Legionnaires' Disease and COVID-19:
A New Yet Old World

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I. BACKGROUND

This paper serves three purposes. First, to raise awareness. Many Americans believe Legionnaires' disease is a woe of our past; a threat not seen since the outbreak at the Bellevue Stratford hotel in Philadelphia almost fifty years ago. Unfortunately, this is not the case. The National Academy of Sciences, Engineering, and Medicine estimates that between 52,000 to 70,000 Americans suffer from Legionnaires' disease each year, between 3 and 33 percent of whom die as a result.[1] Health departments reported nearly 10,000 cases of Legionnaires' disease in 2018 before April even hit, a number the United States Centers for Disease Control and Prevention (hereinafter, "CDC") considers "likely underdiagnosed."[2] Most troubling is the subject of this paper: these numbers are expected to rise due to the prolonged COVID-19 shutdown.[3]

The second purpose this essay serves is to explain to business owners of large commercial properties like hotel owners or owners of office buildings, and to manufacturers and suppliers of equipment associated with Legionnaires' disease proliferation, what their exposure to potential liability is (i.e., what their legal responsibilities are for protecting the public from this disease). For the most part, Legionnaires' disease claims have been brought under a negligence theory, often against the owners of large, commercial properties like hospitals, hotels, senior living facilities, and shopping malls. But more recently, plaintiffs' attorneys have started targeting manufacturers and suppliers under a strict liability theory. In either case, the legal

[1] https://www.nationalacademies.org/news/2019/08/stronger-policies-needed-to-protect-the-public-from-legionnaires-disease

[2] https://www.cdc.gov/legionella/fastfacts.html

[3] https://www.cdc.gov/coronavirus/2019-ncov/php/building-water-system.html

exposure can be substantial. For example, In May 2017, a Lehigh County jury awarded $1.1 million to five individuals sickened by Legionnaires' disease contracted from an untreated decorative fountain in a medical office building.[4] We have also recovered settlements for greater amounts for other clients, including a recent settlement for the estate of a person who stayed at a hotel in Wisconsin and then died. This is because most victims of Legionnaires' disease spend several weeks or months in the hospital following contraction, and they continue to experience disease-related complications for the remainder of their life, assuming they survive the disease in the first instance.

Lastly, this essay lays out a series of steps recommended by both the CDC and our firm (based on our lengthy experience litigating these cases on behalf of plaintiffs) that business owners and manufacturers should take to limit their liability and, most importantly, to keep people safe. Additionally, we address recommendations published by The American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (hereinafter, "ASHRAE"). Though no court has declared any guideline to be dispositive regarding the applicable standard of care, all guidelines are informative. Additionally, many states have themselves enacted specific regulations business owners and manufacturers are to take to prevent the spread of Legionnaires' disease, a violation of which may amount to negligence per se.

Legionnaires' disease can be contracted from a variety of sources: the municipal water supply; large, commercial potable water systems; large, commercial heating, ventilation, and air conditioning (hereinafter, "HVAC") units; water features; spas; pools; and even potting soil. And our firm has handled cases involving them all. If anything cannot be emphasized enough in

[4] https://www.mcall.com/news/police/mc-south-whitehall-legionnaires-verdict-20170503-story.html

this essay, it is this: in a world threatened by the novel disease COVID-19, business owners, manufacturers, and suppliers have an even greater responsibility to protect the public against *well-known* threats. Legionnaires' disease is one of them, and there are simply no more excuses.

II. *Legionella* and Legionnaires' Disease

Legionnaires' disease is primarily a respiratory disease. It was discovered after a *Legionella* outbreak in 1976 among people who went to a Philadelphia convention of the American Legion. Those who were affected suffered a deadly form of pneumonia that we now know as Legionnaires' disease. In the United States, the rate of reported cases of Legionnaires' disease has grown by nearly nine times since 2000.[5] According to the CDC, it is unclear whether this increase is due to an increase in awareness and testing, increased susceptibility among our population, the increase in *Legionella* bacteria in our environment, or some combination of factors. The topic of why there are so many more cases will be addressed in a later essay published by our firm.

Legionnaires' disease is caused by the bacteria genus *Legionella*. It is a naturally occurring bacterium typically found in freshwater environments, like lakes and streams. Freshwater *Legionella* is generally harmless because it is naturally found in low doses. But when *Legionella* gets into municipal or commercial potable water systems it can pose a great health risk. Infection occurs in three steps. First, *Legionella* bacteria grow or propagate until the concentration is high enough to cause illness (i.e., growth to an infectious dose). Second, contaminated water aerosolizes (i.e., breaks into small droplets light enough to travel through the air). And third, a susceptible (i.e., at-risk) individual inhales the contaminated, aerosolized water droplets or aspirates water into the lungs while drinking contaminated water.[6]

A variety of internal and external factors can lead to *Legionella* growth. The causes of *Legionella* growth that we have seen the most of are changes in temperature, inadequate levels of

