Environmental Health Expertise Is Key

About 5,000 cases of Legionnaires’ disease and at least 20 outbreaks are now reported to the Centers for Disease Control and Prevention (CDC) each year (Adams et al., 2015). People can get Legionnaires’ disease or Pontiac fever (collectively known as legionellosis) by inhaling aerosolized water droplets containing Legionella bacteria (Fields, Benson, & Besser, 2002). Legionnaires’ disease, the more serious type of legionellosis, can cause severe pneumonia (lung infection) and is deadly for about 1 in 10 people who get it (Dooling et al., 2015). Pontiac fever causes a milder, influenza-like illness. Legionnaires’ disease was named after an outbreak of pneumonia in 1976 among people attending an American Legion convention in Philadelphia.

Legionella is rarely, if ever, transmitted from person-to-person (Correia et al., 2016); it is found naturally in the environment, usually in warm water. Exposure to freshwater generally does not lead to disease. In human-made water systems, however, Legionella can amplify and spread to susceptible hosts via aerosolization from contaminated water. As such, keeping Legionella out of building water supplies and cooling towers, as well as pools, hot tubs, and fountains, is key to preventing infection and outbreaks (Garrison et al., 2016). Prevention is critical as Legionella was the cause of 66% of all potable water-associated outbreaks reported to CDC during 2011–2012 (Beer et al., 2015).

Environmental Health Expertise Is Key

To prevent Legionnaires’ disease we must understand the environmental factors that allow Legionella bacteria to survive and reach a susceptible host. Due to the relationship of Legionella to the environment, environmental health practitioners are ideally situated to provide expertise essential to both responding to Legionnaires’ disease outbreaks and preventing future ones. Working with epidemiologists and public health laboratorians, environmental health practitioners need to be proficient in applying environmental interventions (e.g., recommending potable water flushing procedures to address Legionella-contaminated water in an unoccupied building wing) in outbreak settings to stop outbreaks and prevent future ones. Environmental health response in Legionnaires’ disease outbreaks contributes to improved prevention practices. Additionally, they can help translate lessons learned from outbreak response into evidence-based prevention guidance for building owners and managers.

In June 2016, CDC released a Vital Signs focused on Legionnaires’ disease (www.cdc.gov/vitalsigns) emphasizing the importance of building owners and managers to use new industry standards for the primary prevention of Legionnaires’ disease in building water systems. This standard, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 188-2015, intends to reduce the risk of Legionnaires’ disease and calls for the development and implementation of water management programs in buildings with large or complex building water systems. CDC stated that widespread use of these standards could reduce the number and size of Legionnaires’ disease outbreaks and save lives. Moving forward, environmental health practitioners will
be instrumental in facilitating the implementation and use of this new industry standard.

**New Legionnaires’ Disease Prevention and Outbreak Response Tools**

To assist state and local health departments and environmental health practitioners, CDC developed new resources focused on preventing and investigating individual cases, clusters, and outbreaks of Legionnaires’ disease (www.cdc.gov/legionella). Health departments can use CDC’s new toolkit, *Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings: A Practical Guide to Implementing Industry Standards*, dedicated to developing and implementing a water management program to inform conversations with building owners and managers on how to reduce the risk of *Legionella* growth and spread in their building water systems (Figure 1).

Regarding Legionnaires’ disease response, CDC also updated the *Legionella Environmental Assessment Form* (Figure 2) used to describe a facility’s water system and help determine when and where to conduct *Legionella* environmental sampling. If sampling is warranted, health departments can use CDC’s sampling procedure to collect environmental samples for *Legionella* culture during a cluster or outbreak investigation, or when cases of disease may be associated with a facility. CDC also has a sample data sheet that health departments can use to keep track of environmental samples taken for *Legionella* culture during an investigation.

In addition, CDC has a series of six new instructional videos for conducting environmental investigations of legionellosis outbreaks. Short training videos are available on the following topics.

- *Legionella Ecology and an Introduction to Environmental Health and Engineering:* Learn why and where *Legionella* amplifies, as well as the basics of how cooling towers, premise plumbing, and whirlpool spas work.
- **Conducting and Interpreting the Environmental Assessment:** Learn useful tips about conducting an environmental assessment and how to interpret the results of key questions on CDC’s *Legionella Environmental Assessment Form*.
- **How to Make a Sampling Plan:** Learn how to make a plan for the number of water and biofilm samples to take and where to take them.
- **How to Sample Potable Water:** Learn CDC’s procedure for collecting potable water samples for *Legionella* culture.
- **How to Sample Cooling Towers:** Learn CDC’s procedure for collecting environmental samples from cooling towers for *Legionella* culture.
- **How to Sample Spas and Fountains:** Learn CDC’s procedure for collecting environ-
ment samples from spas and fountains for Legionella culture (see photo above).

To get started, explore CDC’s new Legionnaires’ disease prevention and outbreak response tools and related resources noted in the Legionella Quick Links sidebar. You just might prevent the next Legionnaires’ disease outbreak!

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