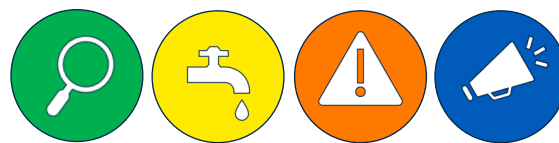


Legionnaires' Disease Risk Communication Toolkit





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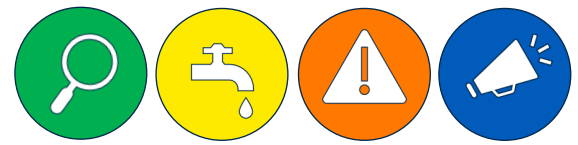
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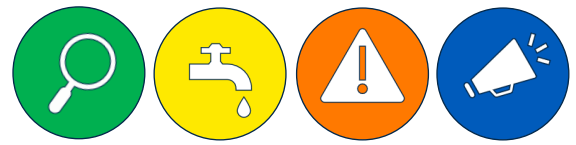
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Version 1.1



Contributors and Acknowledgements	ii
Introduction	7
Chapter 1: Legionnaires' Disease Basics	9
Chapter 2: Legal Authorities for Legionnaires' Disease Activities	17
Chapter 3: Access to Information and Confidentiality	21
Chapter 4: Potential Liability Issues	29
Chapter 5: Communication Considerations	33
Chapter 6: Water Management Programs	39
Overview of Legionnaires' Disease Risk Communication Modules	47
References	49
Legionnaires' Disease Risk Communication Modules (in supplemental documents)	
Healthcare Facilities	
Congregate Residential Facilities	
Hotels and Hospitality Facilities	
Community Settings	
Routine Environmental Testing Results in the Absence of Cases	



The Ongoing Challenge of Legionnaires' Disease

Although some may see Legionnaires' disease (LD) as occurring infrequently—and then only in limited settings—it is in fact an ongoing public health threat that occurs in multiple settings. The U.S. Centers for Disease Control and Prevention (CDC) notes the rate of reported LD cases in the United States has increased steadily from 2000 to 2018. There were almost 10,000 cases reported by health departments in the United States in 2018, though CDC considers the true incidence of the disease to be higher as LD is likely underdiagnosed (CDC, 2021j). CDC researchers report that the “largest number of cases occurred among White persons, but the highest incidence was in Black or African American persons” (Barskey, Derado, & Edens, 2022). CDC (2021j) acknowledges uncertainty about the reasons for the increase in LD cases; it may be due to increased awareness and reporting, greater susceptibility in the population, more *Legionella* in the environment, or a combination of these. Regardless of the cause, it is clear that state, tribal, local, and territorial (STLT) health agencies need to emphasize timely and appropriate communications with key audiences and the general public as part of the process of identifying and responding to cases and outbreaks of LD.

Varying Risk Communication Approaches and Development of this Toolkit

Individual STLT health agencies have employed a variety of approaches to communicate the risks of LD. Agencies may have developed their own guidance internally as well as used existing resources about surveillance, reporting, investigation, and communication. As a result, protocols and guidance for communicating LD risks and mitigation information can vary across and within jurisdictions. For this reason, the CSTE Legionnaires' Disease Surveillance Workgroup (the Workgroup) initiated a project to develop cohesive risk communication guidance available to all STLT health agencies. The Workgroup tasked the CSTE Legionnaires' Disease Risk Communication Subgroup with collecting and distilling a range of LD risk communication resources and materials created by STLT and federal agencies and organizations with the goal of producing cohesive risk communication guidance.

Using the Toolkit

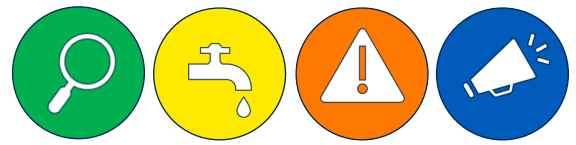
This toolkit opens by providing introductory information in several topic areas:

- Chapter 1: Legionnaires' Disease Basics
- Chapter 2: Legal Authorities for Legionnaires' Disease Activities
- Chapter 3: Access to Information and Confidentiality
- Chapter 4: Potential Liability Issues
- Chapter 5: Communication Considerations
- Chapter 6: Water Management Programs

The information in these foundational chapters applies to all settings in which LD can occur. The toolkit next provides a series of setting- and scenario-specific modules that address LD-related information and messaging targeted to that setting. The setting- and scenario-specific modules are:

- Healthcare Facilities
- Congregate Residential Facilities
- Hotels and Hospitality Facilities
- Community Settings
- Routine Environmental Testing Results in the Absence of Cases

Each module also provides templates and samples for key communication items such as notification letters, notices, public health orders, press releases, and health department advisories. The modules also identify implementation tips and other resources to help STLT health agency staff communicate the risks of LD in these specific settings and with target audiences. More detailed information about using the modules is contained in the “Overview of Legionnaires’ Disease Risk Communication Modules” section.



This chapter provides basic information about Legionnaires' disease (LD) and the related condition, Pontiac fever (PF). It covers the following topics:

- History of LD and PF
- Causes of LD and PF
- Persons at risk
- Symptoms
- Diagnosis
- Treatment
- Reporting
- Mitigation and prevention

History of Legionnaires' Disease and Pontiac Fever

LD is a severe type of pneumonia caused by infection with *Legionella* bacteria. *Legionella* can also cause PF, a related but milder illness (CDC, 2021g). Although extremely rare, extrapulmonary legionellosis (XPL), such as endocarditis or wound infection, can also occur (CDC, 2021c). LD, PF, and XPL are collectively referred to as legionellosis. There are at least 60 species of *Legionella*, although most laboratory-confirmed disease arises from *Legionella pneumophila* serogroup 1 (CDC, 2021g). *L. pneumophila* was discovered in 1977 after an outbreak of pneumonia among attendees at an American Legion convention in Philadelphia, Pennsylvania, the previous year (CDC, 2021j). While PF was first described among workers and visitors at the city health department in Pontiac, Michigan in 1968, the causal linkage of the *Legionella* bacterium between the two diseases was not established until 1977 (CDC, 2021j).

Causes

Legionella can grow in systems and devices that contain water in the built environment. *Legionella* can grow in water sources like water pipes, water heaters, and water storage tanks. These sources can supply water to systems like cooling towers, hot tubs/whirlpool spas ("hot tubs"), decorative fountains, and other water features that can aerosolize water and transmit *Legionella* to susceptible people (CDC, 2021g; see also CDC, 2020b). *Legionella* can also be found in natural and freshwater environments, but it is generally not associated with disease in those settings due to the factors for growth and spread (CDC, 2021g).

People can become ill with LD or PF when they inhale aerosolized water containing *Legionella*. Transmission can also occur via aspiration of drinking water containing the bacteria. *Legionella* is not generally transmitted through person-to-person contact.¹ Exposure to *Legionella* can

¹ CDC notes that "a single episode of possible person-to-person transmission of Legionnaires' disease has been reported (CDC, 2021g, citing Correia, et al., 2016).

occur in several ways. The U.S. Centers for Disease Control and Prevention (CDC) (2021g) notes that travel is a risk factor since facilities like hotels, resorts, and cruise ships often use large, complex water systems and have sources of aerosolized water like showers, hot tubs, and decorative fountains. Other facilities like hospitals and long-term care facilities, which serve at-risk populations, can similarly become sites for *Legionella* growth and transmission through the building's water systems (CDC, 2021g). Additionally, healthcare facilities can use devices that aerosolize water, which can be another potential source for *Legionella* colonization and exposure. People who live or work in large buildings that have complex water systems or that use cooling towers (e.g., apartments with centralized hot water systems, office and commercial spaces, healthcare facilities), may also face potential exposure to *Legionella* if these building systems have conditions favorable for *Legionella* growth and spread. (See Chapter 6 "Water Management Programs" for more information on the role of building water systems in LD.) In vacant buildings or those with significantly decreased occupancy—such as office buildings closed during the COVID-19 pandemic—stagnant or standing water can cause conditions that increase the risk for *Legionella* to grow (CDC, 2021h; see also CDC, 2021t). Finally, there can be cases of sporadic LD in which the case is not associated with an outbreak (CDC, 2020a) and for which the source of exposure is unknown (CDC, 2021q).

Persons at Risk

CDC (2021g) identifies the following personal risk factors for LD, including:

- Aged 50 or older
- Current or prior smoking
- Chronic lung disease (e.g., chronic obstructive pulmonary disease, emphysema)
- Immune system disorders due to disease or medication (e.g., those taken after a transplant operation or chemotherapy)
- Systemic malignancy (i.e., cancer)
- Underlying illness (e.g., diabetes, kidney failure, liver failure)

For More Information...

See the CDC's materials for clinicians for more in-depth information about disease specifics, clinical features, and LD diagnosis, treatment, and prevention. Access it at <https://www.cdc.gov/legionella/clinicians.html>.

CDC (2021g) also identifies risk factors for persons who are exposed to certain settings, such as:

- Recent travel with an overnight stay outside of the home, such as staying at a hotel or resort
- Exposure to a hot tub or other source of aerosolized water such as recreational misters or decorative fountains
- Recent care at a healthcare facility

Symptoms

LD causes severe pneumonia that often requires the patient to be hospitalized, while PF generally resolves on its own (CDC, 2021c). CDC notes that in extremely rare instances *Legionella* can also cause XPL (2021c). (See "Clinical Criteria" below.)

LD is similar to other types of pneumonia, with symptoms that include (CDC, 2021n):

- Cough
- Shortness of breath
- Fever
- Muscle aches
- Headaches

Other symptoms such as diarrhea, nausea, and confusion can also be associated with LD (CDC, 2021n). Symptoms typically begin five to six days after exposure but can range from two to fourteen days (CDC, 2021c).

For PF, which is a milder illness than LD, the primary symptoms are fever and muscle aches; the patient does not have pneumonia (CDC, 2021n). Symptoms usually commence between several hours and three days after exposure, and last less than a week (CDC, 2021n).

Legionnaire's Disease & COVID-19 Symptoms

COVID-19 symptoms—including cough, fever, and shortness of breath—are similar to those of LD. Many of the same people at increased risk for having severe COVID-19 outcomes are also the same people who are at increased risk for LD. Given the similarities in the two diseases' presentations and the commonness of COVID-19, clinicians may be more likely to test for COVID-19 than for LD and may initially believe a case to be COVID-19 rather than LD. Coinfections also do occur. Delays in seeking care for LD can lead to worse health outcomes for patients. It is important for clinicians to order appropriate laboratory tests to confirm the cause of a patient's illness and to order appropriate treatment. Prompt treatment with antibiotics is important for LD, and COVID-19 treatment may exacerbate illness for persons with LD. See Cassell, K., Davis, J.L. & Berkelman, R. Legionnaires' disease in the time of COVID-19. *Pneumonia* 13, 2 (2021). Available at <https://doi.org/10.1186/s41479-020-00080-5>.

