

To Your HEALTH Fresno County

Highlighting public health issues and ways to improve personal, family, neighborhood and community health



Legionnaires' Disease – Responding to an Emerging Infectious Disease

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An infectious disease that has newly appeared in a population or that has been known for some time but is rapidly increasing in incidence or geographic range is referred to as an emerging infectious disease. An example of such an illness being dealt with today is Legionnaires' disease (LD).

Legionnaires' disease was first discovered following an outbreak of severe pneumonia at the 1976 American Legion Convention in Philadelphia. It has become increasingly common in this country, with a demonstrated 286% increase in reported cases per 100,000 population from 2000 to 2014. Sixteen cases of LD have been reported to the Fresno County Department of Public Health (FCDPH) to date since January 1, 2015.

Over the last several months, there is seldom a week that goes by without a call—over the Centers for Disease Control and Prevention's (CDC) national epidemiological network—for cases of LD that may be related to specific venues (usually hotels or healthcare facilities).

The CDC attributes such increases in this emerging infectious disease to an older U.S. population, increased numbers of at-risk individuals, aging plumbing infrastructure, and increased recognition of, and testing for, the disease. However, there are those who mention climate change as a contributing factor also.

Legionnaires' disease is a severe form of pneumonia caused by any of several species of bacteria known as *Legionella* when water contaminated with the bacteria is aerosolized and inhaled or, less commonly, aspirated.

Legionnaires' disease begins as many other community or hospital acquired pneumonias do, with cough, fever, and shortness of breath. It can also cause headache, neurological symptoms and gastrointestinal symptoms. Symptoms begin 2–10 days after exposure. The illness has a 10% fatality rate and is not transmitted from person to person. Less commonly, the organism can cause a mild flu-like illness that resolves in 2–5 days, and is known as [Pontiac Fever](#).

Individuals at highest risk for infection and death include those with renal or hepatic failure, diabetes, chronic lung disease, smoking history, immune disorders, and age 50 or above.

Legionella species are ubiquitous in nature, especially in aquatic environments, and can survive in extremely varied water conditions, including treated water systems. Proliferation of the bacteria is dependent upon symbiotic relationships with other microbes, especially those found in biofilms, making relatively stagnant areas within complex water systems of some facilities subject to colonization.

While infection with LD is commonly connected to facilities with these complex water systems, many have no such connection, and may be from exposures at locations closer to, and including, your home. Fixtures such as shower heads, faucet aerators, humidifiers, nebulizers, whirlpool baths, hot tubs, misters (including those found in the produce sections of food stores), and decorative fountains have all been implicated.

When a case of LD is reported to FCDPH a communicable disease specialist is assigned to obtain information regarding possible exposure while travelling or while an inpatient or outpatient at any healthcare facility. While these travel-associated and healthcare-associated cases of LD are becoming more common, even more frequent are sporadic cases which cannot be associated with travel venues or healthcare facilities, and must be assumed to have been contracted in or near the home.

If a healthcare facility is implicated as a source to *Legionella* infection, FCDPH communicable disease and environmental health staff work closely with the involved facility, the California Department of Public Health's Healthcare Associated Infections Branch and the California Department of Health Care Services' Licensing and Certification Branch to isolate the possible source(s) of the organism. This work involves medical record and laboratory review of patients in whom LD may have been missed, careful consideration of LD in patients subsequently presenting with pneumonia, and a full environmental assessment of the facility for likely sources of the organism. This is followed by appropriate sampling and testing for the organism. Should *Legionella* bacteria be found in samples of water or fixtures, facilities are required to implement a plan for remediation which usually involves hyperchlorination or super-heated flushing. Following remediation, retesting is required until the organism is no longer detectable. A schedule of periodic follow up samplings and testing is then prescribed for a period of time.

Because there are healthcare facilities in Fresno County that have been implicated as sources of infection of LD, and because sporadic cases seem to be on the rise here, [local providers have been notified](#) to have a high suspicion for the infection and healthcare facilities have been advised to develop water management programs.

This is an example of your public health department at work to protect our community from such emerging infectious diseases.

Here's to your health!



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