



Special Pathogens
Laboratory®

The Legionella Experts - Pittsburgh, PA

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Rapid Climb in Legionnaires' Disease Worries Experts

20 September (AWWA)—Cases of Legionnaire's disease—a potentially fatal illness caused by waterborne bacteria—have nearly tripled over the past decade, according to a [new report](#) from the Centers for Disease Control and Prevention (CDC). This dramatic rise is unprecedented, and scientists aren't sure why reported cases have increased recently.

“The bottom line is we're concerned,” said Dr. Lee Hampton, a medical epidemiologist with the CDC and co-author of the report. “Water consumers and providers need to take preventative measures to protect against this disease.” *Legionella* bacteria cause Legionnaire's disease and the lesser-known Pontiac fever. Most cases of these two diseases, collectively known as legionellosis, are associated with exposure to contaminated drinking water. While Pontiac fever is uncommon and relatively benign, Legionnaire's disease is a more serious condition producing pneumonia, high fever and cough. Legionellosis affects between 8,000 and 18,000 people every year nationally, and it is responsible for nearly one third of all outbreaks associated with drinking water.

The bacteria's name stems from a 1976 outbreak affecting attendees of an [American Legion](#) convention in Philadelphia. Although the bacteria are predominantly found in health care facilities, outbreaks have occurred in apartment complexes, gyms, and [hotels](#). Immuno-compromised patients, the elderly and those with chronic lung disease share an increased risk for infection, but about 20 percent of Legionnaire's patients are otherwise healthy individuals.

Reported cases of the disease remained nearly constant during the 1980s and 1990s, suggesting the increase over the past decade may be largely due to an aging population and recent improvements in detection of the disease. Simpler tests for Legionnaire's disease have proliferated over the past two decades, allowing doctors to more easily distinguish this disease from other forms of pneumonia. Urine antigen tests have become the staple. Between 2005 and 2009, urine antigen tests were used to confirm more than 95 percent of the CDC's reported cases compared to roughly 70 percent in 1998.

“A rise in diagnostic testing is the predominant cause of the observed increase in Legionnaire's disease,” said [Janet Stout](#) of the University of Pittsburgh, a microbiologist specializing in *Legionella* and director of the Special Pathogens Laboratory. “That being said, it appears that environmental conditions are playing a part as well.” Over the past month, Stout and her colleagues have observed an uptick in Legionnaire's cases in the Mid-Atlantic states. This uptick may be associated with recent extreme weather events, such as hurricane Irene, that compromised water quality in municipal systems.

Environmental factors may also explain the regional variability of Legionnaire's disease because *Legionella* bacteria thrive in a warm, humid environment. For instance, differing climates may explain why incidence in the Mid-Atlantic states is more than six times higher than on the West Coast.

But geographic variability might have more to do with awareness of the disease rather than environmental factors. In the Northeast, Stout said health departments are more likely to publicize the disease, and the population is more familiar with it.



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Regardless, scientists agree that there are important steps that water utilities and consumers can take to protect against *Legionella*. *Legionella* can be particularly stubborn—even if the bacteria are undetectable at a treatment plant, they can regrow quickly in the distribution system. Effective secondary disinfectants are critical toward the elimination of *Legionella* in the water supply.

Over the past few years, several utilities have seen impressive reductions in *Legionella* at the tap after introduction of monochloramine as a disinfectant. A [CDC-funded report](#) analyzing San Francisco Public Utilities Commission's conversion to monochloramine found that *Legionella* rates dropped significantly. *Legionella* was found in 72 percent of the studied buildings before the conversion, but only 9 percent of the buildings contained the bacteria after the conversion to monochloramine.

Monochloramine may not be the answer for all utilities, however. New research has indicated that *Legionella* may persist even after the introduction of monochloramine into the water supply, according to Stout. "Early work on monochloramine was promising," notes Stout. "But it may not be the silver bullet to the *Legionella* problem."

In addition to treating for *Legionella*, utilities have a responsibility to inform their consumers about the risks associated with these bacteria. At-risk populations, including the elderly and transplant patients, should be educated on *Legionella* and preventative measures, said Stout. Boiling drinking water will kill the bacteria, and setting home water heaters to 130 F will prevent the bacteria from colonizing in the plumbing system.

To improve preventative measures for *Legionella*, the CDC began active monitoring programs at 10 sites in January. Active monitoring programs should diminish some of the uncertainty surrounding this CDC report, which relied heavily on passive self-reporting by health care professionals. After analyzing this new data, scientists hope to have a better idea of the scope of Legionnaire's disease.

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Information for this article based on the following resources:

"[Current Concepts: Legionellosis](#)," Janet E. Stout, Victor L. Yu. (*New England Journal of Medicine* 1997. 337:682-687)

"[Community-Acquired Legionnaires' Disease: Implications for Underdiagnosis and Laboratory Testing](#)," Victor L. Yu, Janet E. Stout. (*Clinical Infectious Diseases* 2008; 46:1365-1367)

[Guidance for People with Severely Weakened Immune Systems](#) (EPA)

[Allegheny County Health Department Legionella Guideline](#) (The first published guideline for healthcare facilities.)

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Special Pathogens Laboratory, The Legionella Experts®, is the national leading analytical microbiology laboratory offering the healthcare industry, water treatment industry, and commercial and industrial sectors reliable, high-quality consulting and microbiology services. SPL®, an accredited laboratory and ELITE certified by CDC for expertise in *Legionella* testing, specializes in the detection, control, and disinfection of *Legionella*, and other waterborne microorganisms responsible for serious infections, including thousands of hospital-acquired infections annually. SPL was founded by Dr. Victor L. Yu and Dr. Janet E. Stout, internationally recognized experts in clinical and environmental infectious disease and microbiology, including Legionnaires' disease.