Diagnosis

LD, PF, and XPL case classifications include both clinical diagnosis and laboratory testing. The Council of State and Territorial Epidemiologists (CSTE) case definition for national legionellosis surveillance (Position Statement 19-ID-04) (2019a) uses the following clinical and laboratory criteria to classify a case as LD, PF, or XPL. A probable LD, PF, or XPL case meeting clinical criteria may also arise through epidemiologic linkage.

Clinical Criteria

CSTE Position Statement (PS) 19-ID-04 lists the following clinical criteria for determining if a case of legionellosis should be categorized as LD, PF, or XPL.

- **LD**—Presents as pneumonia, diagnosed clinically and/or radiographically (CSTE, 2019a, p. 5). PS19-ID-04 notes: “[e]vidence of clinically compatible disease can be determined several ways: a) a clinical or radiographic diagnosis of pneumonia in the medical record OR b) if “pneumonia” is not recorded explicitly, a description of clinical symptoms that are consistent with a diagnosis of pneumonia” (CSTE, 2019a, p. 6). The clinical symptoms of pneumonia can vary, however PS19-ID-04 states that symptoms must include “acute onset of lower respiratory illness with fever and/or cough” (CSTE, 2019a, p. 6). It further adds that “[a]dditional symptoms could include myalgia, shortness of breath, headache, malaise, chest discomfort, confusion, nausea, diarrhea, or abdominal pain” (CSTE, 2019a, p. 6, fn. 1).
- **PF**—Presents as a milder illness. Although the clinical symptoms of PF can vary, PS19-ID-04

states that symptoms must include “acute symptom onset of one or more of the following: fever, chills, myalgia, malaise, headaches, fatigue, nausea and/or vomiting” (CSTE, 2019a, p. 6, fn. 2). The statement further notes “[w]hile symptoms of PF could appear similar to those described for LD, there are distinguishing clinical features” (CSTE, 2019a, p. 6, fn. 2). It also notes that “PF does not present as pneumonia”, “is less severe than LD, rarely requiring hospitalization”, and that “PF is self-limited, meaning it resolves without antibiotic treatment” (CSTE, 2019a, p. 6, fn. 2).

- **XPL**—Legionellosis can occur in other sites in the body beyond the lungs (CSTE, 2019a, p. 6). Infection with *Legionella* may be as associated with “endocarditis, wound infection, joint infection, [or] graft infection” (CSTE, 2019a, p. 6). PS19-ID-04 further states that “[a] diagnosis of extrapulmonary legionellosis is made when there is clinical evidence of disease at an extrapulmonary site and diagnostic testing indicates evidence of *Legionella* at that site” (CSTE, 2019a, p. 6).

Laboratory Criteria

CSTE PS19-ID-04 identifies the confirmatory and supportive laboratory evidence necessary to classify a legionellosis case. PS19-ID-04 also identifies specific laboratory results that must be reported to public health authorities (CSTE, 2019a, p. 4).

Confirmatory laboratory evidence (CSTE, 2019a, p. 6):

- “Isolation of any *Legionella* organism from lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site.
- Detection of any *Legionella* species from lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site by a validated nucleic acid amplification test.
- Detection of *L. pneumophila* serogroup 1 antigen in urine using validated reagents.
- Fourfold or greater rise in specific serum antibody titer to *L. pneumophila* serogroup 1 using validated reagents.”

Supportive laboratory evidence (CSTE, 2019a, p. 6):

- “Fourfold or greater rise in antibody titer to specific species or serogroups of *Legionella* other than *L. pneumophila* serogroup 1 (e.g., *L. micdadei*, *L. pneumophila* serogroup 6).
- Fourfold or greater rise in antibody titer to multiple species of *Legionella* using pooled antigens.
- Detection of specific *Legionella* antigen or staining of the organism in lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site associated with clinical disease by direct fluorescent antibody staining, immunohistochemistry, or other similar method, using validated reagents.”

Key Resource Document

CSTE *Position Statement 19-ID-04 Revision to the Case Definition for National Legionellosis Surveillance* (June 6, 2019) [Available at: https://cdn.ymaws.com/www.cste.org/resource/resmgr/2019ps/final/19-ID-04_Legionellosis_final.pdf](https://cdn.ymaws.com/www.cste.org/resource/resmgr/2019ps/final/19-ID-04_Legionellosis_final.pdf)

Epidemiologic Linkage

CSTE Position Statement 19-ID-04 also identifies two criteria from which an epidemiologic link can be made for classifying a probable case of legionellosis (a person with clinically compatible illness that was not diagnosed via laboratory testing) (CSTE, 2019a, p. 7):

- “Epidemiologic link to a setting with a confirmed source of *Legionella* (e.g., positive environmental sampling result associated with a cruise ship, public accommodation, cooling tower), or
- Epidemiologic link to a setting with a suspected source of *Legionella* that is associated with at least one confirmed case.”

Treatment

Legionnaires' disease is treated with antibiotics (macrolides and respiratory fluoroquinolones). Most people diagnosed with LD require hospitalization, but persons who are otherwise healthy will generally get better after treatment (CDC, 2021f). CDC (2021f) reports that about one out of ten people sick with LD die from complications, which include lung failure. For people who acquire LD while they are staying in a healthcare facility, about one out of four will die (CDC, 2021f). For PF, the illness resolves without specific treatment (CDC, 2021f).

Reporting

Cases and outbreaks of legionellosis are reportable by clinicians, hospitals, and/or laboratories to state or local health departments as required by state law. Legionellosis is a nationally notifiable disease as determined by CSTE (CSTE, 2019a; see also CSTE, 2010) and designated in the National Notifiable Diseases Surveillance System (NNDSS) at CDC (CDC, 2021k). State health departments send reports of legionellosis cases to NNDSS as well as to the CDC's Supplemental Legionnaires' Disease Surveillance System (SLDSS). Public health officials report outbreaks of LD and PF through the Waterborne Disease Outbreak Surveillance System (WBDOS) of the National Outbreak Reporting System (NORS) (CDC, 2021k). (See Box 1.1 for more information about public health surveillance of legionellosis.)

CDC issues periodic reports summarizing surveillance data for LD, PF, and XPL. The report combines data from NNDSS and SLDSS to better describe "...case count and incidence, seasonality and geographic distribution, demographic characteristics, potential exposure sources, disease severity indicators, and diagnostic laboratory test results" (CDC, 2021p). It is important to note that these surveillance summary reports can reveal important information about the burden of LD. In the 2020 CDC *Legionnaires' Disease Surveillance Summary Report* (which covers data for 2016–2017), it was observed that "...most cases reported to NNDSS occurred in persons reporting White race; however, incidence was higher in persons reporting Black or African American race" (CDC, 2020a, p. 7). In a study reported in March 2022, CDC researchers compared the incidence of LD cases during the relatively steady period for LD case numbers (1992–2002) to the period beginning in 2003 when case counts began to increase (Barskey et al., 2022). Researchers found that "[r]eported LD incidence increased in nearly every demographic, but increases tended to be larger in demographic groups with higher incidence[;] [d]uring both periods, the largest number of cases occurred among White persons, but the highest incidence was in Black or African American persons" (Barskey et al., 2022, p. 528).

Box 1.1 Surveillance of Legionellosis

CDC (2021o) notes that robust public health surveillance can help to rapidly detect new cases of legionellosis, establish epidemiological links among cases, and determine if an outbreak investigation is warranted. Outbreak investigations are key in identifying sources of transmission and instituting control measures (CDC, 2021o).

CDC relies on CSTE's legionellosis position statement, which establishes the case definition for surveillance purposes. The case definition encompasses three clinically and epidemiologically distinct illnesses associated with *Legionella* infection: Legionnaires' disease, Pontiac fever, and extrapulmonary legionellosis. Available at: https://cdn.ymaws.com/www.cste.org/resource/resmgr/2019ps/final/19-ID-04_Legionellosis_final.pdf.

CDC Resources for Surveillance and Reporting of Legionellosis

- [Case Definitions](#)—Clinical description, laboratory criteria for suspect and confirmed diagnosis, and criteria for classifying a case as confirmed, probable, or suspect.
- [Surveillance Classifications](#)—Exposure categories for surveillance purposes, including travel, presumptive/possible healthcare, assisted living, and senior living.
- *How to Report Cases*—Methods of surveillance and surveillance systems:
 - [National Notifiable Diseases Surveillance System \(NNDSS\)](#).
 - [Supplemental Legionnaires' Disease Surveillance System \(SLDSS\)](#)—SLDSS is used to collect extended information on legionellosis cases, such as exposure history and method of diagnosis, beyond the information CDC receives in NNDSS. Reports to SLDSS are made via email, fax, or mail to CDC's Respiratory Diseases Branch Legionnaires' Disease Program, ideally within 7 days for travel-associated cases and within 30 days for non-travel cases.
 - [Waterborne Disease Outbreak Surveillance System \(WBDOSS\)](#) of the [National Outbreak Reporting System \(NORS\)](#).
- [Instructions for Legionellosis Case Report Forms](#)—Addresses methods for submitting forms and instructions for providing information on patient information and demographics; clinical information and outcome; travel, healthcare, and other exposure information; and laboratory data.
- [Surveillance Reports](#)—A descriptive annual summary of the reporting and burden of Legionnaires' disease in the United States.

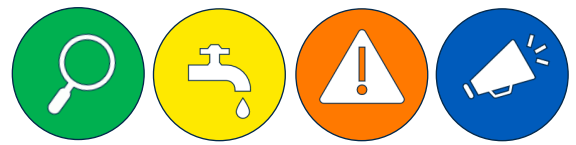
Mitigation and Prevention

Timely recognition, reporting, and investigation of legionellosis cases are key to rapidly identifying potential outbreaks, linking cases, and detecting and mitigating shared exposure sources. As will be covered in the setting- and scenario-specific modules in this toolkit, clearly communicating the risk factors for LD and precautions to prevent *Legionella* infections are crucial tasks for public health professionals.

IMPORTANT NOTE:

Given the severity of LD, the following chapters and modules will focus on messaging about LD; **however, public health agencies may also include messaging about PF and/or XPL as appropriate for a specific case or outbreak.**

Chapter 2: Legal Authorities for Legionnaires' Disease Activities



While this toolkit focuses on the variety of settings in which Legionnaires' disease (LD) events occur, there are foundational legal authorities that empower public health and other agencies to act across a range of settings. These public health legal authorities are furthered by statutes and regulations governing the operations of specific facility types (e.g., hotels, hospitals) and systems (e.g., hot tubs, water features) that can give rise to LD. This chapter gives a brief overview of:

- The sources of public health legal authority.
- The types of authorities available to public health and other agencies to address LD.

