



Alliance to Prevent Legionnaires' Disease

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Thank you to the Members of the Committee for the opportunity to submit testimony related to Legionnaires' disease and prevention. The Alliance to Prevent Legionnaires' Disease is a non-profit organization focused on reducing and preventing Legionnaires' disease cases through education, advocacy and research.

As background, *legionella*, the bacteria which causes Legionnaires' disease is found in source water like lakes and rivers that supply our public water system and provide our homes, buildings and facilities with water every day. While *legionella* lives in the biofilm of pipes throughout our water distribution systems, common events like heavy rainfall, water main breaks, construction, servicing of water lines, fire hydrant release and others can dislodge the bacteria and push it downstream where susceptible individuals can be exposed through inhalation or aspiration of water and become ill.

Importantly, most of us can fend off the bacteria naturally and experience minimal to no impacts from such exposure. However those with compromised immune systems or underlying respiratory issues are far more susceptible, as are the elderly and those who smoke. And while Legionnaires' disease outbreaks make the papers, the overwhelming majority of cases (96%) are single, sporadic cases isolated from outbreaks according to the federal Centers for Disease Control & Prevention (CDC). Further, an Environmental Protection Agency (EPA) study found that approximately 50% of all household taps tested positive for *legionella* bacteria and cases are often traced back to drinking water.

For decades, there have been efforts to address Legionnaires' disease at the end points of our water systems focusing on water-using equipment in buildings and facilities and trying to control the bacteria at these points. Unfortunately, decades of experience has proven that too narrowly focused efforts have not prevented Legionnaires' disease. Given the statistics cited above, this shouldn't be surprising, since a building/ equipment focus does nothing to improve the quality of the water entering our homes, thereby ignoring the likely majority of cases that are sporadic.

While equipment and facility-focused policies project to be addressing Legionnaires' disease prevention, national CDC data which tracks LD cases in all states tells a different story. Cases have been on the rise over the last several decades and continue to increase year-over-year including in jurisdictions that have enacted building and equipment-focused policies. For example, over five years ago, New York enacted a very narrow equipment only policy and LD cases have continued to increase substantially. The experience has been similar in European and Canadian jurisdictions with narrow policies.

With this in mind, the Alliance promotes an approach to Legionnaires' disease prevention that prioritizes root causes as the most practical, logical, effective and cost efficient path to address ALL cases – not just outbreaks.

Homes, buildings and facilities have no control over the quality of incoming water and rely on management upstream to ensure the water that they are supplied is pathogen free. And importantly, individuals must be properly educated about and aware of the risks of waterborne disease so they are empowered to protect themselves.

Priority Steps to Prevent Legionnaires' Disease

Education

We advocate for greater education of the public about waterborne pathogens and the diseases they cause. Individuals should be made aware of what makes them and their loved ones more susceptible to LD, signs and symptoms of the disease, the connection to external events like construction or water main work which can dislodge *legionella* bringing it into their homes and buildings, and the steps they can take to reduce their risks. We also believe that water education throughout K-12 education systems, starting with the fundamentals and extending through chemistry and microbiology should not only include the water cycle but also how water is treated and delivered for consumption.

Proper Management of Source Water & Water Distribution System

Management of water from source to treatment plant and throughout our complex water distribution systems is the most effective method to ensure that safe, pathogen-free water is delivered to our homes and buildings for human use. Understanding and accounting for the water chemistry of source water is essential. As experienced in Flint, Michigan in 2014-2015, a change in water source without proper management and treatment can wreak havoc on the system. In Flint, this led to increased levels of lead and *legionella* in the water system resulting in 91 residents contracting Legionnaires' disease and 12 deaths as a result.

