

Legionella Guidance for New Jersey Facilities

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In 2009, eight people in a New Jersey hospital tested positive for Legionnaire's disease. Sadly, three of the eight people succumbed to the disease and passed away. As a result of this incident and several others in facilities susceptible to the Legionella bacteria, the New Jersey Department of Health and Senior Services (NJDOHSS) has increased their activity in monitoring Legionnaire's Disease.

Legionnaire's Disease, or Legionellosis, was first detected after a 1976 outbreak at the Philadelphia American Legion Convention. This first outbreak was responsible for 240 cases and 34 deaths. At the time of the outbreak, no one was aware of the disease or the water-borne bacteria that caused the outbreak. Since this tragic event, a tremendous amount of research has been dedicated to the identification and control of Legionella bacteria. The Centers for Disease Control and Prevention (CDC) estimates that about 8,000 to 18,000 Americans develop Legionellosis each year. Unfortunately, most cases go undetected as they are classified as pneumonia. It is estimated that more than 100 cases of Legionellosis occur in New Jersey each year.

Numerous organizations, both governmental and private, have developed guidelines for the identification and prevention of Legionella, but they have not been enough to stop the spread of Legionnaire's disease.

LEGIONNAIRE'S DISEASE BACKGROUND

Legionnaire's Disease is caused by more than forty different species of Legionella bacteria, with Legionella Pneumophila being the most common. This naturally occurring bacteria can be found in both natural and man made bodies of water, but more importantly, can be found in building water systems such as hot-water heaters, sinks, showers, cooling towers, spas, nebulizers, air conditioners, etc.

Legionnaire's Disease is generally contracted through inhalation of airborne water droplets that contain the bacteria. The water containing the bacteria is misted by a shower, cooling tower, HVAC system, etc. and inhaled by people within the vicinity of the source.

Legionella bacteria can survive in water that ranges from 68°F to 122°F and reproduce in temperatures ranging from 77°F to 108°F. Hot-water systems are within the prime temperature range to support the growth of Legionella bacteria. However, samples collected from cold-water systems, including domestic cold-water supplies, have confirmed the presence of Legionella bacteria.

LEGIONELLOSIS SYMPTOMS AND DIAGNOSIS

Legionellosis is generally associated with pneumonia as the symptoms are very similar. The symptoms usually include, but are not limited to; fever, chills, cough, muscle pain, headaches, and diarrhea. Symptoms may appear anywhere from two to fourteen days after an exposure. Legionellosis is generally confirmed in a person through a blood test and urine antigen test.

EMERGENCY INVESTIGATIONS

When a case of Legionellosis is confirmed via medical testing, the NJDOHSS generally recommends an emergency investigation of the facility. The investigation team includes the facility owner, the NJDOHSS representative, and an environmental consultant representing the facility owner. As part of the investigation, the team inspects all of the water systems in the affected facility in an effort to determine possible pathways. The NJDOHSS also requires bulk water sampling of 10% of the water sources (i.e. faucets, showers, spas, whirlpools, cooling towers, etc.). Emergency investigations are generally very



expensive once the presence of Legionella bacteria is confirmed due to the lengthy sampling protocol required by the NJDOHSS that may include water sampling every two weeks for six months, then once a month for three months. At that time, the NJDOHSS, the facility owner, and the environmental consultant meet to determine if any additional sampling is needed. It should be noted that the NJDOHSS expects that ALL results will be at or below the Occupational Health and Safety Administration's (OSHA) guideline of less than 1 Colony-Forming Unit per milliliter. If any of the results are above the OSHA guideline, the NJDOHSS may require the sampling protocol to restart.

WHAT ARE THE NEXT STEPS?

Facilities that house a population susceptible to Legionellosis (i.e. healthcare facilities, nursing homes, jails, office buildings, public housing authorities, etc.) should perform some proactive investigation of their facilities as a means of identifying potential problems prior to any identified case of Legionellosis.

Facilities may choose to inspect the water systems to identify conditions that may aid in the growth of Legionella bacteria, such as dead legs, insufficient chlorine residuals, and unsanitary conditions. As part of this investigation, bulk water and/or swab sampling may be collected. Upon the completion of the investigation, the development of some protocol or system maintenance should be instituted to abate conditions that are conducive to supporting Legionella bacteria growth.

In addition to the installation of a water treatment system, facility owners can initiate preventive measures to reduce the occurrence of Legionella. Common measures include:

- Ensure the proper use and cleaning of cooling towers, and the draining of these systems when not in use.
- Properly maintain whirlpools and decorative fountains.
- Maintain proper temperature in hot water systems and flush the tanks annually.
- Avoid using humidifiers.
- Eliminate dead ends in the water distribution system.
- Routinely flush low use water outlets and clean/ change aerators and shower heads regularly.

BSG is recognized as a leader in the identification of Legionella sources and in the design of management plans and systems to control and eliminate the potential growth of Legionella bacteria. BSG works closely with the NJDOHSS in an effort to quickly identify the potential source of the Legionella bacteria and introduce practical and efficient methods to solve the problem.

**For Additional Information about
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