Sources of Public Health Authority

The authority of state, tribal, local, and territorial (STLT) public health officials and departments is both established in and limited by several types of legal sources, including constitutions, statutes, regulations, and judicial decisions. (See Box 2.1). The ultimate authority for state public health action arises from the Tenth Amendment to the U.S. Constitution which grants states the powers and rights not specifically delegated to the U.S. Government in the Constitution. Known as "state police power," states (and localities through delegation) are empowered to make and enforce laws that promote the health, safety, and welfare of the public (Holt, 2019). Tribal nations are sovereign entities and therefore have inherent rights of self-governance (CDC, 2021u). Territories are granted self-governance authorities by the U.S. Congress under the Constitution (U.S. Const. art. IV, § 3, cl. 2). The legal authorities of STLT governments are further contained in state, tribal, and territorial constitutions. Thus, these collective legal authorities support the primary mission of public health agencies: to protect and promote the public's health.

Please note: Any legal analysis of a specific scenario or outbreak depends on the facts of that event and the laws of the jurisdiction in which it occurs. Public health department personnel should consult with their agency/government legal counsel.

Information about laws and legal theories discussed in this section and the toolkit are for information only and are not legal advice.

Although public health legal authorities are significant, they are not without limitation. The U.S. Supreme Court has established that courts will defer to the authorities granted to public health agencies through legislation but that these powers must be exercised based on persuasive public health and medical evidence, and agencies cannot act in an arbitrary manner or in a way that poses unreasonable risk for harm (Jacobson v. Massachusetts, 1905).

Types of Legal Authorities Available to Public Health

The authority of public health agencies to identify, investigate, and order remediation in facility building water systems or devices with *Legionella* is supported by several types of laws. Collectively, these laws simultaneously empower and constrain public health activities. These laws fall into the categories described below.

General Government Laws

These laws apply generally to any government agency. Administrative procedure or records retention laws are examples of general government laws. As will be discussed in Chapter 3, freedom of information/open records and confidentiality laws are other examples of these types of laws. General government laws also establish the relationship of localities to the state and the powers granted to local governments.

Broad Public Health Laws

These laws authorize public health and other agencies, as well as specific officials (e.g., state public health agency director, local public health official), to take actions necessary to prevent and respond to public health threats and emergencies. Local agencies and officials can be granted specific powers to protect public health in state law. The kinds and extent of local public health authorities are also a function of the structural relationship between the state public health agency and local public health agencies (i.e., centralized, decentralized, shared/mixed (ASTHO, 2019), which may be defined in state law.

Communicable Disease Laws

These laws define the authority of public health officials to undertake surveillance, investigation, and control measures to address communicable diseases and conditions. Public health agencies are generally given broad statutory authorities by the legislature to collect information and require reports of diseases, conditions, and outbreaks. Legislatures also typically grant public health agencies the authority to adopt regulations identifying the specific diseases or conditions that must be reported, who must report them, and how to report them. As discussed in Chapter 1, legionellosis is a nationally notifiable disease as determined by the Council of

State and Territorial Epidemiologists (CSTE) (CSTE, 2019a; see also CSTE, 2010) and designated in the National Notifiable Diseases Surveillance System (NNDSS) at the U.S. Centers for Disease Control and Prevention (CDC) (CDC, 2021k).

Box 2.1: Sources of Legal Authority

- **Constitutions**—The U.S. Constitution, state, tribal, and territorial constitutions, or similar foundational documents.
- **Statutes**—Laws passed by legislative bodies in states, territories, and tribal nations.
- **Regulations**—Administrative rules adopted by states, territories, and tribal nations to implement programs and actions authorized by statutes.
- **Local Charters and Ordinances**—Laws and rules adopted by local governments.
- **Judicial Decisions**—Interpretations of federal, state, tribal, territorial, and local laws and rules by the courts.
- **Executive Orders**—Orders issued by the chief executive of a government (e.g., President, governor) that have the force of law.

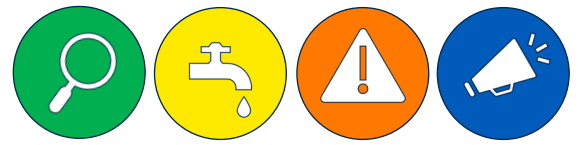
Laws Governing Specific Facility and System Types

These laws govern the range of facility types and systems that can be implicated in LD outbreaks. The subject areas include, but are not limited to, building, plumbing, and HVAC; supplemental disinfection systems; commercial and multi-unit dwellings; pools and recreational water features; hospitals and healthcare facilities; and occupational and labor. Responsibility for enforcing these

various laws can reside in other agencies/divisions in addition to public health agencies/divisions, such as healthcare licensing, housing, building code enforcement, and environment or natural resources. These types of laws are also addressed in the setting-specific modules in this toolkit.

When a public health agency does not have—or believes it does not have—explicit legal authority to address a suspected *Legionella* exposure source in a specific kind of facility or system, the agency can consider using other types of legal authority, such as communicable disease and broad public health laws as described above, to accomplish its mandate to protect the public's health. For example, in community outbreaks, cooling towers (CTs) can be a frequent source of exposure to people in the geographic area neighboring the facility housing the CT. A STLT government may not have specific laws or regulations governing the operation and maintenance of CTs; however, many jurisdictions do rely on their broader public health and other legal authorities to gain access to CTs to assess, sample, and implement control measures.

Chapter 3: Access to Information and Confidentiality



Public health officials understand that the need to inform other agencies, individuals, and the public about a Legionnaires' disease (LD) outbreak must be balanced with the privacy rights of the people and locations involved. Public health officials also require access to confidential information as part of their investigation into a suspect or confirmed LD case or outbreak. The dual issues of access to information and confidentiality are governed by federal and applicable state, tribal, local, and territorial (STLT) laws and court decisions interpreting them. But where there are uncertainties in these laws—or they are silent on an issue—public health officials must make a defensible decision that strikes a balance between information and confidentiality or, when a situation necessitates, that articulates why one takes precedence over the other. This chapter addresses the following topics:

- Balancing information disclosure with privacy.
- Freedom of information laws and circumstances in which information may be disclosed or when it must be protected.
- Select federal and state confidentiality laws.

Balancing Disclosure with Privacy

Chapter 2 discussed the legal authorities of public health officials to undertake key public health functions, such as conducting investigations, accessing records, and collecting samples. However, health officials are also required to comply with federal and state laws that dictate what types of information can be made public and what must be kept confidential. During a suspect or confirmed LD outbreak, public health officials must decide what information to share with the public and when to share it. This can be especially difficult if it is early in the investigation and the available information is incomplete or preliminary. Thus, meeting the competing legal requirements of protecting an individual's or facility's private information while also furthering the equally compelling legal mandates to protect public health and be transparent with public information is a challenging balancing act.

Given that LD outbreaks can become high profile events, public health agencies typically face requests from media, the public, and affected persons and businesses to answer questions and release information as soon as possible. Individuals and organizations involved in an LD outbreak—or those possessing information relevant to an LD outbreak—may raise real or perceived concerns about breaching confidentiality by providing information to a health agency. In addition to observing their legal obligations, public health officials must build and maintain the public's trust in how they handle confidential and sensitive information as they inform the public about threats to the community.

Please note: Any legal analysis of a specific scenario or outbreak depends on the facts of that event and the laws of the jurisdiction in which it occurs. Public health department personnel should consult with their agency/government legal counsel.

Information about laws and legal theories discussed in this section and the toolkit are for information only and are not legal advice.

Public health officials must also determine what information can or should be shared with other parties in the process of investigating and controlling an LD outbreak. These other parties can range from other government agencies, healthcare providers, exposed or potentially affected individuals, and businesses, media, and the public. Some jurisdictions may have laws or regulations that permit—or even require—the disclosure of information about the investigation and mitigation process; others may have to rely on their general authority to protect the public’s health in being able to disclose information about an outbreak.

When a public health official is uncertain about how to achieve the balance of disclosure and privacy, they should consult with their agency’s legal counsel to identify the legal parameters and agency policies affecting the disclosure decision. (See Box 3.1 “Implementation Tips” for areas to discuss with legal counsel and to develop guidance for privacy and disclosure based on the laws in a particular jurisdiction.)

Freedom of Information and Open Records Requirements

Each state has its own freedom of information (FOI) and/or open records laws that govern the kinds of information held by a government agency that officials can release or be required to release upon a request from the public. FOI laws may be known by several names, including open records, public records, open meetings, or sunshine laws. These statutes—and the regulations implementing them—may also include specifics about the process for requesting, allowable costs and charges for fulfilling the request, timeframes for responding to a request, and the process for appealing denied requests.

The federal Freedom of Information Act (FOIA) (5 U.S.C. § 552) governs the release of information by federal agencies (Berger, 2011). While the states are not bound by FOIA, the federal law’s scope, exceptions, and administrative and judicial interpretations of its parameters have informed states’ laws or are explicitly referenced in some states’ laws (Berger, 2011; see also Reporters Comm., 2019a). State FOI/open records laws require public agencies to release the information requested unless the information falls into a specific exception stated in the law or in another statute (e.g., regulation of health providers/facilities, hotels). Generally, if an exception applies, the agency must identify the exception supporting the redaction of specific information or in denying a request for documents outright.

Exceptions to FOI/Open Records Requirements

The FOI/open records exceptions most relevant to public health agencies fall into several categories. **(Note that each jurisdiction’s exceptions will vary and may be different than described here. Check with agency legal counsel in the jurisdiction.** Also note that there are multiple exceptions to state FOI/open records law in addition to those identified below.) Ultimately, the exceptions allowed and the extent to which disclosure is limited in a specific jurisdiction depends on its laws and any court decision interpreting the jurisdiction’s laws.

- **Personally identifiable information**—Outside of medical and other specific contexts defined by state statute (e.g., education records, human services, public safety), records that contain personally identifiable information (PII) may or may not be considered confidential information either within FOI/open records laws or in another statute (Reporters Comm., 2019g; see also O’Connor & Matthews, 2011). If disclosure of PII is not expressly prohibited in these laws, then it may be possible to release PII unless the information is of such a private nature that an individual’s privacy interest outweighs the

public's right to know. The PII exception is generally limited to people and does not apply to corporations or organizations, however this can vary in a specific jurisdiction.

