



Alliance to Prevent Legionnaires' Disease

Alliance to Prevent Legionnaires' Disease, Inc.
1200 G Street NW, Suite 800 | Washington, DC 20005
preventlegionnaires.org | 1-202-434-8757

Testimony before the Maryland Senate Committee on Education, Energy and the Environment In Support of Senate Bill 512, Sponsored by Senator Lam February 23, 2023

Thank you for the opportunity to submit testimony in support of Senate Bill 512. 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.

We are very pleased to testify before the Committee with strong support for SB 512 from Senator Lam. This important legislation is focused on the prevention of Legionnaires' disease through root cause-oriented policies focused on water quality in our public water systems including:

- A provision to prevent the growth and proliferation of *legionella* bacteria, which causes this disease by requiring most water suppliers to maintain a minimum disinfectant residual of free chlorine of 0.5 mg/L in all active parts of the system so the water is of the same quality at the start of the system as when it enters all homes, facilities and public places for human use.
- A provision to require water suppliers to notify water users when there may be elevated risks in their communities due to planned and unplanned water system events or disruptions, as defined in the bill; and
- Provisions to promote increased public education and research around Legionnaires' disease.

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 readily found in source water like lakes and rivers that supply our public water system and provide our homes and public places with the water we drink, use to shower and for various other purposes. Like COVID-19, at risk populations tend to be those who are elderly, immune compromised, or have respiratory illness or comorbidities.

According to the Centers for Disease Control and Prevention (CDC), 96% of Legionnaires' disease cases are sporadic and isolated from larger outbreaks. 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*. The leading cause of Legionnaires' disease is from municipally supplied drinking water, according to the CDC, we are particularly concerned about home-based exposure given the daily water use and intense exposure to water in our homes with the average family of four using 300 gallons per day, and the fact that some of the most susceptible individuals are those who are often homebound.

A recent 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.)

Given the fact that *legionella* exists in the source water and public water distribution system, it is far more effective to properly manage, treat and monitor water in the public distribution system than it is to try to address these pathogens after they have already entered our homes and public places, "seeded" from the public water system.

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...?*"

Efforts to date have been almost exclusively focused on "downstream" interventions after the bacteria has already infected premise plumbing. Yet this has not proven to be effective as cases continue to increase. In fact, over the last decade Legionnaires' cases in the United States have increased nearly five-fold.

Instead, we need meaningful "upstream" water management to improve the quality of the water delivered for home use through proper monitoring, management and response. This can be done by treating water with disinfectant at the water treatment facility and throughout the system to kill *legionella* bacteria and ensure there is sufficient residual disinfectant throughout the water distribution system so that it is continually disinfected *before* it enters our homes, facilities and public places. Recent outbreaks around the country like in Flint, Michigan, Quincy, Illinois and Saratoga Springs, NY demonstrate that systemic issues and poor management directly impact rates of Legionnaires' disease.

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 be given to surrounding communities so they are aware of increased risks. This is particularly important for those most at-risk of contracting the disease.

Also of note, 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

These findings and statements support the approach taken in this bill. This approach will not only help to mitigate Legionnaires’ outbreaks, but all cases linked to the drinking water including the 96% of cases that are single and sporadic in nature (not associated with an outbreak).

In sum, let me emphasize that water borne disease is a sign or symptom of poor water quality, which is the root cause of illnesses. Accordingly, we are very supportive of Senate Bill 512 in that it takes a root-cause oriented approach to preventing Legionnaires’ disease, modeled after effective policies that have been put in place in other states like Illinois and Louisiana, and which follows the latest science and data around the role of the public water distribution system in introducing *legionella* in our homes, facilities and public places.

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.