UNISON HEALTH & SAFETY Information sheet

# *Legionnaires Disease*

*Last updated in October 2010*

Legionnaires' disease is a potentially fatal pneumonia caused by Legionella bacteria. Between 200 and 250 cases are reported each year in the UK. (Source: Health Protection Agency.) It may cause mild or serious illness, possibly leading to permanent weakness or even death. However, most people who come into contact with the bacteria and develop antibodies do not suffer any symptoms and remain well. It is treated with antibiotics.

The initial symptoms are similar to flu: high temperature, feverishness and chills, coughing, muscle pains, and headache. Occasionally nausea, vomiting, and diarrhoea may be experienced and about half of those infected become confused or delirious. If you develop these symptoms and are worried that it might be Legionnaires' disease, visit your doctor. Diagnosis is not easy, and you may be asked to take a blood or urine test. If your doctor diagnoses Legionnaires' disease and you suspect that you may have got the illness from work, report this to your manager, your health and safety rep, and your occupational health department if you have one.

## HOW IS LEGIONNAIRES' DISEASE CAUGHT?

Since Legionella bacteria are widespread in the environment and commonly found in natural water courses, they may contaminate and grow in other water systems such as: the cooling towers of air conditioning systems, evaporative condensers, and hot and cold water services. Other potential sources include: humidifiers, spa and whirlpool baths, showers, and ornamental fountains.

Contaminated aerosols (small droplets of water suspended in air) from cooling towers, showers etc, may enter the intake of air conditioning systems or spread outside into the surrounding area or into the inside environment of a building. Breathing in the contaminated droplets causes infection. The disease cannot be passed on from one person to another.

## WHO IS AT RISK?

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

## EMPLOYERS DUTIES

All diseases that can be contracted by staff through their work including Legionnaires', are covered by the Control of Substances Hazardous to Health Regulations (COSHH). Employers must report any case of Legionnaires' that may have been caught at work to the Health and Safety Executive (HSE), under the Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations (RIDDOR).

Employers (or persons in control of the workplace premises, such as landlords) are legally required to:

- identify and assess sources of risk from Legionnaires',
- prepare a course of action (scheme) for preventing or controlling any risk,
- implement and manage the scheme - appointing a 'responsible person' to do such,
- keep records and check that what has been done is effective, and
- if appropriate, notify the local authority that they have a cooling tower on site.

**Assessing the Risk**

As usual it is the employer who must carry out risk assessments. If they need help and advice, this should first be sought from within their organisation or if this is not available, from outside sources. The employer must find out if the water systems (including associated equipment such as pumps, heat exchangers, and showers, etc) are likely to create a risk:

- are conditions present that 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, showers, or aerosols from cooling towers?
- is it likely that anyone particularly susceptible will come into contact with the contaminated water droplets?

If the assessment shows that the risks are insignificant, then the assessment is complete. No further action need be taken other than to review the assessment periodically (at least every 2 years). As usual, the assessment must also be reviewed when there has been a change or there is reason to suspect it is no longer valid. For example: a change to or in the use of the plant, water systems, or building; where there is new information about the risks or about new control measures; where checks or routine testing indicates that the control measures may not be working effectively; or where there is a case of Legionnaires'.

**Prevention then Control**

If a risk is identified, an employer must first consider whether it can be avoided so far as is reasonably practicable by looking at the type of water system or method of work used. For example, is it possible to replace a wet cooling tower with a dry air-cooled system? If the risk cannot be prevented, controls must then be introduced. A written scheme must be produced which sets out what will be done to control the risk from Legionella. It must describe:

- the water system - an up-to-date plan or schematic diagram,
- who is responsible for carrying out the assessment and managing its implementation,
- the safe and correct operation of the system,
- what control methods and other precautions will be used,
- what and how often checks will be carried out on the control scheme, and
- remedial action in the event of the scheme not being effective.

The risks from exposure to Legionnaires' will normally be controlled by measures which prevent or control the growth and multiplication of Legionella and reduce exposure to water droplets. The employer must:

- ensure that the release of water spray is properly controlled,
- ensure water cannot stagnate anywhere in the system by keeping pipe lengths as short as possible and removing redundant pipework,

- avoid water temperatures and conditions that encourage the growth of Legionella and other micro-organisms (especially water temperatures between 20°C - 45°C, and a supply of nutrients such as rust, sludge, scale, algae, and other bacteria),
- 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.