- **Medical records**—Patient medical records possessed by state or local public health agencies, as well as records created or maintained by healthcare facilities or providers related to admission, treatment, payment information, and discharge are generally excluded from release (Reporters Comm., 2019c; see also Reporters Comm. 2019f; Reporters Comm. 2019e). Medical records may be released if the patient or guardian gives written consent. These records may also be released if identifying information can be redacted. In redacting information, other PII contained in a record beyond name and address may also need to be removed if the remaining information can be used alone or in conjunction with other information to identify a person. For example, this could be of concern in smaller communities in which just releasing demographic data about a case could be enough to identify the person involved.
- **Infectious disease and health epidemics**—FOI/open records statutes can exclude information from disclosure that could identify persons with specified infectious diseases (e.g., HIV, AIDS, tuberculosis) or with an infectious disease generally (Reporters Comm., 2019c; see also Reporters Comm. 2019f). Some jurisdictions authorize public health agencies to release specified information about a case or outbreak to inform the public about a risk to public health. However, many jurisdictions do not have a clear or comprehensive statutory framework that addresses public health disclosures and privacy considerations (O'Conner, 2009).
- **Trade secrets or confidential business and financial information**—These types of records from private businesses and organizations are generally exempt from disclosure unless they have been submitted to a public agency and become part of the public record of the agency. However, there can be multiple exceptions to disclosure, such as information submitted to an agency for the purpose of regulatory oversight (Reporters Comm., 2019c; see also Reporters Comm. 2019f).
- **Information submitted to regulatory agencies**—Information submitted to a public health or other agency as part of the regulatory oversight or inspection process of those facilities may be exempt from release. Facilities exempt from release can include hospitals, other healthcare facilities like ambulatory surgical centers, and congregate living facilities like nursing homes and in-patient rehabilitation centers. However, data such as the results of regulatory decisions, final inspection reports, or administrative penalties may be considered public records (Reporters Comm., 2019b).
- **Administrative enforcement records**—Records of inspections and enforcement actions (e.g., worker safety and health inspections, accident investigations) are generally considered agency records subject to release (Reporters Comm., 2019b). However, there may be elements within those records that contain PII that are exempt from disclosure.
- **Certain professional licensure records**—Records submitted by persons licensed by a jurisdiction are generally private, but data such as business directory information or educational and occupational background information may be open for access. Access to information about complaints and disciplinary actions varies by jurisdiction (Reporters Comm., 2019h).

In addition to listing specific exceptions to disclosure, state FOI/open records laws also have broader directives about what information may or may not be subject to public release, such as:

- **Another statute explicitly makes particular types of information/records confidential**—As noted above, this type of exception includes other laws in a jurisdiction as well as federal statutes and regulations.
- **Releases that would be detrimental to public safety or welfare**—This is commonly used in the law enforcement or homeland security areas but can be applied to other situations based on the facts of a case (Reporters Comm., 2019d). This could also apply to public health emergencies, including infectious disease outbreaks.

Finally, a FOI/open records law may also contain provisions that allow the agency some discretion in determining to what extent an individual's/organization's privacy interest should be balanced against the public's interest in disclosure. However, an agency should be prepared to articulate how the privacy interest outweighs the public disclosure requirement if the decision not to disclose is challenged.

Circumstances in which Information Release is Permitted

Despite the exceptions that can limit public health officials in releasing information to the public under FOI/open records laws, these laws can also explicitly authorize public health agencies to release information otherwise covered by the law if certain conditions apply, such as:

- The person (or guardian) provides written consent for the release of their medical record or identifiable information about their case.
- The information release is necessary to protect public health.
- The public health agency releases information to another federal, state, or local public health agency for the purpose of preventing or controlling the spread of a communicable disease.
- Information is released under another state law, or a subpoena or court order.
- Information is released as permitted under federal law (e.g., treatment, payment, research, healthcare operations) to the extent permitted in the Health Insurance Portability and Accountability Act. (Discussed further below.)
- De-identified medical or epidemiological information is released for research or statistical purposes.
- The health agency releases information to a court or law enforcement for enforcement purposes, or to investigate criminal or terrorist events (e.g., nuclear, biological, chemical).

In responding to a request for information, the public health agency should review the request to assess if making the information public would reveal private information or threaten an investigation or public safety. If the agency decides to withhold information, then it must be ready to articulate the basis upon which the information request is being denied.

Confidentiality Laws

In addition to FOI/open records laws, the information released by public health agencies is subject to federal and state confidentiality laws. Confidentiality laws may be separate from FOI/

Box 3.1: Implementation Tips Access to Information and Confidentiality

Use these tips to guide a conversation with legal counsel and develop guidance for collecting, using, and disclosing information during an LD outbreak.

Identify legal authorities that authorize the public health agency to collect and use information from sources like individuals, businesses, and organizations:

- For each type of legal authority listed below, identify the types of information that may be collected from/about each type of source:
 - General public health authority
 - Disease specific
 - Setting specific
 - Other circumstances (e.g., criminal, suspected acts of bioterrorism)
 - Other broadly applicable laws (e.g., unusual occurrence of a disease, infection, or condition)
- Also note any prerequisites, conditions, or limitations on the type of information allowed or how it is used.

Identify legal authorities that authorize/require the public health agency to disclose information:

- Consider each of the following types of legal authorities:
 - Freedom of information/open records laws
 - Health information privacy laws
 - Data practices laws
 - Right to privacy statutes
 - General public health laws
 - Court decisions
- Note any prerequisites, conditions, or limitations on the type of information that can be disclosed. Also note to whom it must (by law) or may be disclosed.

Identify legal authorities that require the agency to protect information about individuals, businesses, organizations, or other sources:

- For each type of legal authority listed below, identify the types of information that must be protected about each type of source.
 - Freedom of information/open records laws
 - ◆ Information excluded from the definition of public records
 - ◆ Permitted exceptions to disclosure:
 - Information not subject to disclosure under another law
 - Personal privacy
 - Investigatory records
 - Health information or medical records
 - Business information
 - Other
 - Other privacy or confidentiality laws
 - Privacy or confidentiality provisions in other types of laws
- Also note any prerequisites, conditions, or limitations on the privacy protections allowed or how they are implemented.

Adapted from ASTHO. (2012). *Emergency Preparedness Toolkit Series. Public Health and Information Sharing State Analysis Guide*. <https://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Information-Sharing-Toolkit/>.

open records laws, may be part of those laws, or there may be confidentiality provisions incorporated into other statutes governing specific agencies or issues. A jurisdiction's confidentiality laws should be understood when approaching an individual or facility involved in an LD outbreak for sensitive and potentially confidential information. Confidentiality requirements must also be considered when deciding what information to release during an outbreak. Public health officials should consult with their legal counsel to understand the interplay of FOI/open records and confidentiality laws in their jurisdiction and their application in a particular instance. The following discussion highlights two federal privacy laws that can also affect a public health investigation, depending on the facts of a case or outbreak.

Selected Federal Confidentiality Laws and Regulations

In addition to any state confidentiality laws, there are two federal laws—the Health Insurance Portability and Accountability Act (HIPAA) (42 U.S.C. § 300gg et seq) and the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g)—and associated regulations that are frequently identified as potential sources of uncertainty about what information a public health agency is: (1) allowed to collect from healthcare providers, other record holders, and facilities, and (2) permitted to share and with whom.¹ This section briefly introduces these federal laws and regulations; readers should consult with their agency's legal counsel for questions involving these requirements.

HIPAA Privacy Rule

The HIPAA Privacy Rule (45 CFR Part 160; Part 164 subparts A & E) creates national privacy protections for individuals' identifiable health information.² The rule prohibits entities covered under it from disclosing protected health information (PHI) to any third parties unless the rule otherwise permits the disclosure or if the person who is the subject of the record (or their representative) authorizes the disclosure in writing (45 CFR Part 160; Part 164 subparts A & E; see also HHS, 2013). PHI is defined as individually identifiable health information that is maintained or transmitted by a covered entity, hybrid entity, or a business associate, as those terms are defined in the rule, in any form or media (i.e., electronic, paper, oral) (45 CFR §160.103). Thus, the Privacy Rule can apply to healthcare providers or other entities that supply information to public health agencies, or even to a public health agency depending on the services it provides.

Despite its general prohibitions against sharing PHI, it is important to note that the Privacy Rule is not intended to interfere with public health functions. The rule contains multiple exclusions that allow public health agencies (or others) to collect, use, and disclose PHI without an individual's authorization (Privacy Rule; see also HHS, 2013). One important exclusion is for "public interest and benefit activities" (HHS, 2013), which permits use and disclosure of PHI without an individual's authorization for specific public purposes that acknowledge the important uses for health information beyond the healthcare setting. The rule allows, but does not require, disclosures for a dozen identified public purposes (45 CFR §164.512). Those relevant to public

¹ It is important to note there are other federal laws and regulations that address privacy issues in addition to HIPAA and FERPA.

² The rule defines "individually identifiable health information" to include data that can or could be reasonably used to identify an individual such as common identifiers (e.g., name, address, date of birth, SSN), demographic data, information about the healthcare services provided, or the type of payment used (45 CFR § 160.103).

health agencies investigating LD outbreaks include:

- **Required by law**—Covered entities may use and disclose PHI without an individual’s authorization if the use or disclosure is required under a statute, regulation, or court order (45 CFR §164.512(a)).
- **Public health activities**—Covered entities are allowed to disclose PHI for multiple public health activities identified in the rule, including: (1) disclosures to public health officials authorized by law to collect or receive PHI for preventing or controlling disease, injury, or disability; (2) to persons who may have contracted or been exposed to a communicable disease when notification is authorized by law; or (3) to employers who request information about their employees’ work-related illnesses or injuries or workplace-related medical surveillance data when necessary to comply with federal Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) requirements, or similar state laws (45 CFR §164.512(b)).

The HIPAA Privacy Rule includes exceptions that allow for different state requirements to control if a state’s law: (1) relates to the privacy of individually identifiable health information and provides greater privacy protections or rights than the Privacy Rule; (2) requires reporting of diseases or injuries, child abuse, birth, or death, and for public health surveillance, investigation, or intervention; or (3) requires certain reporting by health plans, such as for management or financial audits or evaluations (45 C.F.R. §160.203, §160.204; see also HHS, 2013). A state may also ask HHS to determine if a state’s law will not be preempted by the Privacy Rule. A state requirement will not be preempted by the Privacy Rule if HHS determines: (1) that the conflicting state provision serves a compelling public health, safety, or welfare interest, or (2) if the conflicting state requirement relates to a privacy right, that the intrusion into privacy is warranted given the public interest being served (45 C.F.R. §160.203, §160.204; see also HHS, 2013).

FERPA

FERPA limits the information schools may give to public health agencies (and others) about students (20 U.S.C. § 1232g).³ Among other things, FERPA prevents the disclosure of a student’s education record without the consent of a parent (or eligible student⁴) unless an exception to the law’s general consent requirement applies (ED & HHS, 2019). An education record⁵ is considered to contain personally identifiable information (PII), which includes name, address, personal identifiers like SSN, date of birth, biometric data, or other information that could be used alone or in combination to identify a student (ED & HHS, 2019). However, schools may disclose without consent “directory information” such as a student’s name, address, telephone number, date and place of birth, and dates of attendance (ED & HHS, 2019). A student’s health records, including records maintained by a school nurse, are considered part of the student’s

³ The law applies to all educational institutions and agencies that receive any funds from the U.S. Department of Education (ED). All public schools and school districts and most public and private post-secondary institutions (e.g., universities, colleges) are covered by FERPA. Private and religious elementary and secondary schools are not subject to FERPA because they generally do not receive funding from ED.

⁴ “Eligible students” are students who have turned 18 or attend school beyond the high school level at any age (34 CFR § 99.3).

