

Why Test for Legionella?

Legionellosis is a lung infection similar to pneumonia. Legionella infects people when aerosols containing the bacteria are inhaled. The disease is therefore referred to as an airborne disease.

Legionellosis was first detected in 1947 but no cause was found until the first recognized outbreak occurred on July 27, 1976 at the Bellevue Stratford Hotel in Philadelphia, Pennsylvania, where members of the American Legion, a United States military veterans association, had gathered for the American Bicentennial.

Within two days of the event's start, veterans began falling ill with a then-unidentified pneumonia. They had high breathing rates and chest pains. Numbers differ, but perhaps as many as 221 people were given medical treatment and 34 deaths occurred.

At the time, the U.S. was debating the risk of a possible swine flu epidemic, and this incident prompted the passage of a national swine flu vaccination program. That cause was ruled out, and research continued for months, with various theories discussed in scientific and mass media that ranged from toxic chemicals to terrorism (domestic or foreign) aimed at the veterans.

The U.S. Centers for Disease Control and Prevention mounted an unprecedented investigation and by September, the focus had shifted from outside causes, such as a disease carrier, to the hotel environment itself. In January 1977, the *Legionellosis* bacterium was finally identified and isolated, and found to be breeding in the cooling tower of the hotel's air conditioning system, which then spread it through the entire building.

This finding prompted new regulations worldwide for climate control systems.

The disease has a 10 - 40% mortality rate. The disease is thought to be under reported by significant numbers because it is difficult to differentiate from pneumonia. However, property owners bear liability for the spread of the Legionella disease.

Legionella are naturally found in lakes, rivers and streams. Very low numbers of the bacteria enter buildings in potable water because most potable water systems do not contain detectable numbers of Legionella. Once introduced, however, Legionella can multiply in cooling towers, evaporative condensers, air washers, humidifiers, hot water heaters, spas, fountains and plumbing fixtures such as shower heads.

Once the bacteria reach a number that can be infectious, they must be released as a mist. Any water system that produces water droplets, such as cooling towers, shower heads, produce misters, respiratory therapy devices, whirlpools, fountains, etc., can be a source for Legionnaires' disease. Since the bacteria have no source of locomotion, they must be carried to the host. If your cooling tower is located next to air intakes on the building, be sure to investigate methods of insuring that mist from the cooling tower is not sucked into the air intake.

The EPA and OSHA both recommend routine testing for Legionella. Once high numbers of Legionella are detected, relatively simple procedures for disinfecting the water system are available. Routine treatment of Legionella is not recommended, but regular testing for the bacteria should be a part of every effective water treatment program.