), you must:

- identify and assess sources of risk;
- prepare a scheme (or course of action) for preventing or controlling the risk;
- implement and manage the scheme – appointing a person to be managerially responsible, sometimes referred to as the ‘responsible person’;
- keep records and check that what has been done is effective; and
- if appropriate, notify the local authority that you have a cooling tower(s) on site (see ‘Other duties’).

If a person working under your control and direction is treated as self-employed for tax and national insurance purposes, they may nevertheless be your employee for health and safety purposes. You may need therefore to take appropriate action to protect them.

If you do not wish to employ workers on this basis, you should seek legal advice. Ultimately each case can only be decided on its own merits by a court of law.

Assessing the risk

The risk assessment is your responsibility as the employer or person in control of the premises. You may be able to carry out the assessment yourself but, if not, you should call on help and advice from within your own organisation or, if this is not available, from outside sources, eg consultancies.

You need to find out if your water systems (including the equipment associated with the system such as pumps, heat exchangers, showers etc) are likely to create a risk.

Ask yourself the following:

- Are conditions present which will encourage bacteria to multiply?
For example, is the water temperature between 20-45°C?
- Is it possible that water droplets will be produced and, if so, could they be dispersed over a wide area? For example, consider showers and aerosols from cooling towers.
- Is it likely that anyone particularly susceptible will come into contact with the contaminated water droplets?

Which systems present the greatest risk?

Cooling towers, evaporative condensers and hot and cold water systems have been associated with outbreaks. Other potential sources where precautions might be needed include humidifiers and spa baths.

If you decide that the risks are insignificant, your assessment is complete. You need take no further action other than to review the assessment periodically in case anything changes in your system.

Preventing or controlling the risk

If a risk is identified which cannot be prevented, you must introduce proper controls.

Risks from legionella in water systems can be controlled but careful planning, a successful management policy, competent staff and attention to proper control strategies are all essential.

You should consider whether you can prevent the risk of legionella in the first place by looking at the type of water system you need. For example, is it possible to replace a wet cooling tower with a dry air cooled system?

You need to prepare a written scheme which sets out how you intend to control the risk from legionella. You should describe:

- your system – an up-to-date plan or schematic diagrams are sufficient;
- who is responsible for carrying out the assessment and managing its implementation;
- the safe and correct operation of your system;
- what control methods and other precautions you will be using; and
- what checks will be carried out on the control scheme and how often.

The key point is to design, maintain and operate your water services under conditions which prevent or control the growth and multiplication of legionella.

You should:

- ensure that the release of water spray is properly controlled;
- avoid water temperatures and conditions that favour the growth of legionella and other micro-organisms;
- ensure water cannot stagnate anywhere in the system by keeping pipe lengths as short as possible or by removing redundant pipework;
- avoid materials that encourage the growth of legionella;
- keep the system and the water in it clean; and
- treat water to either kill legionella (and other micro-organisms) or limit their ability to grow.

Keeping the water in a cooling tower system clean will not only control legionella, but also lead to other advantages. By reducing scale and fouling, you are also ensuring that the cooling process is operating efficiently. Scaling reduces the effectiveness of biocide treatment and fouling can lead to loss of plant performance.

What water treatment methods can I use?

Cooling towers/systems are often treated using biocides. But there are other treatment strategies available such as ultra violet (UV) irradiation, copper/silver ionisation and ozone.

In hot and cold water systems legionella have traditionally been controlled by storing hot water above 60°C and distributing it at above 50°C – and keeping cold water below 20°C if possible. Other methods which are used include copper/silver ionisation and chlorine dioxide.

One way of controlling legionella is to keep water hot, which you may be doing for other reasons already. For example, nursing homes and residential care homes tend to keep water hot for reasons other than controlling legionella, including kitchen and laundry use, to ensure proper boiler operation, or to take account of long pipe runs.

However, care is needed where water runs hot. The risks of scalding should be assessed and appropriate measures taken to prevent burns, eg warning notices and thermostatic mixing valves on taps.

Can I reduce my water temperatures if I am using another method of controlling legionella?

It depends. If you don't need the hot water for other reasons, then using another effective treatment method means that you can reduce water temperatures. There is specific advice on this issue in hospitals and you should refer to this. It recommends keeping the water hot and not reducing the temperature (see Further Information section).