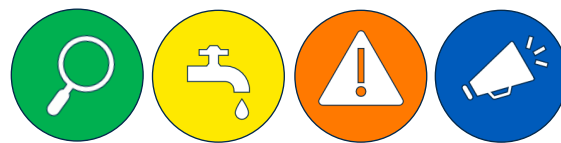
⁵ An “education record” is defined as records which are: (1) directly related to a student and (2) maintained by an educational agency or institution or by a person acting on behalf of the agency or institution (34 CFR § 99.3).

education record, and thus are protected from disclosure under FERPA. Schools may also disclose de-identified information without written consent (34 CFR §99.31).

In addition to disclosures to parents and eligible students, and for directory information, FERPA regulations identify the parties to or circumstances in which disclosure of PII may be made without consent (34 CFR §99.31, §99.35; see also ED, 2021). FERPA’s “health and safety emergencies” exception permits a school to disclose PII from education records in an emergency if the information is necessary to protect the health or safety of the student or other individuals (34 C.F.R §99.31, §99.36). Public health agencies are among the types of entities to which a disclosure for a health and safety emergency may be made, depending on the facts of a case or outbreak (ED, 2020).

Access to Information and Confidentiality Selected Resources

- Association of Health Care Journalists, Association of State and Territorial Health Officials, and National Association of County and City Health Officials. Guidance on the Release of Information Concerning Deaths, Epidemics or Emerging Diseases. October 2010. Available at: <http://healthjournalism.org/secondarypage-details.php?id=965>.
- CSTE. Legal Issues Concerning Identifiable Health Data Sharing Between State/Local Public Health Authorities and Tribal Epidemiology Centers in Selected U.S. Jurisdictions. Original Draft March 30, 2009; Revised as of November 8, 2011. Available at: <https://cdn.ymaws.com/www.cste.org/resource/resmgr/PDFs/LegalIssuesTribalJuris.pdf>.
- Network for Public Health Law. School Nursing Initiative. Available at: <https://www.networkforphl.org/resources/topics/initiatives/school-nursing-project/>. (Includes multiple fact sheets on data sharing.)
- The Reporters Committee for Freedom of the Press. Open Government Guide. 2019. Available at: <https://www.rcfp.org/open-government-guide/>.



Any discussion of legal issues surrounding Legionnaires' disease (LD) investigations would not be complete without a review of potential liability issues that can arise. Liability occurs when an individual or entity is determined to be legally responsible for their actions, or their failure to act in a situation in which an injury or damage occurred. This chapter addresses:

- Understanding the concept of legal liability.
- Identifying potential scenarios in which liability for an LD outbreak can arise.
- Reviewing possible theories of negligence and administrative violations applicable in an LD outbreak.

Understanding Legal Liability

Civil liability is the most likely type of liability to arise in the context of an LD outbreak. Individuals and entities may be found directly¹ or vicariously² (indirectly) liable for the acts or omissions of themselves or their employees or agents. If an individual or entity is found civilly liable for causing harm, the aggrieved party can seek monetary compensation and, in some instances, an injunction to stop current or future action by the liable party. Civil liability claims can generally translate into several different theories, including negligence, misrepresentations, privacy violations, discrimination, or even intentional harm (i.e., battery).

A foundational principle to understanding potential civil liability is the concept of a tort. In the law, a tort is a wrong committed by an actor (a person or entity) either intentionally or unintentionally that causes harm to another person or property. A tort claim is a type of civil claim that allows an individual or entity to sue the actor in civil court for redress of the harm. (This is contrasted with contractual claims in which the parties to a contract sue in civil court over the terms of the contract, or with criminal charges in which a government prosecutes an individual or entity.) Unintentional torts arise if an actor harms another person or property,

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¹ Individuals and corporate/organizational entities can be held directly liable (i.e., legally responsible) for their own actions or failures to act (omissions) when they fail in their duty to act according to a standard that governs their actions.

² Persons and entities may also be held legally responsible for the acts or omissions of another person/entity with whom they have a particular legal relationship (i.e., vicarious liability). Vicarious liability typically arises when an employer is held legally responsible for the actions of its employee. Entities like corporations, non-profit organizations, or educational institutions may also be subject to vicarious liability for the acts or omissions of its agents, like officers, directors, or volunteers. For example, in lawsuits against hotel facilities that have experienced LD outbreaks, the management and corporate owners of the hotel are frequently added to the lawsuit for the failure of employees to properly maintain the water systems which resulted in *Legionella* growth and spread. See for example *Licari v. Best W. Int'l Inc.*, Case No. 2:11-cv-603 (D. Utah Jul. 12, 2013).

but the harm was not intended (i.e., negligence). Conversely, intentional torts occur when an actor intends to cause the harm or injury to another person or property (i.e., fraud).

Understanding Negligence

Negligence occurs when the unintentional but wrongful conduct of an individual or entity (the defendant) causes harm to another or their property. As a general proposition, the injured party (the plaintiff) must prove the following elements for a finding of negligence: (1) the defendant owes the plaintiff a duty of care (including a duty of ordinary care); (2) the defendant breached that duty by failing to meet the applicable standard of care; (3) the defendant's actions resulted in harm to the plaintiff; and (4) the defendant's breach of duty was the cause of the plaintiff's injury. A duty of ordinary care means the amount of care that a reasonable person would take under similar circumstances; this standard is also known as the "reasonable person" standard. However, it is important to note that the standard of care that would apply to a physician or other person with specialized skills may be different than an ordinary care standard. Similarly, the standard of care may be different depending on what type of facility is involved in the LD outbreak (e.g., hospital, hotel).

Potential Scenarios for Legionnaires' Disease Liability

This discussion will focus on three potential scenarios in which liability for an LD outbreak can arise and the legal theories involved in them:

- Liability of a facility for an LD outbreak that caused harm to persons linked to the facility.
- Liability of a facility for potential administrative or regulatory violations arising from an LD outbreak.
- Liability of public health and other government officials arising from an LD outbreak.

Liability of a Facility for Negligence

The individual or entity who owns, controls, and/or operates a facility (e.g., hotel, hospital, apartment building, office space) owes a duty to the persons working in, living in, or visiting the facility to maintain it so it does not injure them. This includes maintaining systems within the facility so as not to cause harm. When an LD outbreak occurs, owners and operators of facilities can be subject to claims of negligence.³ The specific standard of care that can be applied to a particular type of facility will be found in statutory and regulatory requirements, industry standards, and court decisions.⁴ State regulations and local ordinances may also adopt by reference specific national standards into their regulations or ordinances, such as ANSI/ASHRAE 188 (*Legionellosis: Risk Management for Building Water Systems*) (ASHRAE, 2021; see also Stout

³ Premises liability is a form of negligence in which an individual or entity who owns, controls, and/or operates a facility may be held responsible for injuries that occurred to people present at the facility.

⁴ Another form of negligence, negligence per se, can also be used to find a facility liable. To find negligence per se the plaintiff must be in the category of persons the statute was intended to protect and the injury must be one that the statute was intended to prevent. If the plaintiff meets these requirements, then the defendant is found to be negligent based on the violation of a controlling statute or regulation. Some states only allow violations of statutes to be used to establish liability; violations of regulations can only be used as evidence of negligence. See for example *Hopkins v. Booth*, 16-CV-1020V(F) (W.D.N.Y. Nov. 20, 2017) (Plaintiff acquired LD from a hot tub exposure at a vacation property; the court did not allow the plaintiff to rely on the state's pool sanitation regulations to establish negligence per se because New York law only allows for negligence per se when a statute is violated.)

& Boehlert, 2015). Even if industry standards are not adopted into law or codes, they can still act as evidence of what the standard of care should be regarding managing legionellosis risks (Stout & Boehlert, 2015).

Regulatory and Administrative Liability for a Facility

Administrative liability can arise when a facility or individual violates the terms of their government-issued permit or license or violates an ordinance, regulation, or statute that governs their actions. Violations of the conditions of a permit, license, or ordinance generally begin with the failure to comply with applicable requirements. Such violations are typically identified via routine inspections/environmental assessments or those following complaints or cases/outbreaks. This initiates an administrative process in which violations must be addressed and may be challenged through an appeal process by the involved facility. Typically, an involved facility will be given a schedule by which to resolve identified deficiencies and will be re-inspected to determine if the deficiencies have been properly addressed. For more serious events or repeated violations, the facility may be subject to stronger penalties such as temporary closure and/or fines. If or when the facility resumes operation, it may be involved in a probationary period and subjected to greater oversight of its operations while on probation. For more egregious events, the facility may be ordered to permanently close, or the operators may lose their license to operate. The facility/owners/operators will have due process rights as laid out either in federal or state, tribal, local, or territorial (STLT) administrative procedure laws, or in the specific code governing the business type (e.g., hotels, recreational water facilities) or the type of violations involved (e.g., health code, sanitation code, building code). Administrative liability can also ultimately give rise to civil monetary fines and, in some cases, criminal monetary penalties and jail time.

As with facilities, individuals who are licensed in a jurisdiction for a particular trade or profession are likewise subject to administrative processes and sanctions if they violate the statutes, regulations, or ordinances governing their professions. Administrative penalties can range from reprimand, retraining, temporary suspension, or loss of license to practice in the jurisdiction. Investigations of regulated professions are also subject to federal and STLT administrative procedure laws and due process provisions in codes regulating the profession.

Liability of Public Health and Other Government Employees

Public health and other government employees may be concerned about the possibility that they can be held liable for their actions (or failures to act) in investigating or inspecting facilities in which an LD outbreak occurred. As a general proposition, government employees acting within the scope of their duties are generally immune from liability under the theory of sovereign/governmental immunity.⁵ However, the federal government and states have passed tort claims acts in which injured parties can sue a government in the same way a private person could be sued for the harm caused to injured parties (Federal Tort Claims Act, as amended, codified at 28 U.S.C. §§1346(b), 2671-2680). In these cases, the government will stand in the place of the government employee being sued. A key exception to providing immunity to

⁵ The doctrine of sovereign immunity has its roots in the English common law that became the foundation of the U.S. legal system. It holds that the “sovereign” (the government) cannot commit an illegal act and therefore cannot be sued. State governments are immune from lawsuits under sovereign immunity conferred by the 11th Amendment of the U.S. Constitution. This doctrine has been modified through court decisions and laws like the Federal Tort Claims Act and state claims acts.

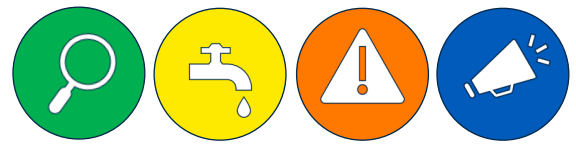
government employees is if an employee was engaged in willful, wanton, or criminal conduct that caused the injury. In this scenario, the government employee would not be eligible for immunity coverage. The Flint, Michigan water crisis that began in 2014, involved, among other events, an LD outbreak at a local hospital and an increase in community LD cases. The incidents in Flint gave rise to criminal indictments of public officials, including public health officials, for their actions during those events (Assoc. Press, 2017; see also Mauger & Ruble, 2021). Those indicted were cited for activities alleged to rise to the level of gross and willful negligence of their legal duties as public officials (LeBlanc, 2021; see also Gable & Buehler, 2017). In 2021, the state of Michigan agreed to pay for private attorneys representing the charged public officials (Fonger, 2021).

