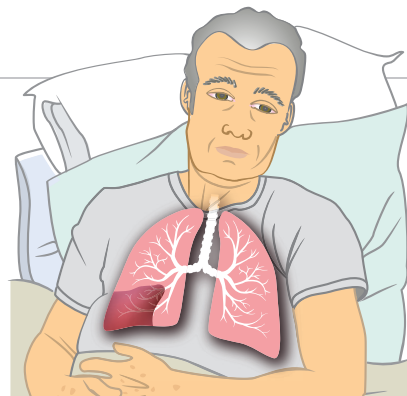


What is Legionnaires' Disease?

Legionnaires' disease (also called legionellosis) is an infection of the lung (pneumonia) that can lead to difficulty breathing, respiratory failure or even death. Infectious outbreaks are commonly associated with exposure to water supplies contaminated with *Legionella* (such as air conditioners).



What causes Legionnaires' Disease?

Legionnaires' disease was first described in 1976 when an outbreak infected attendees of the American Legion convention. A family of bacteria called *Legionella* causes Legionnaires' disease. The most common cause of Legionnaires' disease is *Legionella pneumophila*, but *Legionella* species other than *pneumophila* exist and can also cause illness. *Legionella* bacteria are a part of the environment. They grow best in warm water but can also grow in cool water supplies. Infections have been associated with contamination of the following water sources:

- Water towers/evaporator condensers
- Shower heads/faucets
- Hot tubs
- Ultrasonic misters
- Humidifiers
- Decorative fountains
- Plumbing networks

Who gets Legionnaires' Disease?

People are exposed to *Legionella* by inhaling (breathing in) water droplets that contain the bacteria. Summer and early fall are the most common times of the year for infections to occur. Persons over 50 years of age, who are current or former smokers, those with chronic diseases such as chronic obstructive lung disease (COPD) or diabetes, or those with a weak immune system (immunocompromised) are at a higher risk of infection. Of note, Legionnaires' disease is not passed from person to person.

What are the signs and symptoms of Legionnaires' disease?

The signs and symptoms of Legionnaires' disease are similar to other types of pneumonia that are caused by bacteria. These include:

- Shortness of breath
- Cough
- Fatigue
- Decreased appetite
- Fever
- Chills
- Muscle aches (also called 'myalgias')
- Diarrhea
- Headaches
- Confusion

How is Legionnaires' Disease diagnosed?

Legionnaires' disease most commonly causes pneumonia and is diagnosed by symptoms, physical examination findings, chest x-ray and blood tests. *Legionella* is one of many causes of pneumonia. For more information about pneumonia, please visit www.thoracic.org/patients. Your healthcare provider may perform additional testing to decide if *Legionella* is the cause of your pneumonia. These laboratory tests may include:

- **Urine test:** *Legionella* has several naturally occurring variations known as 'species' and 'serotypes'. Although these differ to some extent, the symptoms they cause are similar. A urine test can detect the presence of the most common cause of Legionnaires'

disease, called *Legionella pneumophila* serotype 1. If your urine test is positive for *Legionella*, then you are believed to have Legionnaires' disease. The limitation of this test is that not all serotypes of *Legionella* can be detected using urine testing. This means that a "negative" result does not entirely eliminate Legionnaires' disease as the cause of your symptoms.

- **Culture test:** Samples may be collected to culture (grow) the bacteria. The culture samples may be collected from your sputum (also called phlegm or mucus from the lungs). They can also be directly collected from your lungs, either by placing a scope directly into your airways to collect a sample, called "Flexible Bronchoscopy", or by endotracheal aspiration, where samples are taken from your lungs when connected to a breathing machine. Rarely, cultures from a lung biopsy may be used. A positive culture confirms the diagnosis of Legionnaires' disease. However, these cultures can take many days to grow, limiting how useful they are to diagnose the disease early.
- **Blood test:** Exposure to *Legionella* induces your immune system to make antibodies (proteins in the blood) that recognize the bacteria and help clear the infection. Your healthcare provider may collect blood to test the level of antibodies at the time of symptoms and weeks after your recover to determine if your immune system produced antibodies to *Legionella*. This test is used at times to confirm diagnosis.

It is important to know that if these above tests are "negative" (or do not indicate the presence of *Legionella*), you may still have Legionnaires' disease.

How is Legionnaires' Disease Treated?

Legionnaires' disease can be treated using an antibiotic. However, not all antibiotics are effective against *Legionella*. It is important that your healthcare provider make the correct diagnosis to ensure that they prescribe an effective antibiotic. However, antibiotics that cover a wide range of bacteria are often prescribed until a definite diagnosis is made. If you are very ill, you may need to be admitted to the hospital. If you develop severe pneumonia, you may even need the assistance of a breathing machine (mechanical ventilator). Please see the Patient Information Series on Mechanical Ventilation at www.thoracic.org/patients.

Is Legionnaires' Disease Fatal?

You can die from severe Legionnaires' disease. It is estimated that up to 30% of patients diagnosed with

Legionnaires' disease can die due to the infection. Hence, avoiding exposure is the best way to reduce your risk of getting the disease.

Can Legionnaires' Disease Be Prevented?

There is no specific vaccine for Legionnaires' disease. Hence, the main thing you can do to prevent Legionnaires' disease is to ensure that different water systems that *Legionella* can grow in, are kept clean. You should avoid exposure to water sources such as drinking water systems, decorative fountains and hot tubs if you are unsure about their cleanliness. Be sure that equipment at home such as air conditioners or shower faucets are frequently inspected and cleaned. People who are at risk for lung infections should get vaccines for influenza and Pneumococcal pneumonia as well as other age appropriate vaccines. Please ask your healthcare provider about what vaccines you may need. More information is available at www.thoracic.org/patients.

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Rx Action Steps

- ✓ Do not smoke and avoid regular tobacco smoke exposure.
- ✓ If you are prescribed medicine for an infection, take all doses as prescribed.
- ✓ Seek immediate medical attention if you have symptoms of pneumonia and difficulty breathing.
- ✓ Talk with your health care provider if you are sick and think you may have pneumonia.

Healthcare Provider's Contact Number:

References:

U.S. Centers for Disease Control

<http://www.cdc.gov/legionella>

United States Department of Labor

<https://www.osha.gov/dts/osta/otm/legionnaires/faq.html>

World Health Organization

<http://www.who.int/mediacentre/factsheets/fs285/en/>

**Medline Plus (National Library of Medicine/
National Institutes of Health)**

<https://www.nlm.nih.gov/medlineplus/legionnairesdisease.html>

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