**Responsible Person**

The 'responsible person' implements the control scheme and therefore needs to be competent – with sufficient knowledge and experience of the system to enable them to manage and control the scheme effectively. If there are several persons, for example because of shift-work patterns, everyone must know what they are responsible for and how they fit into the overall management of the system.

If contractors carry out water treatment or other work, it is still up to the 'responsible person' to ensure that the treatment is carried out to the required standards. Before employing a contractor, the employer must be satisfied that they can do the work to the required standard.

**Record Keeping**

The usual requirements to risk assessing apply. If 5 or more people are employed, the employer must record the significant findings of the assessment and the details of any monitoring or checking carried out. Even if there are less than 5 employees it is useful to keep a written record of what has been done. Records of the written scheme and who is responsible for managing that scheme must also be kept. All the above records must be kept for the period they cover and 2 years after. The results of monitoring, tests, checks, or inspections must be kept and for a minimum of 5 years.

## WATER TREATMENT METHODS

Cooling towers/systems may be treated using biocides, ultra violet (UV) irradiation, copper/silver ionisation, and ozone. Of course, each of these may cause their own health hazards and so must be properly risk assessed prior to and when in use.

In hot and cold water systems, Legionella is traditionally controlled by storing hot water above 60°C and distributing it at above 50°C, and keeping cold water below 20°C. Copper/silver ionisation and chlorine dioxide may also be used. These must also be risk assessed, including the risks of scalding where water runs hot with appropriate measures taken to prevent burns (such as warning notices and thermostatic mixing valves on taps). There is specific advice for hospitals and this must be referred to since it recommends keeping water hot and not reducing the temperature.

## TESTING FOR LEGIONELLA

Sampling and testing for the presence of Legionella bacteria is just one way of checking that the water system is under control. It is not simple and requires specialist help. Wet cooling systems should be tested at least quarterly and more frequently when the system is newly installed or if bacteria were identified on a previous occasion. For hot water systems, testing is only recommended where water temperatures are reduced following the use of alternative biocide treatments, where the control measures are not being achieved, where an outbreak is suspected or has been identified, and possibly in hospital wards for immunologically suppressed patients.

Employers can get further details on how to sample and the frequency required in Part 2 of the Approved Code of Practice (ACOP) and Guidance on Legionnaires'.

## OTHER DUTIES

Employers must notify the local authority in writing if they have a cooling tower or evaporative condenser, under the Notification of Cooling Towers and Evaporative Condensers Regulations.

Suppliers and producers of water systems and their components must ensure that such equipment is designed and implemented in a way so that it is safe to use at work and can be easily cleaned and maintained. They should tell purchasers/users what risks might be present and how to operate and maintain the system safely. They must tell the employer if, while they are treating the water system, they find any problems with it or the written scheme which could pose a significant risk of Legionella exposure.

## BRANCH CHECKLIST

Branches should ensure that their employer:

- knows about Legionnaires' disease;
- has identified and assessed any sources of risk from Legionnaires';
- has taken appropriate and effective action for preventing where practicable or controlling them where not, any such risks (including: adopting appropriate water treatment methods, appointing a 'responsible person', and testing if appropriate); and
- informs the branch, the members, and the HSE if Legionella bacteria are found in the workplace or if a case of workplace Legionnaires' is suspected.

## FURTHER INFORMATION AND ADVICE.

*Legionnaires' disease: a guide for employers* - IAC L27(rev2), ISBN 0 7176 1773 4. Single copies are available free from the HSE. Recommended as the first source of additional information.

*Approved Code of Practice and Guidance Legionnaires' Disease: the Control of Legionella Bacteria in Water Systems* - ISBN 0 7176 1772 6. Priced £8.00 from the HSE. Gives more detailed guidance on employers legal duties and the technical aspects of assessing and controlling the risks.

Other publications which may be of use, are:

*Controlling Legionella in Nursing and Residential Care Homes* INDG253 - available free from the HSE.

*The Control of Legionella in Healthcare Premises: a code of practice.* Good practice guide Health Technical Memorandum 2040 ISBN 0 11 321683 1 NHS Estates 1993.

Health and Safety in Residential Care Homes HSG104 1993 - ISBN 0 7176 0673 2. Priced £8.50 from the HSE.

For HSE publications contact HSE Books on tel: 01787 881165, or on fax: 01787 313995, or at: www.hsebooks.co.uk

Advice is also available from local authority environmental health departments and local HSE offices.