



District Health Department #10



REPORT TO THE BOARDS OF HEALTH

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Legionnaires' Disease

Legionnaires' disease, or legionellosis, is a very severe kind of pneumonia caused by bacteria called *Legionella pneumophila*, or *Legionella* for short. It was first identified after an outbreak at an American Legion Convention in Philadelphia in 1976, hence its name. *Legionella* may less commonly cause Pontiac fever. This is a more mild illness consisting of fever, chills, tiredness, headache, and general feelings of illness, but no pneumonia or respiratory symptoms. It is named Pontiac fever because the first recognized outbreak occurred at the county health department facility in Pontiac, Michigan, in 1968, affecting at least 144 people¹. At the time, no specific cause could be identified, but after the *Legionella* bacterium was identified, analysis from stored samples from the Pontiac outbreak revealed that *Legionella* was the cause¹.

The natural habitat for *Legionella* is lakes, rivers and other bodies of water¹. These natural sources have a very small number of germs. However, man-made reservoirs of water such as cooling towers, whirlpools, water systems, decorative fountains, and so on, seem to encourage this germ to grow¹. When this water is turned into droplets in the air, or an aerosol, and inhaled, the *Legionella* can get into the lung and cause infection. There have not been any known cases of Legionnaires' disease passing from person-to-person. Most healthy people that inhale *Legionella* will not get an infection. Those that get sick typically have at least one risk factor, which are most commonly smoking, chronic lung disease, being over 50 years old, and having a weak immune system². Despite Legionnaires' disease being treatable with antibiotics, an average of 1 in 10 people die from the infection.

It is increasingly recognized that Legionnaires' disease occurs in health care facilities, like hospitals, in the form of healthcare-associated pneumonia. In fact, the latest data shows that **3 out of 4 people with Legionnaires' disease got it from a health care facility. Of those that contract Legionnaires' disease from a health care facility, 1 out of 4 will die**³. This is because those that are already in hospitals and health care facilities typically have conditions putting them at higher risk for infection with and complications from *Legionella*. Nearly all of the infections could be prevented with proper water management and equipment maintenance. If health care facilities do not properly maintain their water management, patients are at risk for Legionnaires' disease.

Ebola Updates

Ebola virus, or Ebola for short, made a re-appearance in Africa recently, specifically in the Democratic Republic of Congo (DRC). Ebola is a severe illness consisting of sudden onset of fever, intense weakness, muscle pain, headache, sore throat, vomiting, diarrhea, rash, possible internal and external bleeding, and kidney and liver malfunction that is fatal in 25% to 90% of cases. The DRC identified the first case of Ebola of this outbreak on

¹ Yu, V., Stout, J., Galindo, N. Epidemiology and pathogenesis of *Legionella* infection. (April 7, 2016). In: UpToDate. Calderwood, S., Bond, S. (Eds), UpToDate, Waltham, MA.

² Centers for Disease Control and Prevention (CDC). (2016, May 31). *Legionella* (Legionnaires' Disease and Pontiac Fever). Retrieved June 13, 2017, from <https://www.cdc.gov/legionella/about/index.html>

³ Centers for Disease Control and Prevention (CDC). (2017, June 06). Legionnaires' Disease: A problem for health care facilities. Retrieved June 13, 2017, from <https://www.cdc.gov/vitalsigns/legionella/index.html>

April 21, 2017 and the last confirmed case was reported on May 17⁴. There were a total of 8 cases, 4 deaths, and 583 contacts identified and followed. Multidisciplinary rapid response teams responded quickly to work on the outbreak investigation and community education efforts with excellent success⁴. The DRC has also approved the use of an experimental **Ebola vaccine, named rVSV-ZEBOV, which is produced by Merck**⁵. This vaccine has not been licensed, but was studied in 2015 and 2016 and found to be effective in slowing down the spread of Ebola in Guinea⁵. It is administered in a ring fashion, meaning the vaccine is given to contacts of Ebola cases and the contacts to those contacts⁶. In studies it was found to be up to 100% effective in the contacts vaccinated immediately, at least in the short term⁶. Due to the efficacy of the vaccine, an emergency stockpile of 300,000 doses was created in case another outbreak occurred. The vaccine has not yet been used in the DRC as the outbreak seems to have been controlled, but if further cases occur, it may be administered to the contacts.

Ebola demonstrated a need for coordinated efforts in facing epidemic threats. In 2016, numerous international stakeholders from governments, industry, academia, philanthropy, intergovernmental institutions, such as the World Health Organization, and civil society developed the **Coalition for Epidemic Preparedness Innovations (CEPI)**, which was officially launched January 2017⁷. **Their mission is to finance and coordinate the development of new vaccines to prevent and contain infectious disease epidemics.** Diseases CEPI has placed at high priority for vaccine development due to their public health impact and risk of outbreak are MERS-CoV, Lassa virus, and Nipah virus⁷.

Board of Health Monthly Healthy Living Recommendations:

1. Encourage building owners and operators, especially those of health care facilities, to develop a water management program to reduce Legionella growth and spread. See the CDC Toolkit at: <https://www.cdc.gov/legionella/maintenance/wmp-toolkit.html> and the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHREA) Guidelines at: <https://www.ashrae.org/resources--publications/bookstore/ansi-ashrae-standard-188-2015-legionellosis-risk-management-for-building-water-systems> and links to numerous other guidelines at: <http://www.specialpathogenslab.com/legionella-guidelines-table.php>.
2. Properly maintain pools and hot tubs. For both professional and recreational links, see: <https://www.cdc.gov/healthywater/swimming/aquatics-professionals/operation-maintenance.html>.
3. Be aware of global infectious disease outbreaks and support efforts to control and contain them. Prepare yourself, your family, and your community for the potential of a pandemic at some point in the future: <https://www.ready.gov/pandemic>.

⁴ World Health Organization (WHO). (n.d.). Ebola virus disease. Retrieved June 13, 2017, from <http://www.afro.who.int/en/ebola/ebola-virus-disease.html>

⁵ Soucheray, S. (2017, May 30). DRC approves use of Ebola vaccine. CIDRAP News. Retrieved June 13, 2017, from <http://www.cidrap.umn.edu/news-perspective/2017/05/drc-approves-use-ebola-vaccine>

⁶ Henao-Restrepo, A. M., Camacho, A., Longini, I. M., Watson, C. H., Edmunds, W. J., Egger, M., . . . Kieny, M. (February 4, 2017). Efficacy and effectiveness of an rVSV-vectored vaccine in preventing Ebola virus disease: final results from the Guinea ring vaccination, open-label, cluster-randomised trial (Ebola Ça Suffit!). *The Lancet*, 389(10068), 505-518. doi:10.1016/s0140-6736(16)32621-6

⁷ CEPI: Mission. (2017). Retrieved June 14, 2017, from <http://cepi.net/mission>