[5] https://www.cdc.gov/legionella/about/history.html

[6] https://www.cdc.gov/legionella/wmp/overview/growth-and-spread.html

disinfectant in the water, and water stagnation. All water systems (municipal and commercial) contain disinfectant, usually chlorine or bromine. These disinfectants easily prevent *Legionella* growth by killing the bacteria, but if left at inadequate levels for too long they will be ineffective. *Legionella* grows best within a temperature range of 77 to 108 Degrees Fahrenheit. To keep water outside the range for *Legionella* growth, it is important to keep cold water cold and hot water hot. The goldilocks temperature is not right in these circumstances. Lastly, water stagnation can be a source of *Legionella* growth. We typically see these surrounding cooling towers—water that has been allowed to drip and remain standing. Stagnant water forms a biofilm that is a perfect environment for *Legionella* growth.

Common sources of aerosolized water droplets are hot tubs, shower heads, water faucets, and cooling towers. Contaminated water travels through the steam released from hot tubs and pools, and travels off the back of splashing from shower heads and sink faucets. In the case of cooling towers, wind can disperse contaminated droplets that sit below the towers over the lip of the building and down to unknowing pedestrians walking past, as well as travel through the air conditioning system in the building if the towers suck in contaminated droplets. An uncommon source of aerosolized water our firm has come across is potting soil. Potting soil can contain *Legionella* bacteria in infectious doses. In fact, different from the case we handled in the United States, Australia recently had a case involving individuals getting sick from the soil. The act of distributing the soil and working with it releases the aerosol.

An individual cannot contract Legionnaires' disease without inhaling contaminated, aerosolized water or aspirating contaminated water while drinking. Even if contaminated droplets enter a person's lung in an infectious dose, not every individual will contract Legionnaires' disease. Certain groups are considered "at-risk," including those 50 years or older,

current or former smokers, and people with chronic disease or a weakened immune system. Often times, the symptoms associated with Legionnaires' disease—cough, shortness of breath, fever, and aches—are mistaken for other diseases like pneumonia or now, COVID-19. Symptoms typically appear 2 to 10 days after exposure to the bacteria.

III. Legal Liability for Business Owners

Duty Owed to Invitees, Licensees, and Employees (i.e., potential plaintiffs)

Our firm has handled negligence cases involving Legionnaires' disease all over the country. The following principles of law, even when cited to a particular jurisdiction, are in our view generally applicable. One who enters another's land, with permission, to bestow some commercial benefit upon the landowner or use the land as it is held out to the public is deemed either a business or public invitee.[7] Otherwise, the person is considered a licensee. Generally, business owners are not required to keep their premises *absolutely* safe, but they are under an affirmative obligation to use reasonable care to make the premises safe for use by invitees.[8] The standard of reasonable care generally includes an obligation to discover and correct or warn of unreasonably dangerous conditions.[9] But a landowner may be relieved of liability if the injury was caused by an open and obvious condition.[10] This is not applicable to *Legionella* bacteria, as *Legionella* bacteria are invisible to the naked eye. No invitee will be able to discover the presence of *Legionella* and avoid Legionnaires' disease. Thus, landowners will not escape liability by arguing that developing Legionnaires' disease was due to an open and obvious threat.

Landowners also owe a duty of care to public invitees: people invited onto the property as a member of the public for a purpose for which the property is held open to the public.[11] For example, malls. The standard of care owed to public invitees is the same as is owed for business invitees.

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[7] Restatement (Second) of Torts § 332 (1965)
[8] Restatement (Second) of Torts § 342 (1965)
[9] Restatement (Second) of Torts § 343 (1965)
[10] Restatement (Second) of Torts § 342 (1965)
[11] Restatement (Second) of Torts §§ 332, 342, 343 (1965)

There currently is no specific set of guidelines regarding *Legionella* whose fulfillment will satisfy the standard of care owed. However, ASHRAE and the CDC have issued their own guidance, which is informative.

ASHRAE's published standard 188 provides minimum *Legionella* risk management for building water systems. According to standard 188, projects that contain any of the following building risk factors should adhere to ASHRAE's recommended risk management plan: (i) multiple housing units with one or more centralized hot water system; (ii) contains more than 10 stories; (iii) healthcare facility where patient stays exceed 24 hours; (iv) building containing one or more areas for the purpose of housing or treating occupants receiving treatment for burns, chemotherapy for cancer, solid organ transplantation, or bone marrow transplantation; (v) building containing one or more areas for the purpose of housing or treating occupants that are immunocompromised, at-risk, are taking drugs that weaken the immune system, have renal disease, diabetes, or chronic lung disease; and (vi) building identified as housing occupants over the age of 65 years. Standard 188 also applies if the building or project has one or more open or closed-circuit cooling towers, whirlpools or spas, or ornamental fountains or humidifiers.

