



NAVY AND MARINE CORPS PUBLIC HEALTH CENTER

IMPROVING READINESS THROUGH PUBLIC HEALTH ACTION

Legionella

What Is It?

Legionella pneumophila (*L. pneumophila*) is the bacterium that is responsible for most cases of Legionnaires' disease (LD) or Legionellosis. *Legionella* bacteria occurs naturally in freshwater environments, like lakes and streams. It becomes a health concern when it grows and spreads in human-made building water systems



There are typically two different forms of *Legionella* infection. LD is the most serious, sometimes lethal form, requiring medical treatment. LD primarily affects the lungs, but it can occasionally cause infections in wounds and in other parts of the body, including the heart. Pontiac Fever is a less severe form of *Legionella* infection. Pontiac Fever is an upper respiratory infection and its symptoms usually clear within two to five days. People can get LD or Pontiac fever when they breathe in mist or accidentally

swallow water into the lungs containing *Legionella*.

Complex water distribution systems (consisting of water heaters, storage tanks, and pipes) in large buildings, including hotels and hospitals, are the most common source for *Legionella* exposure. Other sources include cooling towers, mist machines, humidifiers, whirlpool spas, and hot springs.

How Do People Get Legionnaires' disease?

After *Legionella* grows and multiplies in a building water system, water containing *Legionella* then has to spread in droplets small enough for people to breathe in or accidentally aspirate into the lungs while drinking. People at increased risk of aspiration include those with swallowing difficulties. In general, people do not spread Legionnaires' disease and Pontiac fever to other people.



People at increased risk of getting sick after exposure to the bacteria include, people over the age of 50, current or former smokers, people with chronic lung disease (such as chronic obstructive pulmonary disease or emphysema), people with weak immune systems or who take drugs that weaken the immune system, people with cancer



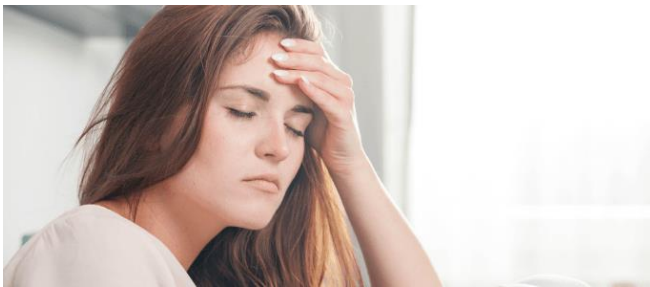
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and people with underlying illnesses such as diabetes.

What Are the Symptoms?

The incubation period for LD is most commonly 5 to 6 days from the time of exposure to symptom onset, with a range of 2 to 14 days. Initial symptoms may include feeling tired and weak, along with a cough if the infection is in the lungs. The patient may cough up mucous and develop a fever. Symptoms may also include diarrhea, nausea, vomiting, stomach discomfort, headaches, muscle aches, chest pain and shortness of breath.



What Should I Do If I Have Symptoms?

If you believe you were exposed to *Legionella* AND you develop symptoms listed above, talk to your Healthcare Provider and the local military treatment facility (MTF) Preventive Medicine Department immediately. Let them know if you have recently used a hot tub, spent any nights away from home, or stayed in a hospital in the last two weeks.

About 1 out of every 10 people who get sick with LD will die due to complications from their illness. However, outcomes are better if the patient is treated with appropriate antibiotics near the onset of pneumonia, especially if the patient has no underlying illness that compromises the immune system.

Specialized laboratory tests are necessary to properly diagnose *Legionella*. These tests may

include a specialized culture of the patient's sputum, testing for antibodies in the patient's blood, and a urinary antigen test that detects *Legionella pneumophila* serogroup 1 (the cause of LD in >95% cases), in the patient's urine.

How Can I Reduce the Risk of Getting Infected?

You can reduce your risk of exposure by avoiding public places and water systems that may be prone to *Legionella* contamination as described above and by also minimizing conditions that promote *Legionella* growth in your home. For building managers a building-specific water management plan to control *Legionella* is recommended for all large buildings (e.g. ASHRAE 188. Legionellosis: Risk Management for Building Water Systems). Since 2017, all Medicare certified health care facilities are required to have a water management plan (Centers for Medicare and Medicaid Services [CMS-17-30]: Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease [LD]). For Veteran's Health Administration (VHA) owned buildings, VHA Directive 1061 establishes policy for the prevention and control of healthcare-associated LD in VHA-owned buildings in which patients, residents, or visitors stay overnight.

Building managers can help prevent *Legionella* problems by maintaining building water systems properly. This may include maintaining water temperatures outside the ideal range for *Legionella* growth (both hot and cold), preventing water stagnation, ensuring adequate disinfection, maintaining devices to prevent scale, corrosion and biofilm, all of which provide a habitat and nutrients for *Legionella* and other opportunistic pathogens. Because higher water temperatures affect disinfectant levels necessary to kill germs like *Legionella*, making sure that hot tubs have



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the right disinfectant and pH levels is essential. Proper cleaning and maintenance of these water sources are critical.

How Does This Apply on Navy and Marine Corps Installations?

Ensuring that consumers of drinking water aboard Navy and Marine Corps installations have access to safe, sanitary drinking water is a multi-disciplinary effort involving experts from several organizations. The Bureau of Medicine and Surgery (BUMED), Navy Installations Command (CNIC), Marine Corps Installations Command (MCICOM) and Naval Facilities Engineering Command (NAVFAC) are the principal shore establishment entities overseeing drinking water systems and programs. These organizations work together with local commands and officials to protect Navy and Marine Corps drinking water systems from contamination and to detect and

swiftly respond to any incidents that might result in contamination of drinking water.

Local installation MTF Preventive Medicine personnel are required to report all incidents of drinking water issues to the Navy and Marine Corps Public Health Center (NMCPHC) to ensure proper mitigation efforts are made and communicated to customers. Additional information on drinking water is available at: <https://www.med.navy.mil/sites/nmcphc/program-and-policy-support/water-sanitation-and-safety/Pages/default.aspx>

Navy Environmental Health personnel may use the *Legionella Response Guidance Manual*, prepared by NMCPHC, as a resource for preventing or responding to a suspected *Legionella* problem at their installation.

For more information on *Legionella* visit:

Learn more: <https://www.cdc.gov/legionella/index.html>

Learn more: https://www.nps.gov/lyjo/learn/news/upload/CDC_Fact-Sheet.pdf

Learn more: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Policy-and-Memos-to-States-and-Regions-Items/Survey-And-Cert-Letter-17-30->

Learn more:

https://www.va.gov/VHApublications/publications.cfm?pub=1&order=asc&orderby=pub_Number

Learn more: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Policy-and-Memos-to-States-and-Regions-Items/Survey-And-Cert-Letter-17-30->

For Environmental Health Personnel: (CAC required for access)

https://esportal.med.navy.mil/sites/nmcphc/pps/Documents/NMCPHC_Legionella_Response_Guidance_Manual_20_Nov_2020_CNIC.pdf