



Medicine for Managers

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Legionnaire's Disease

Legionnaire's disease is a form of pneumonia, caused by a bacterium called *Legionella*. It causes cough, breathlessness, headache, general muscle aches and pains and a high fever. For anyone with the thought of a French Foreign Legion soldier marching through the desert coughing, in fact the image is completely wrong. It was named after the first outbreak which occurred at a 1976 American Legion convention in Philadelphia.

It is a severe form of pneumonia, usually acquired by inhaling the bacteria from water or soil.

The bacterium contaminates hot water tanks, hot tubs and air conditioning units. It is found naturally in fresh water. Older adults (generally over 50), smokers, those with chronic lung diseases and people with weakened immune systems are particularly susceptible to the disease.

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It can be a problem in hospitals or nursing homes where germs may spread easily through a vulnerable group.

The disease does not generally spread between people and most people exposed to it do not become infected.

Most people who are infected have inhaled the microscopic water droplets from hot tubs, swimming pools, birthing pools and air conditioning cooling towers, but it can be transmitted by aspirating water into the lungs, as when fluids accidentally enter the lung, usually through coughing or choking while drinking.

Occasionally a person can contract the disease from contaminated soil while working in the garden.

Some people, generally those who are in good health and who acquire the disease, do not become ill. However for those people who are vulnerable, the disease is serious and can be life-threatening. Complications include:

- **Respiratory Failure** when the lungs cannot achieve adequate air exchange
- **Septic Shock** resulting in a severe drop in blood pressure, respiratory compromise and heart failure.
- **Kidney Failure** resulting in inability of the body to eliminate toxins

In such cases and without prompt appropriate treatment, Legionnaire's disease may be fatal.

Diagnosis may sometimes be difficult to make and to distinguish from other forms of pneumonia. As with other forms of pneumonia, the usual tests utilised include:

- **Blood and Urine Tests**
- **Sputum Tests**
- **Aspiration of mucus from the lung** in more difficult cases
- **Chest x-ray.** The X-ray does not aid the diagnosis but gives an indication of the degree of infiltration of the infection and any associated lung conditions.
- **CT Scan** when required

Once diagnosed, the patient should usually be treated in hospital. Treatment will include:

- **Antibiotics**, normally given intravenously. Antibiotics of choice include *macrolides* (such as **Azithromycin**) and *fluoroquinolones* (such as **Levofloxacin** or **Ciprofloxacin**).
- **Oxygen administration**
- **Artificial ventilation** in more severe cases

Treatment is normally necessary for up to three weeks, although the latter part can often be provided at home.

It is estimated that about one in every ten people who contract Legionnaire's disease will die, due to the complications of their illness.

Of those people who contract the illness whilst already receiving medical care in a hospital, about one in every four will die of the disease.

Prevention

Employers and landlords must understand the health risks associated with Legionella. The Health and Safety at Work Act 1974, and more specifically the Control of Substances Hazardous to Health Regulations 2002 (COSHH) detail actions to assess, prevent and control risks such as Legionella.

Because Legionella can contaminate areas and appliances, such as water towers, plumbing, hoses, hot tubs, etc., and thrives at 20-45°C, precautions must be in place to reduce risk exposure by

- Identifying/assessing sources
- Managing, preventing and controlling risks
- Keep correct records of procedures

A competent person, with the necessary skills, will assess to whole water system, ensure appropriate cleaning, avoid water temperatures which favour Legionella growth, avoid stagnation, ensure water is treated to inhibit or prevent growth and monitor and test water regularly.

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