Standard 188 contemplates the creation of a risk-management team that consists of the building's owner or owners, facility management and maintenance personnel, and personnel from infection control. The team would be responsible for surveying the building's water system, identifying the systems that pose a risk for *Legionella* growth. After identifying these control locations, the team would be responsible for developing preventative and corrective actions to prevent or limit *Legionella* growth and spread (this most certainly would include *Legionella* testing on all water systems, and disinfection of the water supply). Finally, the team would be

responsible for accurately documenting all control efforts.[12] Following these steps would most certainly limit or prevent liability entirely for any subsequent legionella infection stemming from a building.

Standard 188 published by ASHRAE is generally applicable. Meaning that there are no special steps contemplated beyond ordinary use. As we know, however, given the extensive COVID-19 shutdowns, building use in 2020 has been anything but ordinary. For months, buildings have remained relatively stagnant because of work-from-home measures. As has been already mentioned, idle buildings bring about stagnant water. And stagnant water provides a perfect environment for *Legionella* growth.[13] So, the United States Centers for Disease Control has published a list of 8 steps business and building owners should take to minimize *Legionella* risk before reopening their buildings full-time. They include:

1. Develop a water management program. Specific guidance on how to do so can be found on the CDC's website and in their "Legionella Toolkit."

2. Properly maintain your water heater. Make sure that your water heater is set to at least 140 Degrees Fahrenheit and determine if your manufacturer recommends draining your water heater after prolonged disuse.

3. Flush your water system before use. By turning on all faucets, hoses, steamers, ice-machines, etc. you are ensuring that any residual *Legionella* bacteria in and around sink/shower faucets and other water exit/entry points are flushed clean.

4. Clean all decorative water features like fountains or hanging wall displays.

5. Clean your spas and pools. Ensure that the water has been disinfected properly or "shocked" with a disinfectant like chlorine or bromine.

[12] https://cloud.kapostcontent.net/pub/65913a2e-fff3-4515-958b-2e3b5a8295c3/ashrae-188-summary-legionellosis-risk-management-for-building-water-systems
[13] *See, e.g.,* Shutdowns & Stagnant Water: Impact of Coronavirus on Building Owners, republished in National Engineer (March 24, 2020)

6. Clean your cooling towers. Ensure that their water basins are free of any standing water or visible biofilm or slime, and make sure to have properly shut down and restarted the machines.

7. Clean all safety equipment like fire sprinkler systems, eye wash stations, and safety showers. You should be regularly flushing these systems in accordance with manufacturer guidelines.

8. Ask questions. Consider contacting your local water utility to learn about any recent disruptions in your water supply. Regularly check your water's temperature and pH levels.

Taking such steps not only keeps your occupants safe but can reduce exposure to liability in negligence cases involving the contraction of Legionnaires' disease. Through our experience here at Jules Zacher, PC, the steps recommended by ASHRAE and the CDC can significantly reduce liability exposure. What we can add is very simple: disinfect the building's water. *Legionella* bacteria is easy to stay, but that requires adequate treatment with chlorine or bromine and adequate monitoring of their levels in the water. Taking this simple step can prevent *Legionella* propagation and save hundreds of lives each year.

Costs Associated with Legionnaires' Disease Cases

An economist in the CDC's Division of Global HIV and TB and her colleagues used 2014 estimates of disease incidence, health care utilization, and medical costs of Legionnaires' disease drawn from public sources to estimate the overall economic burden caused by Legionnaires' disease.[14] The estimated associated costs were comprised of medical costs and productivity losses caused by premature death and hospitalization. According to their study, approximately $21 million in productivity losses were caused by missed workdays, another $412 million in productivity losses were caused by premature deaths, and about $415 million were

[14] https://www.healio.com/news/infectious-disease/20201218/economic-burden-of-just-1-year-of-legionnaires-disease-cases-tops-835-million

spent on medical care.[15] All of this is to say: potential defendants could be on the hook for lots of money. Our firm itself has settled cases for more than a million dollars and have reached similar verdicts at trial.

[15] https://www.healio.com/news/infectious-disease/20201218/economic-burden-of-just-1-year-of-legionnaires-disease-cases-tops-835-million

V. CONCLUSION

Legionnaires' disease is a preventable disease. It is not contagious and can only be contracted when *Legionella* bacteria grow to an infection level that then gets inhaled by its victim. So not only are chances of contracting the disease low, but the bacteria which cause it are fragile. They grow best in a particular temperature range that can best be described as "room temperature," and so hot or cold temperatures kill it quickly. They can be entirely killed by common disinfectants like chlorine and bromine that are already in our water system. The only thing standing in the way of eradicating this disease is human negligence. Building owners need to upkeep their water systems and pay attention to their risk-management protocols. Especially now amid the COVID-19 pandemic. The prolonged shutdown has increased the risk of *Legionella* growth, and so managing its growth has become more important than ever. But just because it has become more important does not mean it has become more complicated. Follow the steps and the risk of infection and a lawsuit will be significantly diminished. There are no more excuses.