



## Alliance to Prevent Legionnaires' Disease

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### Testimony before the Maryland Senate Committee on Education, Energy and Environment In Support of Senate Bill 264, sponsored by Senator Brooks February 10, 2026

Thank you for the opportunity to provide testimony in support of Senate Bill 264. My name is Dr. Hung Cheung. I am a board-certified physician in preventative and internal medicine, professor at the University of Pennsylvania Pearlman School of Medicine and faculty at The Johns Hopkins Bloomberg School of Public Health. I am a former Medical Director for the State of Maryland, a Maryland resident and the owner of Cogency, an organization which specializes in investigation and response to waterborne disease cases and outbreaks.

I also serve on the Board of the Alliance to Prevent Legionnaires' Disease, a national non-profit public health advocacy group dedicated to reducing the occurrence of Legionnaires' disease by promoting public research, education, best practices for water management, and advocating for comprehensive policies to combat and investigate this preventable disease.

I am very pleased to testify before the Committee with strong support for Senator Brooks' bill SB 264. This important legislation aims to prevent Legionnaires' disease through a comprehensive, source to tap approach focused on the quality of water throughout our public water systems and in building plumbing systems as well as greater transparency and public awareness.

Legionnaires' disease is a severe form of pneumonia caused by a naturally occurring waterborne bacteria known as *legionella*. On average there are 200-300 cases of Legionnaires' diseases reported in Maryland each year and it has a fatality rate of 10% which means 20-30 Marylanders on average die from Legionnaires' annually. The fatality rate is higher among those who are more susceptible including those over age 50, smokers, those with impaired lung function and the immune compromised such a patient who may be undergoing cancer treatment. Legionnaires' cases are known to be underreported due to misdiagnoses, lack of testing and other factors so in actuality its impact is even greater.

As I have seen firsthand, outbreaks are fairly common in our State and as the GSA testing in Baltimore last year demonstrated, legionella is readily found in plumbing and other water systems when tested for. This makes the need for Maryland to act both urgent and imperative to enact needed protections for our residents, as this bill provides.

#### SB 264 Provisions

The key provisions of this bill include:

- **Improved monitoring, management and treatment of water throughout public water distribution systems** including a provision to prevent the growth and proliferation of *legionella* bacteria by requiring most water suppliers to maintain a minimum disinfectant residual of free chlorine of 0.5 mg/L or 1.0 mg/L of chloramine in all active parts of the system. This ensures the water is of the same quality at the start of the system leaving the treatment plant as when it enters all homes,

facilities and public places for human use. Importantly, these levels are well below the EPA maximum level of 4.0 mg/L.

- **A provision to require water utilities to notify water users when there may be elevated risks in their communities** due to planned and unplanned water system events or disruptions which can release legionella from the biofilm in the piping of the distribution system and push it downstream in the water entering our homes and buildings. Included would be information on actions for building owners and individuals to take if there is elevated risk of exposure. Such disruption events would be reported and tracked by state agencies to be used for case and outbreak investigations.
- **A requirement for large, complex buildings or those containing particular equipment to have a water management plan**, following ASHRAE Standard 188, the leading national standard for legionella risk management in buildings.
- **Strengthened investigations** to thoroughly review all reported Legionnaires' cases to determine the source to help prevent further incidences. The bill also calls for greater transparency notifying the community when there are single cases and outbreaks through a state dashboard of Legionnaires' cases.
- **Increased public education** around Legionnaires' disease so residents are more aware of increased risks, signs and symptoms and when to seek treatment, as well as steps that can be taken to reduce one's risks.

### **Ecology of *Legionella* Bacteria**

To understand the focus of this legislation, it is important to establish an understanding of Legionnaires' disease. It is a waterborne illness caused by *legionella* bacteria which is commonly found in our environment in water and soil. The bacteria are present in our water sources and is introduced into our public water system. As drinking water travels from reservoirs and other water sources to treatment plants and into what can be miles of piping in water distribution systems before reaching our homes, facilities and workplaces for human use, *legionella* bacteria can survive and thrive in this system. In fact, there are many factors that can cause the bacteria to proliferate in the public water distribution system including biofilm which houses the bacteria and serves as its food source, water temperature, stagnation, depleted disinfectant, water treatment changes and others. Disruptive events, such as source water changes, water main breaks, service interruptions, construction, and heavy rainfall can cause *legionella* bacteria to become dislodged and enter premise plumbing in facilities, buildings and homes.

*Legionella* thrive in water between 77-122 degrees Fahrenheit and can be inhaled through water droplets in mist released from water-using equipment like showers, sinks, hot tubs, fountains, pools, misters, HVAC equipment and others. Humans can also be exposed to the bacteria when drinking water if they aspirate (when water goes down the wrong pipe). Given the ecology of *legionella* and the potential points for human exposure, proper monitoring, management and treatment throughout the system are required for effective prevention.

### **96% of Legionnaires' Disease Cases are Sporadic**

According to the Centers for Disease Control and Prevention (CDC), 96% of Legionnaires' disease cases are sporadic and isolated from larger outbreaks. US Environmental Protection Agency (EPA) studies and [one](#) recently completed in the state of New Jersey by the Department of Health have found that approximately 50% of all household taps tested positive for *legionella*.