More broadly, the prospect of criminal prosecution (or civil liability) arising from decisions made in good faith can have a chilling effect on those working in or willing to work in government public health. Notwithstanding the ongoing legal cases in Flint, government public health officials and staff who act in good faith based on the information available to them at a given time and on their professional judgement grounded in sound public health practice and science should be able to rely on the legal protections provided to government employees in STLT laws (CSTE, 2018; see also ASTHO, 2018).

Potential Liability Issues Selected Resources

- ASHRAE. Standard 188: Legionellosis: Risk Management for Building Water Systems (ANSI approved). Read-only access available at: <https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards>.
- ASTHO. ASTHO Statement on Public Notification of *Legionella* Outbreaks. November 8, 2018. Available at: <https://legacy.astho.org/Press-Room/ASTHO-Statement-on-Public-Notification-of-Legionella-Outbreaks/11-08-18/>.
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- CSTE. Statement on the public health practice of public notification of complex infectious disease outbreaks, focus on *Legionella* outbreaks. December 2018. Available at: https://cdn.ymaws.com/www.cste.org/resource/resmgr/pdfs/pdfs2/LD_statement_December_2018_F.pdf.
- Stout, J.E. and Boehlert, G.R. Legal Significance of ANSI/ASHRAE Standard 188-2015. Available at: <https://www.facilitiesnet.com/facilitiesmanagement/article/Legal-Significance-of-ANSIASHRAE-Standard-188-2015--16353>.

Chapter 5: Communication Considerations



Effectively communicating about public health risks is essential. To quote one risk communicator:

“The right message at the right time from the right person can save lives.”

Barbara Reynolds, PhD, CDC Senior Crisis and Risk
Communication Advisor (CDC, 2018a)

This sentiment motivates the work of public health professionals to provide accurate and timely information about health threats that people can use to improve their health and the health of their communities. The efforts of public health agencies to identify cases of Legionnaires' disease (LD), find and mitigate the sources of exposure to *Legionella*, and work to prevent future outbreaks depend on these agencies' abilities to simultaneously communicate across multiple audiences with messages tailored to each. This can be a challenge given the high-profile, fast-moving nature of some LD outbreaks. To accomplish this, public health agencies can develop messaging strategies and tools in advance of outbreaks to be prepared for the next event. With each new outbreak, these plans and materials can be refined to incorporate lessons learned. The messaging tables and templates contained in the setting- and scenario-specific modules of this toolkit will provide guidance about responding to LD outbreaks arising in different settings. This chapter presents an overview of foundational risk communication concepts and how these apply in the context of LD. The chapter addresses:

- Creating a risk communication strategy.
- Identifying key audiences.
- Developing messages for different audiences and scenarios.

Creating a Risk Communication Strategy

Best practice is to create a strategy for communicating during an outbreak before an outbreak occurs. Because public health agencies have experience responding to infectious disease outbreaks (including *Legionella*), most already have established procedures for conducting epidemiological investigations. It is equally important to have plans for contacting key audiences at various points in an investigation. Broadly speaking, the communication strategy should identify:

- (1) the types of persons, facilities, entities, and media to be contacted,
- (2) what they should be informed about, and
- (3) when they should be informed.

For More Information...

See *The CDC Field Epidemiology Manual* chapter “Communicating During an Outbreak or Public Health Investigation” for detailed guidance on developing messaging and working with the media. Available at <https://www.cdc.gov/eis/field-epi-manual/chapters/Communicating-Investigation.html>.

This communication process will likely be an iterative one: as the outbreak investigation proceeds, communication needs can evolve as new information is received. Furthermore, multiple versions of an LD communication strategy may be necessary based on the setting in which an outbreak is occurring, such as in a healthcare or travel-related setting.

The risk communication strategy should also include written plans about how the public health agency will respond to the event. The agency plan should identify and list by name and position the internal staff who need to be included in outbreak communication decisions (e.g., agency leadership, public information office, legal). (See “Selected Resources” below for links to more in-depth information about developing, implementing, and evaluating communication plans and strategies.)

Identifying Key Audiences for LD Risk Communication Messaging

This section identifies some of the key audiences that a risk communication strategy is likely to include. A specific jurisdiction or outbreak may require additional or different audiences as part of its plan. The strategy can be used as a framework for ensuring that all appropriate audiences are included, but which is also flexible enough to adapt to the event.

- **Involved facility or exposure source**—This is the known or suspected potential source of exposure to *Legionella*; it might not be identified until later in the investigation.
- **Involved persons**—These are the persons who have had LD, or who may have been exposed to *Legionella* in a location in which a confirmed or suspect case has occurred. This can potentially encompass a large number of people depending on the size and type of facility. Involved persons could include, for instance, guests, patients, residents, employees, visitors, contractors, vendors, and others.
- **Healthcare providers and facilities**—Communicating with medical professionals can increase their ability to identify, diagnose, and report cases of LD. Public health agencies can notify healthcare providers when an LD outbreak is being investigated to inform them to consider LD as a possible diagnosis if a patient presents with clinically compatible symptoms. This is particularly true in areas in which LD is uncommon or infrequently diagnosed.
- **Other agencies and governments**—Because LD can arise in multiple settings, other government agencies or divisions may have legal authority over or interest in systems or facilities implicated in an outbreak. Coordination among federal, state, tribal, local, and territorial (STLT) agencies can enhance the investigation and response to the outbreak. In outbreaks occurring in more than one jurisdiction or in which a person is diagnosed with LD after visiting a facility in another jurisdiction, sharing information with other jurisdictions can allow for follow-up with the facility where the exposure likely occurred. Establishing procedures for keeping other public health agencies informed may also be part of the communication strategy.
- **Media and the public**—LD outbreaks can result in extensive media attention and public interest regardless of size or setting. Identify the types of media mechanisms that may be used (e.g., TV, radio, press, social media) to inform the public and to reach specific audiences.

Developing Messages for Different Audiences and Scenarios

Each audience identified in the strategy may require different messages for various scenarios during an outbreak. The kinds of information and the level of detail contained in a message can also vary with the audience. Information provided to a healthcare professional about the specific symptoms and diagnostic methods for LD will differ from the information provided to a layperson being notified about potential exposure.

Notification Letters

Notification letters can be important tools for providing basic information about LD, as well as specific information about the suspected or confirmed source of *Legionella*. These letters can also be tailored to the perspective of the audiences receiving them (e.g., facility operator, resident at a facility). For example, in the case of an LD outbreak at a hotel, notification letters to different audiences may share some common elements while also including unique information. One key audience in this scenario is prior guests who were exposed to *Legionella* before the outbreak was recognized. Another key audience is prospective guests staying at the hotel after the outbreak was recognized. CDC has summarized key considerations when drafting notification letters (see Box 5.1).

Factsheets and FAQs

Factsheets and frequently-asked-questions (FAQ) documents are often efficient ways to provide concise information about LD basics, sources of exposure, symptoms, risk factors, and prevention measures. Factsheets can be created for specific facility types (e.g., healthcare settings, recreational water facilities), specific building systems (e.g., water and plumbing systems, cooling towers), and specific audiences (e.g., healthcare providers, hotel operators, facility engineers/maintenance). These can be included with notification letters and be posted on the public health agency's website. CDC has created factsheets and other resources related to all aspects of legionellosis identification, control, and prevention that can supplement or be included with STLT materials (see CDC Communication Resources in the "Selected Resources" box below).

Press Releases and Media

Determine what information can be released to the press and the public and when. (See Chapter 3 "Access to Information and Confidentiality"). Collaborate or consult with other agencies to ensure that there is consistent messaging if applicable. For example, in states in which local health departments are independent of the state health agency (i.e., a decentralized system (ASTHO, 2019)), collaborating on what information will be released and when can help to ensure that there is consistent messaging, and that each agency can be prepared to answer media and public inquiries.

Epidemiology staff can work with the public health agency's public information officer or communications staff to hone effective press releases and messages for social media. (See Box 5.2 Using Social Media.) Develop key messages and talking points to prepare for media appearances to ensure consistent messaging is provided by all agency staff involved in communications.

Box 5.1: *Legionella* Notification Letters

(Excerpted from CDC *Legionella* Communication Resources website*)

In notification letters, it is important to convey what is known about the situation, who is at risk, and what is being done to protect against further illness. Consider addressing the following elements when drafting notification letters:

- Who is the intended audience (e.g., hotel/travel accommodation guests, healthcare facility staff, patients and their families, community members)?
- What is known about the case exposures (i.e., does the available epidemiologic information point to a given setting or device as the source of exposure)?
 - How many cases have common exposures?
 - What type of exposures are potentially implicated?
 - How tightly clustered in time were the cases?
- What is known about the environment (i.e., the level of certainty that the implicated setting was the source of exposure)?
 - Has environmental sampling been performed? Were any samples positive for *Legionella*?
 - Have clinical and environmental isolates been obtained and characterized, and if so, do they provide additional evidence about the exposure source?
- What measures have been taken so far or will be taken to prevent further cases (e.g., shutting down/draining hot tubs, remediating the hot water system, water restrictions, installation of point-of-use filters)?
- How can those at risk protect themselves (e.g., who is at increased risk, how is it spread and treated, where can more information be found? (Also include contact information for the appropriate public health jurisdiction.)
- What should recipients do if they believe they develop symptoms consistent with LD (e.g., contact medical provider, disclose exposure to LD outbreak setting, request testing if appropriate)?

For travel outbreaks, consider:

- Whether past guests who may have unrecognized or incubating infections should be notified about possible exposures that may have already occurred, especially for those still within the incubation period.
- Whether future guests should be notified of the potential for exposure prior to or upon arrival so that they have an opportunity to find another accommodation if desired.

*Retrieved from <https://www.cdc.gov/legionella/health-depts/communications-resources.html>.

Health Alerts

Health alerts can be considered to notify healthcare professionals, healthcare facilities, clinical and public health laboratories, and other public health agencies about suspect or confirmed LD cases. For example, a health alert would be useful for notifying providers of increases in LD cases that are potentially associated with an outbreak. A health alert in this instance can remind providers of LD diagnosis, treatment, and reporting requirements, including asking them to collect respiratory specimens from patients when they suspect or diagnose cases of LD.

The setting- and scenario-specific modules in this toolkit provide in-depth information and templates for communicating with key audiences using a variety of document formats.

Box 5.2: Using Social Media

Social media can allow public health agencies to provide credible, timely, and science-based information about LD directly to key audiences. Social media can be used to provide general information about LD such as basics about the disease, its causes, personal risk factors, and prevention measures. Where there are community-associated LD outbreaks, social media can be used to notify persons in the affected areas about the outbreak.

All social media postings about LD generally or in specific outbreaks should conform to the public health agency's social media policies and protocols.