But whatever treatment method you use, you need to make sure you know:

- what the effective level of control is for your system, eg temperature and concentration of biocides;
- if the treatment method can cope with changes in the system, eg variations in the amount of water used throughout the day; and
- how you are going to measure the effectiveness of the treatment method. For example, if you are using temperature as a control method you can take the temperature of the water coming out of the taps.

Should I take samples to test for legionella?

It depends. Sampling and testing for the presence of legionella bacteria is just one way of checking that your system is under control. But it is not a simple test, as sampling and detecting legionella requires specialist help. Further details on how to sample and the frequency of sampling in both cooling towers and hot and cold water systems can be found in Part 2 of the ACOP and guidance (see Further Information section).

Managing the risk

You need to appoint someone to take responsibility for managing the control scheme that you have put in place.

The 'responsible person' needs to be competent – that is, they need to have sufficient knowledge and experience of your system to enable them to manage and control the scheme effectively.

If there are several people responsible for managing the system and/or control scheme, for example because of shift-work patterns, you need to make sure that everyone knows what they are responsible for and how they fit into the overall management of the system.

If you decide to employ contractors to carry out water treatment or other work, it is still the responsibility of the appointed person to ensure that the treatment is carried out to the required standards.

And remember, before you employ a contractor, you should be satisfied that they can do the work you want to the standard that you require. A Code of Conduct for service providers has been prepared to help you with this (see Further Information section for details).

What records do I need to keep?

If you employ five or more people you must record the significant findings of your risk assessment. This means writing down the significant findings of the assessment and details of any monitoring or checking carried out.

If you have fewer than five employees you do not need to write anything down, although it is useful to keep a written record of what you have done.

You also need to keep records of your written scheme and who is responsible for managing that scheme. You should also keep the results of your routine monitoring. You need to keep these records for a minimum of five years.

Does anybody else have to do anything about legionella?

Yes. Anyone who is involved in the supply of water systems and their components (eg designers, manufacturers, water treatment companies and suppliers) has to make sure that such equipment is designed and made in such a way that it is safe to use at work and that it can be easily cleaned and maintained.

They should tell you what risks might be present and how you can operate and maintain the system safely.

If you are using products or services, for example, for water treatment, the suppliers must make sure that these are effective at controlling legionella and that they can be used safely at work.

They should also tell you if, while they are treating your system, they find any problems which could pose a significant risk of legionella exposure.

Do I have any other duties?

Yes. If you have a cooling tower or evaporative condenser on site you must, under the Notification of Cooling Towers and Evaporative Condensers Regulations, notify the local authority in writing with details of where it is located. You must also tell them when/if such devices are no longer in use. Notification forms are available from your local environmental health department.

If you have a case of legionellosis in an employee who has worked on cooling towers or hot water systems that are likely to be contaminated with legionella, you have to report this under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

What happens when there is an outbreak?

Local authorities have special plans for dealing with major outbreaks of infectious disease including legionellosis. These are usually investigated by an Outbreak Control Team whose purpose is to protect public health and prevent further infection.

HSE or the local authority environmental health department may also be involved in investigating compliance with health and safety legislation.

Where can I get further information?

More detailed guidance on your duties can be found in the Approved Code of Practice and guidance *Legionnaires' disease: The control of legionella bacteria in water systems. Approved Code of Practice and guidance L8* (Third edition) HSE Books 2000 ISBN 978 0 7176 1772 2. Part 1 of this publication contains advice on your duties under the law. Part 2 contains guidance on technical aspects of the assessment and control of legionella risks.

You may also find the following helpful:

Controlling legionella in nursing and residential care homes INDG253
HSE Books 1997 (single copy free)

The control of legionellae in healthcare premises: A Code of Practice. Good practice guide Health Technical Memorandum 2040
ISBN 978 0 11 321683 3 TSO 1994

The control of legionellosis: A recommended code of conduct for service providers
Legionella Control Association 2005

Health and safety in care homes HSG220 HSE Books 2001
ISBN 978 0 7176 2082 1

You can also obtain advice from:

- HSE Infoline;
- environmental health departments of local authorities;
- professional bodies and organisations such as the Chartered Institution of Building Services Engineers (CIBSE), the Building Services Research and Information Association (BSRIA); and
- associations such as the Water Management Society (WMS) or the British Association for Chemical Specialities (BACS).

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For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This leaflet is available in priced packs of 15 from HSE Books, ISBN 978 0 7176 1773 9. Single free copies are also available from HSE Books.

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