
Legionnaires' disease

Frequently Asked Questions

1. What is Legionnaires' disease?

Legionnaires' disease is recognised worldwide as an important cause of both community- and hospital-acquired pneumonia. It is caused by Gram-negative bacilli of the *Legionella* genus. The mortality rate in infected individuals ranges between 10 – 20%. It was named after a large outbreak in 1976 that occurred at a meeting of the American legion, which affected 221 people, causing 34 deaths. *Legionella* bacteria are common and can be found naturally in environmental water sources, including rivers, lakes, natural pools and moist soil. Water temperatures in the range of 20°C to 50°C favour growth of the organism. *Legionella pneumophila* serogroup 1 is the most important species of *Legionella* that causes disease in humans, although other species can occasionally cause disease. *Legionella spp.* may also cause Pontiac fever, a mild, self-limiting flu-like illness.

Who can get Legionnaires' disease?

All persons can develop Legionnaire's disease. However, the risk is higher in persons over the age of 50 years. Male gender, persons with immunodeficiency syndromes or chronic underlying medical conditions of the lung, heart or liver and smokers are also at increased risk.

Where does Legionnaires' disease occur in South Africa?

Legionnaires' disease may manifest as sporadic cases, small clusters, or outbreaks of disease that can involve hundreds of cases. It is also an important cause of travel-related illness, and may be acquired on cruise ships, in hotels and resorts. In South Africa, both sporadic cases and outbreaks of Legionnaires' disease have been described. Serological testing identified that approximately 8% of community acquired pneumonias are caused by *Legionella* species. Prospective surveillance identified 21/1805 (1.2%) cases of legionellosis amongst persons with severe respiratory illness. However, due to difficulties in diagnosis and lack of awareness of the disease, very few cases are diagnosed in SA at present. It is very likely that sporadic cases, clusters and even outbreaks occur and are missed.

How is Legionnaire's disease transmitted?

Persons become infected by breathing in water droplets containing the *Legionella* bacteria. Water droplets are generated by spraying or bubbling air through water in which the bacteria are present. Human-to-human transmission of *Legionella* has never been documented. The incubation period for Legionnaires' disease is 2 – 10 days. Wherever water droplets can be created there is a risk of infection, including:

- Hot and cold water systems (e.g. showers and taps)
- Cooling towers and evaporative condensers of air conditioners
- Spa baths (Jacuzzis) and whirlpool baths and natural pools or thermal springs
- Turkish baths and saunas

- Ornamental fountains (particularly indoors) and sprinklers
- Humidified food display cabinets
- Respiratory therapy equipment

What are the signs and symptoms of Legionnaires' disease?

Symptoms are non-specific and may include a flu-like illness, followed by a dry cough, which progresses to a lower respiratory tract infection and pneumonia. High fever, without corresponding elevation of pulse rate is characteristic. A frequent clinical presentation includes myalgia, non-productive cough, diarrhea, confusion, hyponatremia and elevated liver enzymes.

How is Legionnaires' disease diagnosed?

Recommended diagnostic tests are culture of *Legionella spp.* from clinical specimens such as sputum or broncho-alveolar lavage fluid, and the *Legionella* urinary antigen testing which detects *Legionella pneumophila* serogroup 1 antigens in urine. Culture is the gold standard for diagnosis. Molecular tests such as PCR are available for detection of *Legionella spp* from clinical specimens

How is Legionnaires' disease treated?

Treatment of legionellosis is with antibiotic therapy. Oral macrolide antibiotics (including erythromycin, azithromycin) are appropriate for outpatient or mild pneumonia, while persons with severe illness should be treated with azithromycin for 7-10 days or levofloxacin for 10-14 days. Supportive therapy is essential

How can Legionnaires' disease be prevented?

The proper design, maintenance and temperature of potable water systems are the most important method for preventing the amplification of *Legionella*. Hot water should be maintained above 60°C and delivered to taps at temperatures above 50°C. Cold water should be maintained below 20°C. Plumbing systems should be flushed regularly and low flow areas eliminated. There are currently no vaccines to prevent Legionnaires disease.

Where can I find out more information?

The NHLS laboratory network provides both culture for legionella from clinical specimens and legionella antigen testing on urine. Contact your local NHLS laboratory for more information.

Environmental testing for legionella is conducted by a number of private laboratories. The NHLS Infection Control Laboratory at the Charlotte Maxeke Hospital is able to conduct environmental testing according to current industry standards. Contact Mr Rob Stewart on 011-489-8579/8/9

For emergency advice on laboratory testing and diagnosis, contact the NICD hotline: 082 883 9920
For more information contact: