

Legionnaires' Disease Risk Communication Toolkit

APPENDIX



Legionnaires' Disease Risk Communication Toolkit Appendix



Welcome to the Appendix to the *Legionnaires' Disease Risk Communication Toolkit*. This document contains sample risk communication materials and templates gathered from states, localities, and federal sources. These materials were used or adapted to help create the messaging tables in the *Toolkit* modules.

There is an index for each of the setting- and scenario-specific modules. Each index lists the messaging tables contained in that module and identifies by number related sample and template documents. Descriptions and links to the numbered sample and template documents are contained in the Listing of Appendix Documents using the following key:

- Letters and Notices (LN)
- Orders (O)
- Alerts (A)
- Press Releases (PR)
- Publications (P)

Please note: The sample and template documents provided in the appendix are provided as examples only and may not be directly applicable in other cases/outbreaks or jurisdictions. Additionally, the documents may not reflect current CDC and CSTE guidance about exposure times and other specific terminology. **Readers should confirm they are using up-to-date guidance by referring to current CSTE and CDC sources.**

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Index of Healthcare Facilities Module Appendix Documents

Audience and Messaging Table	Document Number
Healthcare facility owners, representatives, and infection control leads	
Informing facility of a single case of possible healthcare-associated LD	LN1, LN8
Informing facility of a single case of presumptive healthcare-associated LD or multiple cases of possible healthcare-associated LD	LN2
Investigation at a cooperative or compliant healthcare facility	LN4, LN12
Investigation at an uncooperative or non-compliant healthcare facility	O4, O5
Health order to require a healthcare facility to address and remediate <i>Legionella</i> in the facility	O2, O3, O4, O5
Providing general information about LD risks to persons associated with a healthcare facility	P1, P2, P3, P9
Providing general information about LD risks, mitigation, and prevention for healthcare facility engineering and maintenance staff	P7, P9
People associated with a healthcare facility, such as patients, visitors, employees, contractors, or volunteers	
Healthcare facility notice/letter to outpatient or discharged patient about recent LD case at the facility	LN9
Healthcare facility notice/letter to inpatients about recent LD case at facility–Simplified	LN7, LN11
Healthcare facility notice/letter to inpatients about recent LD case at facility–Detailed	LN10, LN24
Letter or memo to staff about LD case	LN10, LN24, LN25
Healthcare providers and other healthcare facilities in the community/jurisdiction in which the healthcare facility with the LD case(s)/outbreak is located	
Alert to healthcare providers about LD case(s)/outbreak in a healthcare facility	A3, A5, LN9, P1, P2, P10
Other agencies and governments that may assist in the investigation and response, and those with authority over different aspects of a healthcare facility or over different types of healthcare facilities	
Alert to other divisions, agencies, or units of government about identifying and investigating healthcare-associated LD case(s)/outbreak	A4, P4, P12
Media and the public	
Press release/alert to the media and public about LD case(s)/outbreak at a healthcare facility	PR3, PR6, P9



Index of Congregate Residential Facilities Module Appendix Documents

Audience and Messaging Table	Document Number
Owners, operators, managers, and representatives of congregate residential living facilities	
Informing congregate residential facility about a single LD case with other potential exposure sites	LN5, LN6
Informing congregate residential facility about multiple LD cases or a single case with minimal/no other exposure sites	LN5, LN6, LN20
Investigation at a cooperative or compliant congregate residential facility	LN4, LN18
Investigation at an uncooperative or non-compliant congregate residential facility	O4, O5
Health order to require a congregate residential facility to address and remediate Legionella in the facility	O2, O3, O4, O5
Providing general information about LD risks to persons associated with a congregate residential facility	P3, P9
Providing general information about LD risks, mitigation, and prevention for congregate residential facility engineering and maintenance staff	P3, P7, P9
People associated with a congregate residential facility such as residents, occupants, visitors, employees, contractors, and volunteers	
Congregate residential facility letter/notice to residents of increased-risk facility about LD case(s)	LN9, LN10, LN11, LN24
Congregate residential facility letter/notice to residents of general-risk facility about LD case(s)	LN3
Letter or memo to staff (employees, volunteers, and contractors) about LD case	LN10, LN24, LN25
Healthcare providers and other healthcare facilities in the community/jurisdiction in which the congregate residential facility with LD case(s)/outbreak is located	
Alert to healthcare providers about LD case(s)/outbreak in a congregate residential facility	A3, A5, P2, P10
Other agencies and governments that may assist in the investigation and response, and those with authority over different aspects within a congregate residential facility or over different types of congregate residential facilities	
Alert to other divisions, agencies, or units of government about identifying and investigating LD case(s)/outbreak in a congregate residential facility	A4, P12
Media and the public	
Press release/alert to the media and public about LD case(s)/outbreak at a congregate residential facility	PR1, PR2, PR6, P9



