

Legionella and Legionnaires Disease

Legionella is a naturally occurring bacteria found in water and soil and will subsequently be found in domestic water systems. This bacteria is usually harmless at temperatures below 20°C, but when water temperature increases to an optimum 45°C – with a ready nutrient supply and neutral pH- it can proliferate at a rapid pace. In water temperatures of 50°C or above the bacteria will decrease in numbers and at 60°C 90% will be killed within 2 hours. Indeed at 70°C all bacteria will be killed within 2 minutes.

Over the years at least 54 species of Legionella bacteria have been discovered and we now know that many sub groups and serogroups exist. Legionella pneumophila is still by far the most important human pathogen, causing respiratory infections but other forms of the bacteria are known to cause less serious infections such as Pontiac Fever. Legionella pneumophila serogroup1 is the main cause of Legionnaires' disease.

The term “Legionnaires' disease” was first used to describe a pneumonia type infection (caused by a then unknown agent) which afflicted delegates attending an American Legion Convention at a Philadelphia hotel in July 1976.

In all there were 192 cases, of which 20 were fatal. Examination of the victims demonstrated the presence of a previously unknown bacteria. This bacteria was found in the air conditioning units and water supplies in the Philadelphia hotel and was identified as the cause of the outbreak. The bacteria was named Legionella and the resulting infection Legionnaires' disease.

It is generally believed that water cooling towers and air conditioning units are the prime causes for outbreaks of Legionnaires' disease as these usually have the potential to infect large groups or clusters of people. Hot and cold water services do however also pose a significant threat and, whilst the number of people infected at any one time may generally be low, overall there are more individual cases caused by these systems.

Legionnaires' disease mainly affects adults over 40, with men being more at risk than women. Persons who have a low immune system or suffer from respiratory disorders and smokers also fall within the higher risk category. It causes a very painful type of pneumonia which occurs when the susceptible person in question inhales aerosol droplets of contaminated water. More recently it has also been discovered that people who are not traditionally in the higher risk category can still become infected if they inhale an aerosol containing sufficient quantities of the Legionella bacteria.

If antibiotic therapy of the appropriate kind is not applied soon after diagnosis serious health conditions can result and can cause long term respiratory damage or even, in extreme cases, death.

The **symptoms of Legionnaires' disease** are very similar to that of flu :

1. High temperature, fever and chills
2. Cough
3. Muscle pains
4. Headache
5. Occasionally diarrhoea and signs of mental confusion
6. Ultimately pneumonia

Upon developing the above-mentioned symptoms the advice is to visit a GP. Legionnaires' disease is notoriously difficult to pinpoint since the symptoms are similar to flu but blood and

urine tests can assist in the diagnosis. (It is worth noting that the illness can be treated with **Erythromycin** or any other similar antibiotic).

There is a legal requirement for employers to report cases of Legionnaires' disease that may have been acquired at their premises to the Health and Safety Executive. If someone suspects that they have the illness as a consequence of their work environment they are advised to report it to their manager, as well as their health and safety representative and occupational health department.

Most recently it has been reported that CQC is also interested in being informed about high bacterial readings.