

# Unprecedented Agreement About Legionella Prevention

*What Safety Professionals Need to Know*

**A**greement among government agencies, Legionella experts and industry groups about the approach to Legionella prevention is at a level not seen since Legionnaires' disease was discovered nearly 40 years ago. Following is an overview of agreed-on facts about Legionella prevention and what it means for building operators and consultants.

## AGREEMENT ON THE NEED FOR PREVENTIVE MEASURES IN BUILDING WATER SYSTEMS

For many years the scientific community has agreed on these key facts about Legionnaires' disease, which are the bases of Legionella guidance documents:

**Thousands of Legionella cases occur each year, 5% to 30% of which result in death—sometimes within a few days.**

- Legionnaires' disease is caused by Legionella bacteria transmitted to a person's lungs. A person can contract the disease while washing at a sink, taking a shower, walking by a decorative fountain, drinking a glass of water or sipping from a water fountain (if droplets are accidentally choked into the lungs instead of swallowed), inhaling mist from a cooling tower's drift or by bathing in—or just walking by—a hot tub.

- Thousands of cases occur each year, 5% to 30% of which result in death—sometimes within a few days. The death rate is even higher for cases acquired in hospitals and nursing homes. Many of those who survive suffer long-term symptoms including fatigue, respiratory problems and memory loss. It is expensive, too. In 2010, CDC reported that Legionella is not only the

number one cause of waterborne disease outbreaks in the U.S., it is also the most expensive, even excluding the cost of missing work.

- To prevent the disease, Legionella must be stopped between water supplies and human lungs, and the best place to break the chain is in building water systems. A vaccine for Legionnaires' disease is not commercially available, so stopping the infections within humans is not an option. Public water supplies cannot be treated with chlorine levels high enough to control Legionella in buildings without exceeding EPA limits for chlorine levels and disinfectant byproducts. And, trying to block transmission from water to people is not feasible for most water systems. In 1991, EPA acknowledged that Legionella bacteria contaminate public water supplies at very low concentrations but stated the responsibility for minimizing the risk of Legionnaires' disease falls on building operators because it is within building water systems that the bacteria generally find an environment—warmer temperatures, smaller pipe sizes, stagnation—where they can multiply to more hazardous levels.

Based on these facts, essentially every government agency and industry group in the world that has issued a Legionella guidance document, including CDC, agrees that building water systems should be managed to minimize Legionella bacteria.

## AGREEMENT ON THE APPROACH TO PREVENTION

A fairly recent development is agreement about the approach to Legionella prevention. In its 2007 publication "Legionella and the Prevention of Legionellosis," World Health Organization (WHO) stated that "the responsibility for managing the risk of legionellosis belongs to the facility owner or manager" and "developing a water safety plan is the preferred approach to managing . . . Legionella."

In August 2014, the U.S. Veterans Health Administration (VHA) issued Directive 1061 requiring all VHA facilities in which anyone stays overnight to develop and implement a Legionella water management plan much like the one outlined by WHO. A similar water management plan is the basis of the latest draft of ASHRAE 188P. The water management plans outlined by ASHRAE, WHO and VHA, which are based on Hazard Analysis and Critical Control Point principles, include the following six components:



1) A list of the team members who will oversee the plan and make decisions about it. For most facilities, the team should consist of 10 or fewer key individuals.

2) Building water system information and flow diagrams. The objective is simply to list salient information about the water systems and illustrate in simple line drawings the water flow from the street to each of the systems and points of use.

3) Legionella hazard analysis of the water systems. The hazard analysis identifies which of the water systems listed in number 2 present a significant potential for Legionella growth and transmission, and for those that do, whether Legionella control measures can and should be applied in them.

4) Control measures. This is by far the most important part of the plan because control measures are what actually prevent disease. The objective is to take reasonable, effective, responsible, evidence-based, defensible steps to minimize risk. A procedure for monitoring the performance of each control measure must be listed with corrective actions to take if the performance limits are not met.

5) Verification procedures to ensure that the plan is being implemented.

6) Validation method(s) to show the effectiveness of the plan in controlling Legionella.

ASHRAE calls it a “water management program,” WHO a “water safety plan,” and VHA an “HCA LD Prevention Plan.” The three organizations use different terms to describe some of the components and steps, too, but the components are essentially the same.

#### FIVE SMART STEPS FOR BUILDING OPERATORS

Given the stated facts, building operators should take these five steps to minimize health and legal risk:

1) Develop a water management plan. The plan must be effective in controlling Legionella, defensible and implementable.

2) Do the plan. Legal risk is typically highest for building operators that have a plan but do not implement it, second highest for the ones that have no plan at all, and lowest for those that execute an effective plan well.

3) Validate the plan. Testing water for Legionella is the best way to validate Legionella control.

4) Respond to test results appropriately.

5) Adjust the plan as indicated by the Legionella test results and other information, then go back to number 2 and repeat the process.

#### OPPORTUNITIES FOR CONSULTANTS

Building operators need help with Legionella prevention. Hardly any have the expertise to handle it on their own and many do not have the time to do even the tasks of which they are capable. With proper training, safety professionals can fill a need that will provide value to building operators and protection to people who may otherwise contract Legionnaires’ disease.

Two services that could be an especially good fit for safety professionals are site surveys and water sampling. Legionella expertise is not needed to conduct site surveys purely for the purpose of developing a Legionella water management plan—just a basic understanding of various water systems. The safety professional can conduct the site survey and provide the data to a partner company that provides the expertise needed to write the control measures for a particular property.

Safety professionals can help building operators validate their water management plans by collecting water samples and having the samples tested for Legionella.

Agreement among government agencies, the scientific community and industry groups about the need for water management plans and the key components they should include is an unprecedented development in the prevention of Legionnaires’ disease. Safety professionals can and should play an important role in the development and validation of those plans. ☺

*Matt Freije has specialized in Legionella prevention since founding HC Info in 1995. He regularly conducts webinars on Legionella related topics. His first book, Legionellae Control in Health Care Facilities: A Guide for Minimizing Risk, has been distributed in more than 30 countries. Portions of this article were excerpted with permission from the e-learning course series “Building a Successful Legionella Risk Management Program.”*



## INDUSTRIAL HYGIENE SPECIALTY SPONSORED SESSIONS AT SAFETY 2015

TUESDAY, JUNE 9, 10:30AM - 11:45AM

625 | Key Issue Roundtable: Safety Implications of Chemical Disinfectants in Healthcare  
Morgan M. Bliss, CIH, Spore Consulting LLC - Phoenix, AZ, USA  
Lori A. Severson, CSP, Lockton Companies - Denver, CO, USA

For more information, visit the [Safety 2015 website](#).