



## FACT SHEET

### Resuming safe operation of building water systems—risk of Legionnaires' disease

See Also: **ALERT: Resuming safe operation of building water systems— for building maintenance superintendents, engineers, managers, and other personnel** (<http://www.bt.cdc.gov/disasters/hurricanes/katrina/alert-legionnaires.asp>)

Legionnaires' disease is a serious disease caused by *Legionella* bacteria, which thrive in stagnant, warm water. Outbreaks of this disease have been associated with cooling towers, evaporative condensers, showers, faucets, hot tubs/whirlpool spas, and other sources of aerosolized water. *Legionella* bacteria favor a temperature of 25-42 C (77-108 F) for growth. Because many buildings and cooling towers may be shut down during or after a disaster, the water in those systems may sit stagnant for days to weeks—providing an increased risk of Legionnaires' disease once the systems are restarted.

#### Risk and symptoms of Legionnaires' disease

People get Legionnaires' disease when they breathe in mist or vapor that has been contaminated with the bacteria. The bacteria are not spread from person to person. The disease can be very serious and may cause death in up to 30% of cases. Most cases can be treated successfully with antibiotics, and previously healthy people usually recover. People most at risk of getting sick are older people (usually 65 years of age or older), as well as people who are smokers, those who have a chronic lung disease (like emphysema), or those with weakened immune systems.

Legionnaires' disease can have symptoms like many other forms of pneumonia (lung infection), so it can be hard to diagnose at first. Signs of the disease can include high fever, chills, and cough. Some people may also suffer from muscle aches and headaches. Chest X-rays are needed to diagnose the pneumonia caused by the bacteria, and other tests can be done on sputum (phlegm), as well as blood or urine to find the bacteria in the body. Symptoms usually begin 2 to 10 days after the person is exposed to the bacteria.

For years, outbreaks have been identified among patients in hospitals. This may be because hospital buildings have complex water systems, and because most people in hospitals already have illnesses that increase their risk for *Legionella* infection. Outbreaks have also been associated with cruise ships and hotels.

#### What can be done to remove *Legionella* bacteria from water systems?

There are several ways to eliminate *Legionella* bacteria from water systems, each with its own advantages and disadvantages. Guidelines for reducing the risk of Legionella colonization of buildings are available for building maintenance superintendents, engineers, managers, and other personnel evaluating water systems from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE®). ASHRAE is a not-for-profit organization that develops standards and guidelines for industries that design, manufacture, and maintain building systems. With substantial input from CDC and industry experts, ASHRAE developed "ASHRAE Guideline 12-2000 – Minimizing the Risk of Legionellosis Associated with Building Water Systems." The guidelines provide specific environmental and operational guidelines that will contribute to the safe operation of building water systems and are available at <http://www.ashrae.org>.

**Resuming safe operation of building water systems—risk of Legionnaires' disease**  
(continued from previous page)

For more information, visit [www.bt.cdc.gov/disasters](http://www.bt.cdc.gov/disasters),  
or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).