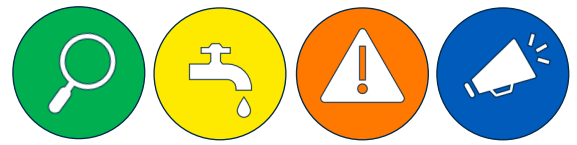
For general tips on using social media in public health, see:

- National Association of County and City Health Officials (NACCHO). Social Media Toolkit. July 2019. Available at <https://www.naccho.org/uploads/downloadable-resources/Social-Media-Toolkit-for-LHDs-2019.pdf>.
- CDC. Social Media at CDC webpage. Available at <https://www.cdc.gov/socialmedia/index.html>.
- HHS. Social Media: Getting Started webpage. Available at <https://www.hhs.gov/web/social-media/getting-started/index.html>.

Communication Considerations Selected Resources

- Association of Health Care Journalists, Association of State and Territorial Health Officials, and National Association of County and City Health Officials. Guidance on the Release of Information Concerning Deaths, Epidemics or Emerging Diseases. October 2010. Available at: <http://healthjournalism.org/secondarypage-details.php?id=965>.
- CDC. *Legionella* (Legionnaires' Disease and Pontiac Fever). Communications Resources. Available at: <https://www.cdc.gov/legionella/health-depts/communications-resources.html>.
- CDC. The CDC Field Epidemiology Manual. Tumpey, A., Daigle, D., and Nowak, G. Communicating During an Outbreak or Public Health Investigation. Available at: <https://www.cdc.gov/eis/field-epi-manual/chapters/Communicating-Investigation.html>.
- CDC. Emergency Preparedness and Response. Crisis and Emergency Risk Communication (CERC) Manual. 2018. Available at: <https://emergency.cdc.gov/cerc/manual/index.asp>.
- CDC. Gateway to Health Communication. Available at: <https://www.cdc.gov/healthcommunication/index.html>.
- CDC. National Prevention Information Network. Health Communication Strategies and Resources. Available at: <https://npin.cdc.gov/pages/health-communication-strategies>.
- HHS, CDC, ATSDR. Health Communication Playbook. 2018. Available at: <https://www.cdc.gov/nceh/clearwriting/docs/health-comm-playbook-508.pdf>.

Chapter 6: Water Management Programs



This chapter provides basic information about water management programs (WMPs) and their role in preventing Legionnaires' disease (LD) in certain types of buildings and devices. It covers the following topics:

- Identifying buildings and devices at risk for *Legionella* growth and spread.
- Factors giving rise to *Legionella* growth in building water systems.
- The role of WMPs in preventing LD.
- The elements of effective WMPs.
- Customizing WMPs to the specific facility type, including healthcare facilities.

Identifying Buildings and Devices at Risk for *Legionella* Colonization

Certain types of buildings or devices are at increased risk for the growth and spread of *Legionella*. The U.S. Centers for Disease Control and Prevention (CDC) (2021s) created an assessment tool in its *Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings* publication to help building owners and operators quickly determine if they should develop a WMP for the building or for specific devices. The assessment tool looks at the following building and device characteristics (CDC, 2021s, p. 2):

Building Characteristics

- The building is a healthcare facility where patients stay overnight or houses or treats people who have chronic and acute medical problems or weakened immune systems. (See Chapter 1 "Legionnaires' Disease Basics")
- The building primarily houses people over the age of 65 years (e.g., retirement home, assisted-living facility).
- The building has multiple housing units and a centralized hot water system (e.g., hotel, high-rise apartment complex).
- The building has more than 10 stories including any basement levels (CDC, 2021s, p. 2).

If a building meets any one of these criteria, a WMP for that building's hot- and cold-water distribution systems should be developed and implemented (CDC, 2021s, p. 2).

For More Information...

Cooling towers can cause LD outbreaks if they are not properly maintained. CDC provides additional information about how to determine if a building has a cooling tower. See "Procedures for Identifying Cooling Towers" at <https://www.cdc.gov/legionella/health-depts/environmental-inv-resources/id-cooling-towers.html>.

Device Characteristics

- The building has a cooling tower.¹
- The building has a hot tub that is not drained between each use.
- The building has a decorative fountain.
- The building has a centrally installed mister, atomizer, air washer, or humidifier (CDC, 2021s, p. 2).

Because devices in a building can spread water droplets containing *Legionella*, owners or operators of a building should have a WMP for these devices even if one is not needed for the entire building (CDC, 2021s, p. 2). CDC (2021t) also issued guidance for facility owners and operators about reopening buildings that were closed or had reduced operations during the COVID-19 pandemic.

Understanding *Legionella* Growth in Building Water Systems

CDC and ASHRAE identify multiple internal and external factors in a building's water system that can give rise to biofilm formation², microbial colonization, and ultimately the growth and spread of *Legionella* (as well as other pathogens) (CDC, 2018b; see also CDC, 2021s, p. 5; ASHRAE, 2020, p. 8). Internal conditions which allow for the growth of *Legionella* include:

- **Sediment and biofilm**—Sediment, biofilm, and scale, which is the build-up of minerals in a water system, support the growth and survival of pathogens including *Legionella* (ASHRAE, 2020, p. 8). It can reduce the amount of disinfectant available in the water system to combat and control pathogens (CDC, 2021s, p. 3).
- **Temperature**—*Legionella* generally grow well between 77°F and 113°F (ASHRAE, 2020, p. 8). The optimal growth range for *Legionella* is 85°F and 108°F (ASHRAE, 2020, p. 8). Growth slows between 113°F and 120°F, and *Legionella* begin to die above 120°F (ASHRAE, 2020, pp. 8-9). Growth also slows between 77°F and 68°F, and *Legionella* become dormant below 68°F (ASHRAE, 2020, pp. 8-9). Factors that can affect water temperature can include external weather conditions (e.g., cold water in a hot climate) or restrictions on hot water temperatures (e.g. anti-scald regulations) (CDC, 2018b).
- **Water age**—Water can stagnate in portions of a building's water system or in devices that are not used regularly, if parts of the system become clogged or blocked, or if there are changes to the design of the system through facility renovation.³ If water does not flow

¹ CDC notes that cooling towers are used for heating, ventilation, air conditioning (HVAC), and industrial purposes: "Cooling towers are often part of the centralized air cooling system for buildings or industrial processes. Importantly, these devices contain water and fans to remove heat from the air. In this process, inadequately maintained cooling towers can create aerosols (droplets of water in the air) that contain *Legionella* bacteria. The heat-rejection fans in cooling towers then spread these bacteria." CDC. (2021, March 25) *Procedures for identifying cooling towers*. <https://www.cdc.gov/legionella/health-depts/environmental-inv-resources/id-cooling-towers.html>

² Biofilm comprises pathogens and the slime secreted by pathogens that grow on surfaces in continually moist environments. The biofilm layer becomes a source of food and provides protection to *Legionella* and many other types of pathogens.

³ The design of a building's water system and the water flow within the building's pipes can lead to water aging through stagnation. A system may have "dead legs" in their pipe configuration (i.e., outlets to nowhere that are not easily flushed out and in which biofilm can collect) or areas in which water can "backflow" or be recirculated throughout the system.

Box 6.1: Where Can *Legionella* Grow in a Building?

There are many potential water systems and devices in a building in which *Legionella* can grow or spread.

Examples of these include:

- Hot and cold-water storage tanks
- Water heaters
- Water-hammer arrestors
- Expansion tanks
- Water filters
- Electronic and manual faucets*
- Aerators
- Faucet flow restrictors
- Showerheads* and hoses
- Pipes, valves, and fittings
- Centrally installed misters*, atomizers*, air washers*, and humidifiers*
- Non-stream aerosol-generating humidifiers*
- Infrequently used equipment including eyewash stations*
- Ice machines*
- Hot tubs*
- Decorative fountains*
- Cooling towers*
- Medical devices* (such as CPAP machines, hydrotherapy equipment, bronchoscopes)

* These devices can spread *Legionella* through aerosols or aspiration.

Source: CDC. (2021, June 24). *Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards*. Version 1.1. p. 4. Available at <https://www.cdc.gov/legionella/downloads/toolkit.pdf>.

properly, then stagnating areas can give rise to biofilm, ambient water temperature changes, and decreased levels of disinfectant, all of which are conducive to *Legionella* growth (CDC, 2018b).

- **Disinfectant residual**—*Legionella* can thrive in a building if the levels of disinfectant in its water systems are inadequate. Multiple factors affect the rate at which disinfectants decay including the type of disinfectant used, quality of the water entering the building and the organic matter in it, pH levels in the water⁴, materials used in the plumbing system, and water age (ASHRAE, 2020, pp. 14-15; see also CDC, 2021s, p. 5). Depending on the building type, processes like heating, storing, and filtering water can also reduce the amount of disinfectant available to impede *Legionella* growth (CDC, 2018b).

External factors that may be beyond the control of building owners and operators can also impact a building's water systems and lead to the growth and spread of *Legionella*. These factors include:

- **Construction**—Construction around a building can cause disruptions and changes in water pressure that may dislodge biofilm thereby freeing *Legionella* to enter the building through the water supply (CDC, 2021s, p. 4). Vibrations and other disruptions from construction activities may also

⁴ Because disinfectants are their most effective within a particular pH range, fluctuations in pH levels can reduce the effectiveness of disinfectants and allow for pathogens like *Legionella* to proliferate in a water system. The optimal pH range varies significantly by disinfectant type and device/system type. More information about optimal pH values can be found in CDC's *Legionella* Control Toolkit (CDC, 2021a) available at <https://www.cdc.gov/legionella/wmp/control-toolkit/index.html>.

affect the building's internal water systems by dislodging *Legionella* already in the system. It should also be noted that construction within the building or campus itself can also affect *Legionella* growth and dispersion; it may be within the control of the building's owners/operators to undertake preventative maintenance to water systems before, during, and after construction.

- **Water main breaks**—Water main breaks cause changes in water pressure which can dislodge biofilm and free *Legionella* into the water supplied to a building. Likewise, dirt and other materials potentially introduced into the water supplied to a building can consume disinfectant that would otherwise control *Legionella* (CDC, 2021s, p. 4).
- **Changes in municipal water quality**—Changes in the quality of water supplied through municipal water systems can result in increased sediment, lower disinfectant levels, increased turbidity, or pH levels outside of recommended ranges (CDC, 2021s, p. 4).

The Role of Water Management Programs

Implementing an ongoing WMP is key to mitigating the effects of various internal and external factors that can allow *Legionella* to propagate in a building's water system or devices. A WMP is designed to detect conditions that can lead to *Legionella* proliferation and identify the steps necessary to mitigate it and other waterborne pathogens in a building's water system or devices (CDC, 2021m). WMPs are now the industry

For More Information...

