

UNDER THE MICROSCOPE

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Legionnaires' Disease: It's Back!

Although Legionnaires' disease never went away, it's back in the news as several large outbreaks have been reported in recent weeks, and it is increasing in incidence. The CDC reports a 450% increase from 2000 to 2015, with cases reported in all 50 states. Recently, four Florida gym-goers and two hotel guests in Las Vegas contracted the infection, and New York City police officers were warned against showering at their station due to the disease. These outbreaks are concerning because of the summer season when people are more likely to enjoy public swimming pools and use the showers and hot tubs, where many cases occur.

Legionnaires' disease was first recognized more than four decades ago when a number of American Legionnaires returning from a convention in Philadelphia were stricken by a mysterious, severe pneumonia. An investigation by the CDC ultimately identified a bacterium—soon given the name *Legionella*—associated with the convention hotel's air conditioning system.

Since then, the *Legionella* bacterium has been identified in many settings, most commonly hotels, long-term care facilities, hospitals, and outpatient clinics. *Legionella* grows in complex water systems of buildings, including health care facilities. The disease is acquired through inhalation of aerosolized water containing the bacteria. In a hospital setting, infection may be acquired from showerheads, certain medical equipment (e.g., respiratory devices), hydrotherapy equipment, or decorative fountains.

Severe pneumonia most commonly affects susceptible persons, including those aged 50 years or greater, former or current smokers, and those with chronic disease or immunosuppression. According to the CDC, approximately 9% of cases are fatal, whereas up to 46% of cases acquired in health care settings end in death. Health care-associated disease accounts for about one-third of the outbreaks, 57% of cases, and 85% of outbreak-associated deaths.

Legionnaires' disease may be prevented by proper water management programs that prevent conditions conducive to *Legionella* growth and transmission, including preventing water stagnation, maintaining appropriate water temperatures, ensuring adequate disinfection, and properly maintaining equipment.

Health care providers are of course critical to the prevention and early identification of the disease by maintaining a high index of suspicion in cases of pneumonia, especially when health care facility-acquired. Early testing for *Legionella* infection is imperative, ideally by the concurrent culturing on selective media of a lower-respiratory sputum sample and a *Legionella* urinary antigen test. Laboratory testing and the timely notification of local public health authorities is crucial in identifying new outbreaks, and in offering affected patients potentially lifesaving treatment.