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## TECHNICAL PUBLICATION

INFORMATION & STRATEGY FOR THE  
FACILITY MANAGER

# LEGIONELLA BACTERIAL TESTING

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## *Worldwide Affliction*

By now, you probably have heard of the several outbreaks of Legionnaire's Disease here in the USA and abroad...and its potential fatal aftermaths.

The best known case occurred in 1976 at the now-defunct Bellevue Stratford Hotel in Philadelphia, PA where 34 people died and another 221 people were infected by Legionella Pneumophila. This outbreak was blamed on a cooling tower positioned too closely to a fresh air intake.

The center of Disease Control (CDC) estimates that between 25,000 and 50,000 cases of Legionella Pneumonia occur in the USA each year.

## *Source of Legionella Bacteria*

Legionella Bacteria apparently enter buildings in very low numbers via the municipal water system. These microorganisms then proliferate in the sediments and stagnant areas of the plumbing system.

Legionella Bacteria appear to be aquatic bacteria, and have been found in surface water, soil, lakes, streams, rivers, cooling towers, evaporative condensers, misting machines, humidifiers, domestic potable water, decorative fountains, whirlpool, etc.

Among all the potential places where Legionella Bacteria grows, most cases have been attributed to cooling towers and potable water (particularly hot water) systems, faucet aerators, and shower heads.

Some studies report as many as 52% of the cooling towers studied has Legionella contamination...11 to 49% of hot water tanks or hot water taps contained Legionella colonies.

## *How are Humans Infected?*

Merely having Legionella Bacteria on the hands should not produce the disease. There are also no reports of anyone getting legionellosis from drinking Legionella-contaminated water. In humans, Legionella Bacteria find a habitat in the lungs, which mirror its natural environment. Lungs provide moisture, nutrients, darkness, proper gases, and warmth - all the items needed for Legionella Bacteria to proliferate. Legionella Bacteria may enter the lungs when contaminated water is reduced to tiny droplets (aerosolized) that can be as small as 5 microns. Larger droplets are expelled from the lungs via their natural cleaning action, while smaller droplets get past the natural defenses and carry Legionella deep into the lungs.

When an outbreak occurs, the institution that has incurred the infectious Legionella Bacteria, could suffer financially due to severe legal consequences, poor publicity, and possible loss of lives.

## *Legal Consequences*

When an outbreak occurs, the institution that has incurred the infectious Legionella Bacteria, could suffer financially due to severe legal consequences, poor publicity, and not to mention, possible lost lives.

To prevent such catastrophic losses, the only legal recourse management has is "reasonable care." Managers must prove that they have taken proper measure to address an important public health issue and to safeguard the health of the public. One proper measure is to implement a preventive maintenance program. But is this sufficient?

## *General Preventive Maintenance Guidelines*

There are general preventive maintenance guidelines to reduce an institution's risk of an epidemic. Unfortunately, even these preventive maintenance programs do not fully guarantee against such Legionella contamination. The ubiquitous nature of Legionnaire's Disease Bacteria does not allow us, at this time, to prescribe specific treatment methods and/or guidelines that will fully guarantee protection against Legionella.

## *Testing for Legionella Bacteria - A Legal Recourse*

One cannot safely assume that a system is free of any Legionella Bacteria just because a preventive maintenance is in place. Testing for the presence of the bacteria is more reliable.

When a system is found to be contaminated, it can then be disinfected by following general guidelines. Re-testing must be done after, to ensure the success of the disinfection.

## *Summary*

Since its "preventive maintenance" program alone does not guarantee against Legionella, it may not be accepted as sufficient "reasonable care," as a legal recourse, should a Legionella outbreak occur.

To further protect the public and itself against serious legal costs, management should also implement an "awareness program" through testing.

By testing, one can determine the level of risk more reliably and to determine if corrective measures are necessary to reduce this risk.

Obviously, "testing" should supplement and not replace a good preventive maintenance program.