California health authorities identify three more cases of Legionnaires' disease

Brad Dixon
20 November 2017

On Thursday, the Orange County Health Care Agency (OCHCA) confirmed three new cases of Legionnaires' disease in the Los Angeles area. This brings the total number of cases of the disease in the past two months to 15, two of which have been fatal.

Health officials traced the cause of 11 of the infections to two contaminated cooling towers at the Disneyland amusement park in Anaheim, California. The OCHCA is still trying to determine the source of infection for the four other people who did not visit Disneyland, but either live in Orange County or have traveled in Anaheim.

Disneyland's cooling towers, however, have not been eliminated as a possible source of the other infections.

"Though it will not be possible to definitely link the cases to the cooling towers, the level of contamination and their location suggests that they are a potential source for some or all cases," said Jessica Good, a spokeswoman for the OCHCA, according to the *Orange County Register*.

It can take between two and 10 days before people show symptoms from the disease—coughing, fever, shortness of breath, headaches and muscle aches—making it more difficult to determine the origin of outbreaks.

After health officials informed the resort of the Legionnaires' outbreak on October 27, Disneyland shut down and sanitized the cooling towers on November 4. Four days later, Dr. Eric Handler, Orange County's Health Officer, ordered the amusement park to take the cooling towers out of operation.

Legionnaires' disease is caused by the *Legionella* bacterium and can result in a type of pneumonia (lung infection). While the bacterium is found naturally in freshwater, it generally does not become a health concern until it grows and spreads in human-made water systems, such as cooling towers for air conditioning, hot tubs not drained after each use, or hot water tanks and heaters.

The disease spreads when water mist carrying the bacteria is inhaled. Legionnaires' disease is generally not contagious and can be treated with antibiotics.

Most people exposed to the disease are unaffected, but the risk of getting sick (and potentially dying) is much higher for those over the age of 55, current or former smokers, and people with weak immune systems or a chronic lung disease.

According to estimates by the Centers for Disease Control and Prevention (CDC), there were about 6,000 cases of Legionnaires' disease reported in the United States in 2015. Incidences of the disease are probably higher since it is likely underdiagnosed.

While the number of cases reported to the CDC has been on the rise since 2000, it is unclear if this reflects an actual increase in the incidence of the disease, or just better diagnostic testing and reporting. The *Los Angeles Times* reports that incidences of the disease in Orange County have increased from 33 cases in 2015 to 50 in 2016, but the cause of the increase remains unknown.

The disease is fatal in around 10 percent of cases. Sixteen people died in 2015 when a contaminated water tower in New York led to an outbreak in which over 100 people became sick.

The disease gets its name from an outbreak of a new type of pneumonia at the 1976 Philadelphia convention of the American Legion in which 182 persons became sick. Twenty-nine people ultimately died.

The warm temperatures found in cooling towers provide an ideal breeding ground for *Legionella* bacteria, while the mist spread by the towers can transmit the disease. Operators of cooling towers, therefore, must take measures to prevent the growth

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and spread of the bacteria.

According to *Outbreak News Today*, in order to prevent the disease, “cooling towers should be drained when not in use and cleaned to remove scale and sediment and biocides can be used to limit bacterial growth.”

A health alert issued by the cooling tower manufacturer SPX Cooling Technologies recommends that cooling towers be cleaned and disinfected by biocides at least twice a year, units should be inspected weekly for bacterial growth, and drift eliminators—the devices responsible for capturing and preventing water droplets and mist from escaping the cooling tower—should be inspected monthly.

It is unknown if Disneyland had taken these preventive measures.

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