Index of Hotels & Hospitality Facilities Module Appendix Documents

Audience and Messaging Table	Document Number
Hotel and hospitality facility owners, operators, and managers	
Informing a hotel or other hospitality facility about LD cases	LN4, LN12, LN13, LN18, LN20, LN27
Investigation at a cooperative or compliant facility	LN4, LN12, LN18, LN28
Investigation at an uncooperative or non-compliant facility	O4, O5
Health order to require a hotel or other hospitality facility to address and remediate <i>Legionella</i> in the facility	O1, O2, O4, O5
Providing general information about LD risks to persons associated with a hotel or other hospitality facility	LN13, LN17, P3, P6, P7, P8, P9, P11
Providing general information about LD risks, mitigation, and prevention for hotel or hospitality facility engineering and maintenance staff	P3, P7, P8, P9, P11
People associated with a hotel or hospitality facility such as guests, visitors, employees, or contractors	
Facility letter to past guests or visitors of a hotel or hospitality facility where LD case(s)/outbreak occurred	LN14, LN21, LN26
Facility letter to prospective guests or visitors at a hotel or hospitality facility with an ongoing investigation of LD case(s)/outbreak	P4, P7, LN19, LN23
Public health agency letter to prospective guests or visitors at a hotel or hospitality facility with an ongoing investigation of LD case(s)/outbreak	LN15, LN22
Posted notice in hotel/hospitality facility with prior LD cases and positive environmental samples	LN16, LN17
Letter or memo to staff about LD case(s)/outbreak at a hotel or hospitality facility	LN25
Healthcare providers and facilities in the community/jurisdiction in which the hotel or hospitality facility is located	
Alert to healthcare providers about LD case(s)/outbreak in a hotel or hospitality facility	A2, A3, A5, P2, P10
Other agencies and governments that may assist in the investigation and response, and those with authority over different aspects of a hotel or hospitality facility	
Alert to other divisions, agencies, or units of government about identifying and investigating LD case(s)/outbreaks in a hotel or hospitality facility	A1, A4, P12
Media and the public	
Press release/alert to the media and public about LD case(s)/outbreak at a hotel or hospitality facility	PR4, PR6, P9, LN17



Index of Community Settings Module Appendix Documents

Audience and Messaging Table	Document Number
Facility and property owners, operators, managers, and representatives	
Informing one of multiple facilities about a LD community-associated cluster/outbreak: Facility is not under full investigation	LN4, LN26, PR4
Informing one of multiple facilities about a LD community-associated cluster/outbreak: Full investigation at facility is indicated	LN4, LN12, LN18
Informing a facility about a single LD community-associated case with other potential exposure sites	LN4, LN12, LN18
Informing a facility about multiple LD community-associated cases/outbreak or a single case with minimal/no other exposure sites	LN4, LN12, LN13, LN18, LN20
Investigation at a cooperative or compliant facility in LD community-associated case(s)/outbreak	LN4, LN12, LN18, LN28
Investigation at an uncooperative or non-compliant facility identified as an exposure source in LD community-associated case(s)/outbreak	O4, O5
Health order to require a facility identified as an exposure source in a LD community-associated case(s)/outbreak to address and remediate <i>Legionella</i> in the facility	O1, O2, O4, O5
Providing general information about LD risks to persons associated with a facility	LN13, LN17, P3, P6, P7, P8, P9, P11
Providing general information about Legionella risks, mitigation, and prevention for facility engineering and maintenance staff	P3, P7, P8, P9, P11
People in the community	
Notice or letter to persons about LD community-associated case(s)/outbreak	LN3, LN4, LN18, LN19, LN21, LN22, LN23, LN26
Notice or letter to persons about LD community-associated cases(s)/outbreak with suspected cooling tower or similar point source implicated	LN4, LN17, LN18
Providing general information to persons about LD prevention measures in households	PR5
Letter or memo to staff about LD case(s)/outbreak and public health investigation	LN16, LN25



Index of Community Settings Module Appendix Documents

Audience and Messaging Table	Document Number
Healthcare providers and facilities in the community	
Alert to healthcare providers about LD case(s)/outbreak in a community setting	A2, A3, A5, P2, P10
Other agencies and governments that may assist or have authority over different aspects of potential source facilities in the community	
Alert to other divisions, agencies, or units of government about LD case(s)/outbreak in a community setting	A1, A4, P12
Alert to municipal water suppliers about possible link to LD case(s)/outbreak in a community setting	A1, A4
Media and the public	
Press release or alert to the media and public about LD case(s)/outbreak in a community setting	PR4, PR5, PR6, P9, LN17

