

# Effective Immediately: Healthcare Facilities Required to Reduce Legionellosis Risks from Tap Water

If you follow On Tap frequently, you know that the bacterium, *Legionella*, has been a repeated topic in recent years. Once again, *Legionella* is at the forefront of discussions due to continuing waterborne outbreaks and new directives in healthcare facilities for prevention. On June 2, the Department of Health and Human Services, Centers for Medicare and Medicaid Services (CMS) issued a memo that will undoubtedly expand the awareness of *Legionella* risks and further drive the implementation of preventative approaches.

## Standards to reduce tap-water risks

Designated healthcare facilities receiving reimbursement from Medicare and Medicaid are required to be certified under written laws and regulations designated in the *Social Security Act*. This act mandates that certain minimum health and safety standards be established for patient-care institutions. The *42 Code of Federal Regulations (42 CFR)* legally documents these standards and state survey agencies are charged with ensuring standard compliance and implementing the certification process. Surveys of healthcare facilities for CMS accreditation occur unannounced. Facilities must be prepared at a moment's notice to provide site access and verify compliance with certification requirements.

So what does the *Social Security Act* and CMS certification have to do with tap water? Plenty when you consider *Legionella* grows and is spread through building water systems, such as hospitals. Thus, the latest CMS directive requires state surveyors to ensure Medicare-certified healthcare facilities have water management plans in place to reduce the risk of *Legionella* and other harmful bacteria in building water systems.<sup>1</sup>

According to the CMS memo, "Surveyors will review policies, procedures and reports documenting water management implementation results to verify that facilities:

- Conduct a facility risk assessment to identify where *Legionella* and other opportunistic waterborne pathogens (e.g., *Pseudomonas*, *Acinetobacter*, *Burkholderia*, *Stenotrophomonas*, nontuberculous mycobacteria and fungi) could grow and spread in the facility water system.
- Implement a water management program that considers the ASHRAE industry standard and the CDC toolkit and includes control measures such as physical controls, temperature management, disinfectant level control, visual inspections and environmental testing for pathogens.
- Specify testing protocols and acceptable ranges for control measures and document the results of testing and corrective actions taken when control limits are not maintained."

## Saving lives

*Legionella* infections occur primarily when an individual inhales aerosol droplets contaminated with the bacterium. Symptoms range from influenza-like disease (Pontiac fever) to severe pneumonia (Legionnaire's disease) and progresses to death in approximately nine percent of reported infections. From 2000-2014, the CDC found that reported cases of *Legionella* increased 286 percent, where 19 percent of the outbreaks were associated

By Kelly A. Reynolds, MSPH, PhD with long-term care facilities and 15 percent with hospitals. This is partly due to the fact

that the disease opportunistically attacks populations common to healthcare facilities. Those most at risk include anyone over the age of 50, smokers or those who are immunocompromised, particularly with chronic lung disorders. Given that we know who is most at risk and which environments are most conducive to the spread of *Legionella*, focused interventions can have a dramatic impact on disease reduction. Buildings with large or complex systems, such as hospitals, long-term care facilities and critical-access hospitals present the greatest risks. These three environments are specifically required to adhere to the CMS policy memorandum but all other healthcare organizations should also be aware of the dangers of *Legionella*.

In 2015, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) developed an industry standard for all large building water systems to develop and implement water management programs.<sup>2</sup> Although not a mandate at the time, experts expect more enforceable standards to arise in the future. In 2016, the CDC developed a training toolkit to guide users through the development of a water management program.<sup>3</sup> Additional online tools for education and training are being developed by The University of Arizona in collaboration with the CDC, National Network of Public Health Institutes (NN-PHI) and subject-matter experts from industry, healthcare, health departments and academia to supplement the CDC's toolkit. The online training tool is expected to be available in fall 2017.

## Immediate needs

CMS is fast-tracking *Legionella* prevention requirements for their accredited facilities with an effective date of 'immediately.' Surveyors are expected to incorporate a check of water-system management compliance within 30 days of the memorandum. Those not in compliance will be cited under the CMS *Conditions of Participation*.

At the June 13-15 meeting of the Association for Professionals in Infection Control, in Portland, OR, the CMS policy was at the center of conversation. This representation of healthcare facility managers expressed a variable level of preparedness to respond to the new directive. While many already had a water management plan in place for their facilities, others were unsure. There was uncertainty around whether or not the appropriate resources were immediately available to address the compliance needs.

The CMS memo reminds us of the pertinent regulations for healthcare facilities from 42 CFR:

- 42 CFR §482.42 for hospitals: "The hospital must provide a sanitary environment to avoid sources and transmission of infections and communicable diseases. There must be an active program for the prevention, control and investigation of infections and communicable diseases."
- 42 CFR §483.80 for skilled-nursing facilities and nursing facilities: "The facility must establish and maintain an infection prevention and control program designed to provide a safe, sanitary and comfortable environment and to help prevent the

development and transmission of communicable diseases and infections.”

• 42 CFR §485.635(a)(3)(vi) for critical-access hospitals (CAHs): CAH policies must include: “A system for identifying, reporting, investigating and controlling infections and communicable diseases of patients and personnel.”

### **Water management and treatment**

Outbreaks are largely preventable but require proper and routine maintenance of water systems. As reviewed in the CDC *Legionella Prevention Toolkit* and *ASHRAE Standard 188*, proper maintenance requires a detailed understanding of how to develop a water management program that includes: 1) putting together a water management program team; 2) describing the building water systems and how water is processed and used; 3) analyzing the water systems for potentially hazardous conditions, such as stagnation or temperature-permissive areas; 4) deciding where control measures should be applied and how to monitor them; 5) determining how to intervene with corrective actions when control limits are not met and 6) confirming program implementation and effectiveness.

The CMS memo lists a variety of water distribution devices and components of concern where *Legionella* can grow and spread including:

- Hot and cold water storage tanks
- Water-hammer arrestors
- Expansion tanks
- Electronic and manual faucets
- Faucet flow restrictors
- Centrally installed misters, atomizers, air washers and humidifiers
- Ice machines
- Decorative fountains
- Water heaters
- Pipes, valves and fittings
- Water filters
- Aerators
- Showerheads and hoses
- Eyewash stations
- Hot tubs/saunas
- Cooling towers

- Non-steam aerosol-generating humidifiers
- Medical devices (such as CPAP machines, hydrotherapy equipment, bronchoscopes, heater-cooler units)

POU water treatment devices have been successfully applied in healthcare settings to reduce the spread of *Legionella*. There is a general lack of understanding relative to the broader application, in addition to cost/benefits, of POU treatment devices in healthcare. Whereas some water-distribution devices and components are best managed prior to the point of use, there may be certain situations where POU water treatment provides the best practice for prevention exposure to *Legionella*. The feasibility of POU devices in healthcare environments and their impact on *Legionella* infections or compliance with infection reduction should be further researched.

### **References**

1. CMS. *Legionella Risks in Healthcare*. Revised 6-09-17. June 2017.
2. ANSI/ASHRAE Standard 188. *Legionellosis: Risk Management for Building Water System*.
3. CDC. *Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings: A Practical Guide to Implementing Industry Standards*. 2016. <http://www.cdc.gov/legionella/maintenance/wmp-toolkit.html>.

### **About the author**

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