Controlling Legionella: Discussions from the HITS Consortium

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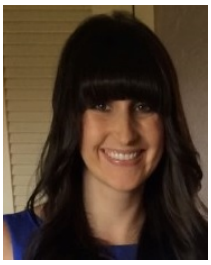

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The Healthcare Infection Transmission Systems (HITS) Catalyst for Change conference was recently held in Buffalo, New York. The 3-day consortium focused on several topics, with 1 day especially focused on the health care burden and control efforts for *Legionella*. The causative bacteria of Legionnaires' disease poses a unique public health threat and continues to cause outbreaks, with a large one recently reported in Atlanta, Georgia. *Legionella* is also extremely problematic for health care facilities, as it can easily prey on immunocompromised patients if proper water management protocols are not followed.

The final day of the consortium was focused on *Legionella* and water safety measures in health care, with discussions led by speakers Janet Stout, PhD; Sarah Clock, MPH, PhD; and Molly Scanlon, PhD, FAIA, FACHA. The speakers asked several key questions and discussed many difficult topics for health care professionals, with a focus on whether Legionnaires' disease can be stopped.

For one, Stout emphasized that potable water is the most important source of *Legionella* transmission and that cooling towers are actually not a common source for sporadic or health care-associated cases, but rather large community outbreaks. Perhaps the most daunting statistic presented was that health care facilities account for 57% of *Legionella* cases and 85% of deaths.

Moreover, 20% of the reported cases are health care-associated and that ultimately, progress has been slow. Citing several outbreaks that have occurred in the past year, including 1 in a Toronto nursing home or an outbreak associated with a new Ohio hospital that required $61,000 to contain transmission, Stout emphasized that this is a growing problem, and Legionnaires' disease cases have increased more than 300% in the past decade.

A painful dose of truth is that we are woefully ineffective in our progress against *Legionella* when we consider diagnosis, denial, environmental detection, and disinfection.

Clock provided insight into the transmission risks associated with hospital water, both in terms of water management plans and documentation (a consistent issue in health care) and the reservoirs and risks. It's easy to forget that hospital water can also be a source for non-*Legionella* organisms, like *Pseudomonas* spp, *Burkholderia* spp, and more.

Consider all the potential reservoirs—splash zones, contaminated sinks and drains, reprocessing equipment, lab water contamination, showerheads, use of non-sterile water or ice, and even leaks in patient care areas. Given the volume of risky areas and the potential for growth of microorganisms, it's important that hospitals invest in preventing biofilm formation, especially during construction. Ensuring there is no sediment, that water temperatures are within range to avoid growth, and working to reduce stagnation are all effective ways to help reduce growth of the bacteria.

On the last day of the consortium, Molly Scanlon discussed how hospitals and health care facilities can practice water safety during construction. This was a particularly helpful conversation, as many hospitals require continuous construction and renovation efforts.

Interestingly, of 27 *Legionella* outbreaks reported between 2000-2014, 65% were associated with process failures, 35% with equipment failures, and 35% with unmanaged external changes. During her talk, Scanlon discussed *Legionella* incidents related to a range of different projects including paving, excavation, cooling tower drift, dust control, and construction equipment.

To combat this, she emphasized using 7 steps to promote sustainable and comprehensive water management, which include analyzing water systems for their safety and efficiency and developing verification strategies. Scanlon provided an in-depth review of the different kinds of outbreaks, hazards of construction, and various aspects of these outbreaks, like the time of year and building water system impacts. These various construction activities in health care settings that are hazards for water-borne diseases, like Legionnaires' disease, should be seen as a canary in the coal mine for how we can reduce the risk. Understanding the hazards of construction in these environments and establishing proper control measures and management programs is critical as Legionnaires' is not the only disease of concern.

Overall, the HITS consortium provided a wealth of knowledge on infection prevention topics, but also served as an environment for frank and honest discussions regarding *Legionella* management and the challenges of health care infection control efforts.