A review of available literature of sporadic cases identified "definite" and "probable" sources of sporadic cases as including potable water from single family homes and apartment buildings, potable water used in

humidifiers, home spas, and potable water from other sites (i.e. dental office, etc.) [Environmental sources of community-acquired legionnaires' disease: A review](#) (2018 Orkis et al.)

### **Upstream Management**

Given the fact that *legionella* exists in the source water and public water distribution system, it is important to properly manage, treat and monitor water in the public distribution system to kill and starve the pathogens to try to prevent infection of the plumbing systems of homes and buildings.

In a letter to the US Environmental Protection Agency sent in 2016, R. Ellingboe, Supervisor of the Drinking Water Protections Section of the Environmental Health Division at Minnesota Department of Health warned, *"Nationally, we continue to see an increase in Legionella disease outbreaks... from exposures within premise plumbing. Are water systems providing a continual "seeding" of Legionella bacteria and the bacteria getting into premise plumbing...?"*

Further, in 2016 a CDC [Morbidity and Mortality \(MMWR\) Weekly Report](#) found that 35% of the outbreaks they investigated were attributed to unmanaged external changes including nearby construction and problems with water mains and 70% of investigations reported inadequate water disinfectant levels. Such external changes or system upsets like construction, water main breaks, water treatment changes, heavy rainfall and others can disrupt *legionella* bacteria stored in the biofilm of public water distribution system piping and send the bacteria downstream into homes and public places. It is important for such disruption events to be better monitored and for notification to given to surrounding communities, so they are aware of increased risks. This is particularly important for those most at-risk of contracting the disease.

When increasing its minimal residual disinfectant level in 2016, the Pennsylvania Environmental Review Board stated, *"Maintenance of an adequate disinfectant residual (treatment) throughout the water distribution system plays a key role in controlling the growth of pathogens and biofilms and is a treatment technique that serve as one of the final barriers to protect public health. Lack of an adequate residual may increase the likelihood that disease-causing organisms such as E. Coli and Legionella are present."* [Disinfection Requirements Rule](#), 2/20/16

Efforts to date have proven ineffective as cases continue to increase. In fact, over the last decade Legionnaires' cases in the United States have increased nearly five-fold. This requires a holistic approach that includes improved water quality management "upstream" as discussed above, as well as risk mitigation efforts in complex buildings, premise plumbing systems and with water-using equipment.

### **Building Management**

This legislation would require building owner and operators to follow the ASHRAE 188 standard for *legionella* risk mitigation which calls for a water management plan for their building, premise plumbing system and water using equipment. This ensures that buildings are also closely monitored and managed to address issues that can increase *legionella* growth including water stagnation, dead legs, ensuring proper treatment of water using equipment where indicated and other measures. ASHRAE Standard 188, *Legionellosis: Risk Management for Building Water Systems*, launched in 2015 and updated in 2021 is the leading, national standard developed over 15 years via the ANSI standard development processes and involved all stakeholders – from the CDC to public health officials, microbiologists, chemists, engineers, water treatment professionals, and water management experts.

### **Case Investigations and Public Education**

While outbreaks often receive the attention, single and sporadic cases often go uninvestigated despite comprising the overwhelming majority of cases. When health officials only take action when there are 2

or more cases in a common location or time period, we are missing the opportunity to intervene early and prevent future incidence. Thorough investigations of all cases which look at all potential sources, exposure points and the potential impact of public water system disruptions that may have preceded cases are critical to better understand the source of disease, mitigate risks and prevent future cases.

Increased public education and awareness is also critical for disease prevention and reducing mortality and morbidity caused by this waterborne illness. Having residents better informed about Legionnaires' disease, what makes individuals more susceptible, and its signs and symptoms, will enable those who may have been exposed to seek early treatment, and to enable individuals to take steps to reduce their risks where possible. For instance, experts recommend that hot water heaters be set to a minimum of 130 degree Fahrenheit and systems should distribute water at a minimum of 122-124 degrees. And cold water systems should be maintained below 68-77 degrees Fahrenheit. More education is needed to help home and building owners to reduce risks.

### **National Recommendations**

In November 2023, after an 18 month process with a working group of experts and stakeholders, the US EPA issued a [final report](#) on Microbial and Disinfection Byproducts Rule Revisions recommendations. This report recommended improvements in water treatment by establishing a minimum residual disinfectant treatment (chlorine or chloramine), better public water system monitoring/ management and building water management programs, which this bill includes. And in 2024, the CDC released a [report](#) on drinking water outbreaks and found that *legionella* was a leading cause of public water system and biofilm-related outbreaks. The report calls for the need for water source-to-tap prevention strategies, consistent with this legislation.

We are very supportive of Senate Bil 264 in that it takes a comprehensive approach to preventing Legionnaires' disease, modeled after a 2024 law passed by New Jersey and effective policies in other states like Illinois and Louisiana, which follow the latest science and data around the need to properly monitor and manage water to mitigate risks posed by legionella bacteria throughout the system. Of note, there are also similar bills pending in New York and Pennsylvania.

We applaud Maryland for taking a leadership role in pursuing state legislation to effectively reduce cases associated with this serious waterborne disease through improved water quality management. We look forward to continuing to work with you to achieve its enactment this year.