Listing of Appendix Documents

Document Number	Description	Related Modules
Letters and Notices (LN)		
LN1	Template: Letter about single possible healthcare associated LD case (CDC)	Healthcare
LN2	Template: Letter about single presumptive healthcare associated LD case (CDC)	Healthcare
LN3	Sample: Letter to tenants about LD cases in a building (CDC)	Congregate Community
LN4	Sample: Letter to a hotel about a prior guest with LD (Florida)	Healthcare Congregate Hospitality Community
LN5	Sample: Letter to a residential facility about investigation of a resident with LD (Florida)	Congregate
LN6	Sample: Letter to a residential facility about environmental testing outcome—negative (Florida)	Congregate
LN7	Template: Letter for use by a healthcare facility with a possible LD case associated with it (Maryland)	Healthcare
LN8	Template: Letter about a possible single healthcare associated LD case (Michigan)	Healthcare
LN9	Template: Letter for a healthcare facility to give to discharged patients (Michigan)	Healthcare Congregate
LN10	Template: Letter for a healthcare facility to give to current or discharged patients (Michigan)	Healthcare Congregate
LN11	Template: Letter for a facility to give to inpatients (Michigan)	Healthcare Congregate
LN12	Sample: Letter to a facility about a prior guest with LD (Nevada)	Hospitality Community
LN13	Sample: Letter to a facility about testing water features (Nevada)	Hospitality Community
LN14	Sample: Retrospective letter from a public health agency to facility guests (New Hampshire)	Hospitality
LN15	Sample: Letter from a public health agency to prospective guests (New Hampshire)	Hospitality
LN16	Sample: Public notice of LD risk in a facility (New Hampshire)	Hospitality Community
LN17	Sample: FAQ Notice: Cluster of LD cases associated with an area in a community (New Hampshire)	Community Hospitality

Listing of Appendix Documents

Document Number	Description	Related Modules
Letters and Notices (continued)		
LN18	Sample/template: Letter to a facility about a person diagnosed with LD who reported staying at the facility (Tennessee)	Hospitality Community Congregate
LN19	Sample: Hotel reservation script for use by a facility (New Hampshire)	Hospitality Community
LN20	Sample/template: Letter to a facility about multiple LD cases (Nevada)	Hospitality Community Congregate
LN21	Sample: Retrospective letter from a public health agency to guests (Texas)	Hospitality Community
LN22	Sample: Prospective letter from a public health agency to guests (Texas)	Hospitality Community
LN23	Sample/template: Letter from a facility to hotel guests (Wisconsin)	Hospitality Community
LN24	Sample/template: Memo to persons associated with a long-term care facility (Wisconsin)	Healthcare Congregate
LN25	Template: Employee notice (OSHA)	Healthcare Congregate Hospitality Community
LN26	Template: Letter to hotel/travel accommodation guests regarding a LD outbreak investigation (CDC)	Hospitality Community
LN27	Template: Letter to hotel facility about a single LD case possibly associated with the hotel (CDC)	Hospitality
LN28	Template: Letter to a hotel facility about follow-up activities to assessment (CDC)	Hospitality Community
Orders (O)		
O1	Sample: Order to notify guests and remediate building (New Hampshire)	Hospitality Community
O2	Sample: Order of the Commissioner to all buildings with water recirculating cooling towers (New York City)	Healthcare Congregate Hospitality Community
O3	Sample: Director's adjudication order (Ohio)	Healthcare Congregate
O4	Sample: Order of control measures on property (Texas)	Healthcare Congregate Hospitality Community

Listing of Appendix Documents

Document Number	Description	Related Modules
Orders (continued)		
O5	Sample: Modification to order of control measures on property (Texas)	Healthcare Congregate Hospitality Community
Alerts (A)		
A1	Sample: Epi-X Notice: Call for cases: LD associated with travel to specific community (New Hampshire)	Hospitality Community
A2	Sample Health Alert: Cluster of LD associated with an area of specific community (New Hampshire)	Hospitality Community
A3	Sample: Healthcare general alert (Michigan)	Healthcare Congregate Hospitality Community
A4	Sample: Epi-X Notice (Michigan)	Healthcare Congregate Hospitality Community
A5	Sample: Alert to health partners about increased reports of laboratory-confirmed LD cases (Wisconsin)	Healthcare Congregate Hospitality Community
Press Releases (PR)		
PR1	Sample: Press Release: DPH Investigating Cases of Legionnaires' Disease at Rocky Hill Nursing Facility (Connecticut)	Congregate
PR2	Sample: Press Release: DPH Issues Emergency Order to Rocky Hill Nursing Home After Water Samples Test Positive for <i>Legionella</i> (Connecticut)	Congregate
PR3	Sample: Press release: IDPH Investigating <i>Legionella</i> Possibly Associated with a Chicago Hospital (Illinois)	Healthcare
PR4	Sample: Press Release: Cluster of <i>Legionella</i> Pneumonia (Legionnaires' Disease) Associated with an Area of Ashworth Avenue in Hampton, NH (New Hampshire)	Hospitality Community
PR5	Sample: Press Release: NJ Department of Health, Hamilton Twp. Officials say Water is Safe to Drink, But Urge Precautions During Ongoing Legionnaires' Disease Investigation	Community
PR6	Sample: Press Release: Michigan experiencing increase in legionellosis cases (Michigan)	Healthcare Congregate Hospitality Community