See [CSTE's Water Management Program Template](#)

The template is intended to be an interactive tool that facilities can use to create or improve their water management program with emphasis on *Legionella* control and prevention. Available at: <https://www.cste.org/general/custom.asp?page=Legionnaires>.

standard in the United States for the types of buildings or devices described earlier in this chapter (ASHRAE, 2021). The ASHRAE publication *Legionellosis: Risk Management for Building Water Systems* (ASHRAE 188) is an example of a consensus standard, which has been approved by the American National Standards Institute (ANSI) (2022). It can be used as a voluntary standard, but can also be used to inform government action or be adopted in whole or in part into state and local building or public health codes, regulations, or ordinances (Env. Law Inst., 2021). ASHRAE has a companion document, *Managing the Risk of Legionellosis Associated with Building Water Systems* (ASHRAE Guideline 12) (2020), which is intended to

provide guidance on controlling *Legionella* growth and spread. While WMPs have common elements, each building and device at a specific site must be evaluated to determine the particular hazards, potential groups at risk for LD, and the necessary mitigation measures associated with that site. (See the "Selected Resources" box for additional protocols and guidance documents.)

Once a WMP has been established and implemented, building water systems and devices must be regularly monitored to verify that the WMP activities are occurring as described and to validate that the WMP is working as intended and effective (CDC, 2021m). If control measures are not met or activities are not performed according to the WMP, then owners and operators should respond as indicated in the WMP or revise the WMP to effectively control for *Legionella*. Similarly, if the WMP is being followed but water systems repeatedly test positive for *Legionella*

or there are cases associated with a facility despite the building being in compliance with its WMP, owners and operators may need to re-evaluate the contents of the WMP. The WMP must also be regularly reviewed and updated as needed to account for any changes to the building and devices.

Effective Water Management Program Principles and Elements

As discussed above, CDC (2021m) encourages effective water management that addresses the key factors associated with *Legionella* growth and spread by:

- Maintaining water temperatures outside the ideal range for *Legionella* growth.
- Preventing water stagnation.
- Ensuring adequate disinfection.
- Preventing sediment, scale, corrosion, and biofilm.

To implement *Legionella* control strategies, CDC (2021m) has identified seven key elements in developing an effective WMP:

- Establish a water management program team.
- Describe the building water systems using text and flow diagrams.
- Identify areas where *Legionella* could grow and spread.
- Decide where control measures should be applied and how to monitor them.
- Establish ways to intervene when control limits are not met.
- Make sure the program is running as designed and is effective.
- Document and communicate all the activities.

Water Management Program Resources

More detailed information about each of the above elements is contained in the CDC's *Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings* publication (2021s). CDC (2021a) has also developed *The Toolkit for Controlling Legionella in Common Sources of Exposure* (*Legionella Control Toolkit*) to give public health and facility owners/operators concise information about controlling *Legionella* in sources commonly involved in LD outbreaks. Additionally, CDC (2018c) and others developed the "PreventLD Training" online program to review the contents of a WMP, which aligns with the ASHRAE 188 industry standard on managing risk for *Legionella*. Finally, the Council of State and Territorial Epidemiologists (CSTE) (2019b) developed the interactive *Water Management Program Template* that facilities can use to create or improve

Implementation Tip...

If *Legionella* Identified in Routine WMP Sampling

A building may not have any LD cases associated with it but may have positive environmental samples for *Legionella* in routine testing conducted as part of its WMP. This scenario is addressed in the "Routine Environmental Testing Results in the Absence of Cases" module included in this toolkit.

Additionally, CDC's *The Toolkit for Controlling Legionella in Common Sources of Exposure* (*Legionella Control Toolkit*) contains, among other things, specific performance indicators and suggested response activities when routine testing results suggest that *Legionella* is not well controlled. (*Note that these performance indicators are not a measure of risk of human illness.*) The toolkit is available at: <https://www.cdc.gov/legionella/wmp/control-toolkit/index.html>.

their WMP with emphasis on *Legionella* control and prevention. (See the “Selected Resources” section below for links to these documents.)

Site and Building Characteristics

Every WMP must be customized for each specific building or device at the site. CDC (2021m) identifies the following factors to consider while creating and implementing a WMP:

- Structure and size
- Age
- Location and surrounding conditions
- Unique areas of risk for *Legionella* growth and spread
- Whether the building is intended for use by people at increased risk for LD

It is also important to note that requirements or limitations in specific state and local codes and regulations may affect a building’s WMP (CDC, 2021m). Such codes and regulations could include, for example, building codes, water treatment regulations, healthcare accreditation and survey requirements, and public health reporting requirements (CDC, 2021m).

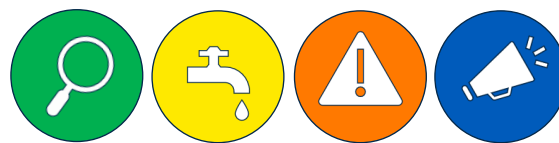
Water Management Programs in Healthcare Settings

While the same principles apply for WMPs in healthcare facilities, there are additional considerations in these settings. As discussed in Chapter 1 (“Legionnaires’ Disease Basics”), many people being treated at healthcare facilities—including long-term care facilities, hospitals, and outpatient clinics—have conditions that put them at higher risk of getting sick and dying from LD (CDC, 2017). Water-aerosolizing devices (e.g., respiratory therapy equipment) may be encountered more frequently in healthcare facilities. In July 2018, the Centers for Medicare & Medicaid Services (CMS) released an updated survey and certification memorandum requiring certain types of healthcare facilities to develop and adhere to ASHRAE-compliant WMPs to reduce the risk for *Legionella* and other pathogens in their water systems (CMS, 2018; see also CDC, 2021r).

A WMP can also aid in controlling other water-related healthcare-associated infections and may be considered for its efficacy in reducing risk for other gram-negative bacterial pathogens (e.g., *Pseudomonas*, *Burkholderia*, *Stenotrophomonas*) and nontuberculous mycobacteria (CDC, 2021r, citing Kanamori et al., 2016). CDC (2021r) has also identified additional informational resources about WMPs in healthcare facilities on its website.

Water Management Programs Selected Resources

- American Industrial Hygiene Association. Recognition, Evaluation, and Control of *Legionella* in Building Water Systems. 2015. Available at: <https://aihaelibrary.conferencespot.org/legg15-781-1.4543883?qr=1>.
- ASHRAE. Standard 188: Legionellosis: Risk Management for Building Water Systems (ANSI approved). Read-only access available at: <https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards>.
- ASHRAE. Guideline 12: Managing the Risk of Legionellosis Associated with Building Water Systems. Read-only access available at: <https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards>.
- CDC. Overview of Water Management Programs. Available at: <https://www.cdc.gov/legionella/wmp/overview.html>.
- CDC. Developing a Water Management Program to Reduce *Legionella* Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards. June 5, 2017. Version 1.1. Available at: <https://www.cdc.gov/legionella/downloads/toolkit.pdf>.
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- CDC. Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation. Updated September 22, 2020. Available at: <https://www.cdc.gov/nceh/ehs/water/legionella/building-water-system.html>.
- CDC et al. PreventLD Training. Available at: <https://www.cdc.gov/nceh/ehs/elearn/prevent-LD-training.html>.
- CMS. Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease. Revised July 6, 2018. Available at: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/QSO17-30-HospitalCAH-NH-REVISED-.pdf>.
- CSTE. Water Management Program Template. June 2019. Available at: <https://www.cste.org/general/custom.asp?page=Legionnaires>.
- NSF International. NSF P453-2017, Cooling Towers: Treatment, Operation and Maintenance to Prevent Legionnaires' Disease. 2017. Available at: <https://www.nsf.org/news/nsf-international-announces-new-protocol-for-cooling-tower-water-systems>.



The foregoing chapters provided foundational information about Legionnaires' disease (LD), identified key legal issues, discussed important considerations when communicating about LD with stakeholders and the public, and provided an overview of water management programs (WMPs). The information in these chapters applies to all the settings in which exposure to *Legionella* most commonly occurs.

The toolkit next provides a series of setting- and scenario-specific modules that address LD-related information and messaging targeted for that setting. The setting- and scenario-specific modules are:

- Healthcare Facilities
- Congregate Residential Facilities
- Hotels and Hospitality Facilities
- Community Settings
- Routine Environmental Test Results in the Absence of Cases

Each module also provides templates and sample messages for key communication items such as notification letters, public health orders, press releases, and health department advisories. The modules also identify practice tips and other resources to help state, tribal, local, and territorial (STLT) health agency staff communicate the risks of LD in these specific settings and scenarios to target audiences.

Variables Affecting LD Outbreaks

The goal of the modules is to provide STLT health agency staff with clear guidance about communicating LD risks in a specific setting or scenario and tools to use in those efforts. However, it is important to note that there are many factors that may affect a jurisdiction's investigation, response, and communications about a specific LD outbreak. The following factors are just some of the variables that can influence the course of an LD outbreak—even within the same types of settings—and the response to it:

- Potential for population with increased risk for LD in the setting
- Overnight stay at the setting or not
- Commercial setting or non-commercial setting
- Length of exposure in the setting
- Mixed/hybrid settings (i.e., locations with features common to different LD risks)
- Environmental assessment and environmental sampling *Legionella* results

Above all, these modules provide a starting point from which to tailor risk communication about LD outbreaks in the identified setting. Each jurisdiction can make its own determination about

the nature and scope of its investigation and response, and the messages and targets for communication, given the specifics of each LD outbreak and the jurisdiction's laws, regulations, and policies.

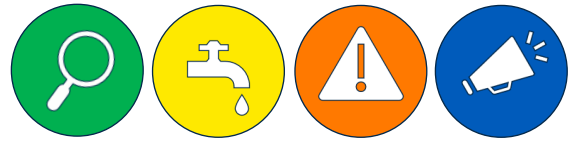
Module Components

The setting- and scenario-specific modules follow the same format and include the following sections:

- **Scope of Module**—Provides a quick overview of the types of buildings and facilities addressed in the module.
- **Factors Affecting Investigation**—Discusses factors in the specific setting (e.g., healthcare, congregate residential) or scenario (i.e., routine environmental test results in the absence of cases) that help determine how a public health agency addresses LD cases or an outbreak in that setting.
- **Key Risk Factors**—Identifies and discusses the key risk factors in the setting that can give rise to *Legionella* growth and LD. This section addresses risk factors associated with buildings and facilities as well as factors affecting persons who occupy or visit the setting. Each module includes a one-page figure summarizing these key risk factors for quick reference.
- **Key Audiences and Messages Overview**—Identifies and addresses the key audiences for messaging in the module setting. The section discusses the relevance and role of each audience to the identification, investigation, mitigation, and prevention of *Legionella* and LD.
- **Key Audience and Messaging Tables**—Series of tables provides detailed messaging guides geared to each key audience in the setting or scenario. This section opens with an index table that lists all the messaging table templates by audience. Each series of color-coded key audience tables includes one or more messaging scenarios for that audience. Each messaging table contains an annotated, customizable template of text to include in communications about that scenario.
- **Toolkit Appendix**—Provides other samples and templates related to the content of the module.

Finally, the messaging needed in a specific scenario or outbreak will vary with the unique facts of that event and the laws and policies of the jurisdiction where it is occurring. **For this reason, the information in each module and the messaging tables, templates, and samples should be used as a starting point to craft communications tailored to the user's specific needs and circumstances.**

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