Further, in 2016, the Illinois Environmental Protection Agency enacted a [regulation](#) to update the State's water safety rules and put controls in place to comprehensively prevent the proliferation of waterborne pathogens like *legionella*. The regulation improved standards for water management and maintenance across distribution systems including monitoring water age and storage requirements to prevent stagnation, requiring nitrification action plans, increasing disinfectant residual levels to ensure that water is adequately disinfected to fight pathogens *at all points* in the system as water enters homes and buildings, and imposing new requirements related to system design and tracking water

upsets like water main breaks and other system changes. We believe this regulation provides a strong framework of proper water management “upstream” and throughout the water system to effectively prevent the growth of *legionella* and other pathogens in our water.

We would also note that in 2019, Pennsylvania’s Department of Environmental Protection (DEP) required an increase in the disinfectant residual of chlorine or other chloramine used to treat water to ensure a residual was present at all points in the water system. In doing so, DEP cited CDC data showing high prevalence of *legionella* outbreaks, as a distribution system problem and stating that a large proportion (78%) of illnesses observed in outbreaks involved distribution system deficiencies. DEP stated that Pennsylvania follows a similar trend with “nearly all outbreaks since 2010 having been associated with distribution system deficiencies and *legionella*.” DEP noted that the distribution system is the remaining component of public water systems yet to be adequately addressed in efforts to eliminate waterborne disease outbreaks. (Source: Disinfection Requirement Rule, Operator Training, PA DEP 2019.)

Homes, Apartments, and Other Places of Residency

The greatest personal water exposure by the majority of the population occurs in their homes, where they consume, shower and use water. With virtually all cases being individual and sporadic, there is a tremendous lack of attention to domestic exposure to *legionella* and other waterborne pathogen risks. Unfortunately, individual cases do not generate the media or political pressure that often drives public policy and the subsequent potential for regulations that create attractive commercial market opportunities. This lack of focus, investigation of individual cases, and research is a glaring public health gap that we believe is very likely the reason that no progress is being made in reducing cases of Legionnaires’ disease – in fact, the number of cases is increasing at an alarming rate.

Consequently, the Alliance to Prevent Legionnaires’ Disease calls for significantly more research and investigation of individual cases to understand the drivers of the disease and improve our risk mitigation efforts.

In the meantime, ALPD prioritizes steps that ensure that pathogen-free water is delivered to all water users and consumers as the foundational target. This is the baseline that must be achieved, and is the pathway to reducing the individual cases of Legionnaires’ disease and reducing outbreaks.

Water Management Plans in Buildings & Facilities

Buildings and facilities have long been the focus of efforts to reduce Legionnaires’ disease, primarily due to the outbreak-driven mentality that shapes public health response and public policy. However, based on actual case data, a very small percentage of cases are associated with outbreaks.

As established earlier, CDC data indicates that only 4% of Legionnaires’ disease cases are associated with outbreaks. Further, water system-driven outbreaks like those in

Flint, Michigan, and the Illinois Veterans Home in Quincy make it clear that water systems may be driving a significant portion of those outbreaks. Based on these facts, we can safely assume that a small percentage of Legionnaires' disease cases are associated with buildings and facilities.

The complexity of water systems in buildings and facilities do provide numerous opportunities for *legionella* growth when seeded from public water systems. Consequently, building and facility managers also have an important role to play in helping to identify and mitigate *legionella* risks in water used by humans. Multiple standards have been developed related to mitigating such risks and in particular, ASHRAE's Standard 188-2018 and Guideline 12-2020 include best practices for the creation and maintenance of Water Management Plans in buildings and facilities.

We are working to promote these standards across sectors and industries and believe their voluntary adoption can serve as an additional line of defense to mitigate *legionella* risks if the bacteria are able to slip through the public water system and into buildings.

Comprehensive Investigations

Finally, we believe that all Legionnaires' disease cases should be properly investigated in order to more accurately identify the source and understand the cause of disease. Right now only Legionnaires' disease outbreaks (two or more cases at a common location) are investigated, leaving the overwhelming majority of individuals impacted by a sporadic case of Legionnaires' disease without answers, and our public health system without a full understanding of how to prevent future cases. We advocate for the investigation of all cases in order to better define the primary drivers of the vast majority the disease and change the trajectory of this disease.

Thank you for your attention to this important issue.