

H5 – Opening Statement

Legionella

Legionnaires' disease acquired its name in 1976 when an outbreak of pneumonia occurred among people attending a convention of the American Legion in Philadelphia. Scientists identified the causative agent as a previously unknown bacterium subsequently named *Legionella pneumophila*. The disease is a potentially fatal form of pneumonia which can affect anybody, but which principally affects those who are susceptible because of age, illness, immunosuppression, smoking, etc.

The responsible bacterium and related bacteria are found naturally in environmental water sources such as rivers, lakes and reservoirs and generally pose no problems. However, purpose-built water systems such as whirlpool spas and cooling towers in which temperatures are warm enough to encourage growth of the bacteria, can cause outbreaks of Legionnaires' disease. It is important to note that it does not spread from person to person.

Due to a lack of statistics, the frequency of this disease occurring in workplaces cannot be evaluated or estimated, however, knowledge of the bacteria responsible for the disease indicates that there are some workers more at risk than others. Those with occupations that require them to work in sealed buildings including those who maintain cooling towers in air-conditioning systems need to be monitored. Additionally, some outdoor workers should be considered at risk as soil disturbed by bulldozing and areas where surface or aerosolized water discharge occurs can cause exposure to *Legionella pneumophila*.

To prevent the occurrence of Legionnaires' disease, employers must comply with regulations requiring them to manage, maintain and treat purpose-built water systems properly. The Legionella Procedure is written to help companies comply with legislation.



H5 – Legionella

What is this?

This is a written procedure which defines Legionnaires' disease and outlines how to minimise the risk of its exposure to employees.

The person responsible for implementing this procedure is:

What is Legionnaires' disease?

Legionnaires' disease is a lung infection (pneumonia) caused by a bacterium named Legionella pneumophila.

How do people contract Legionella?

The most popular theory is that the organism is aerosolized in water and people inhale the droplets containing Legionella. However, new evidence suggests that another way of contracting Legionella is more common; 'aspiration' is viewed as the most common way in which bacteria enter the lungs to cause pneumonia. Aspiration means choking so that secretions in the mouth get past the choking reflexes, and instead of going into the oesophagus and stomach, mistakenly enter the lung. The protective mechanism to prevent aspiration is defective in patients who smoke or have lung disease.

What are the symptoms of Legionnaires' disease?

The incubation period of Legionnaires' disease is between two and ten days. For several days the patient may feel tired and weak. Most patients who are admitted to the hospital develop high fever.

A cough can be the first sign of a lung infection. The cough may be sufficiently severe to cause sputum production. Gastrointestinal complaints are common with diarrhoea being the most typical symptom. Many patients experience nausea, vomiting, and stomach discomfort. Other common symptoms include headaches, muscle aches, chest pain, and shortness of breath.

Is Legionnaires' disease contagious?

Legionnaires' disease is not contagious. No specific precautions are necessary. The disease is transmitted via drinking water, not by infected persons (i.e. masks do not need to be worn). Neither pregnant women nor their fetuses are at risk from contact with people who have Legionnaires' disease.



How is Legionnaires' disease diagnosed?

Specialised laboratory tests are necessary therefore it is vital that people are referred to their GP or hospital immediately it is suspected that they are suffering from, or have been exposed to, the Legionella bacteria.

How is Legionnaires' disease treated?

If the patient is treated with appropriate antibiotics close to the onset of pneumonia, the outlook is positive, especially if the patient has no underlying illness that compromises his/her immune system. This confirms the need to get expert medical help involved as soon as possible.

What is the natural habitat of Legionella bacteria?

Legionella organisms are readily found in water and some species have been recovered from soil. The organisms can survive in a wide range of conditions including temperatures of 0 to 63°C. Temperature is a critical determinant for Legionella proliferation. Colonization of hot water tanks is more likely if tank temperatures are between 40 and 50°C (104 to 122°F). The Legionella becomes attached to surfaces in the tank.

What have been the water sources for Legionnaires' disease?

The major source is water distribution systems of large buildings including hotels and hospitals. Cooling towers have long been thought to be a major source for Legionella, however new data suggests that this is an overemphasized mode of transmission. Other sources include mist machines, humidifiers, whirlpool spas, and hot springs. Air conditioners are not a source for Legionnaires' disease.

What do responsible managers need to do?

Under general health and safety law responsible managers have to consider the risks from Legionella that may affect their staff or members of the public, and take suitable precautions.

As an employer or person responsible for premises they must:

- Use specialist competent persons to identify and assess the sources of risk;
- Prepare a scheme for preventing and controlling the risk;
- Implement and manage the scheme - appoint someone to be responsible;
- Keep records and check that what has been done is effective; and
- Notify local authorities if you have a cooling tower(s) on-site.

Examples of systems that present a risk:

- Cooling towers
- Evaporative condensers



- Hot and cold water systems
- Humidifiers
- Spa baths.

The above is not an exhaustive list; any water system where water droplets may be produced can present a risk of Legionella bacteria.

Who is at risk of contracting Legionnaires' disease?

Everyone is potentially susceptible to infection but the following people are considered to be most at risk:

- Smokers
 - People over the age of 45 years
 - Heavy drinkers
 - Those suffering with chronic respiratory problems or kidney disease
 - Immuno-suppressed people
 - Diabetics
 - Cancer patients.
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Legislation

- Health and Safety at Work Act 1974
- Control of Substances Hazardous to Health Regulations 2002