Listing of Appendix Documents

Document Number	Description	Related Modules
Publications (P)		
P1	Short publication: Legionnaires' Disease: A Problem for Health Care Facilities (CDC)	Healthcare
P2	Fact sheet: What Clinicians Need to Know about Legionnaires' Disease (CDC)	Healthcare
P3	Fact sheet: Legionnaires' Disease (CDC)	Healthcare Congregate Hospitality Community
P4	Guidance document: Notification of Patients, Visitors, and Healthcare Personnel Affected by Outbreaks Identified in Hospitals and Skilled Nursing Facilities (California)	Healthcare
P5	[Document removed]	
P6	Short publication: Legionnaires' Disease Prevention: Providing a Home for Guests, not <i>Legionella</i> (CDC)	Hospitality Community
P7	Fact sheet: LD fact sheet (Wisconsin)	Healthcare Congregate Hospitality Community
P8	Fact sheet: Legionnaires' Disease Prevention: Making a Splash with Safe Water (CDC)	Hospitality Community
P9	Message map: Message map for <i>Legionella</i> investigation (Wisconsin)	Healthcare Congregate Hospitality Community
P10	Factsheet: Diagnosing Legionnaires' Disease: Best Practices (Wisconsin)	Healthcare Congregate Hospitality Community
P11	Factsheet: Disinfection of Hot Tubs that Contain <i>Legionella</i> (CDC)	Hospitality Community
P12	Guidance document: Emerging and Acute Infectious Disease Guidelines: Legionellosis (Texas) <i>(Note: Only the Legionellosis chapter of the larger publication is included here)</i>	Healthcare Congregate Hospitality Community

Notification letter template to healthcare facility leadership regarding a single **possible** healthcare-associated Legionnaires' disease case

Dear [name of facility owner or infection preventionist],

On [date], [HD name] received a report of a patient at [facility name] with a confirmed case of Legionnaires' disease. This patient meets the criteria for possible healthcare-associated Legionnaires' disease, given that [he/she] received [inpatient/outpatient] care at [facility name] during the 14 days before symptom onset. If a second case of Legionnaires' disease is identified at [facility name] within [either 12 months or HD-specified timeframe; see the [Healthcare Investigation Resources](#) section for timeframe considerations at www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html#full-investigation] of the first case, [HD name] may conduct an investigation to determine whether the infection was acquired in your facility.

Following the identification of potential healthcare-associated Legionnaires' disease at your facility, there is concern that the building's water system(s) may be at risk of *Legionella* growth and transmission. Please be aware of the recommendations below:

- *Legionella* water management programs are now an industry standard for healthcare facilities in the United States. For more information about water management programs, visit [\[www.cdc.gov/legionella/wmp/toolkit/index.html\]](http://www.cdc.gov/legionella/wmp/toolkit/index.html).
- Remind clinicians to test patients with healthcare-associated pneumonia who are at risk for Legionnaires' disease. The preferred diagnostic tests for Legionnaires' disease are both culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on media that supports growth of *Legionella* and the *Legionella* urinary antigen test. A fact sheet about Legionnaires' disease is included with this letter and available at: [\[www.cdc.gov/legionella/downloads/fs-legionella-clinicians.pdf\]](http://www.cdc.gov/legionella/downloads/fs-legionella-clinicians.pdf).

Please inform [HD name] immediately if you learn of other potential Legionnaires' disease diagnoses among patients, staff, or visitors in your hospital.

If you have any questions regarding this notice, please do not hesitate to contact [name and contact details for HD]. Further information is also available from the [HD and/or CDC website].

Thank you for your time and attention.

Sincerely,

[HD POC name and contact details]

Notification letter template to healthcare facility leadership regarding a single **presumptive** healthcare-associated Legionnaires' disease case

Dear [Name of facility owner/manager and hospital infection preventionist],

On [date], [HD name] received a report of a patient at [facility name] who meets the criteria for presumptive healthcare-associated Legionnaires' disease, given that [he/she] was an inpatient at [facility name] for 10 or more days during the 14 days before onset of symptoms. Most people who develop Legionnaires' disease were exposed to water containing *Legionella* bacteria sometime in the 14 days before illness onset. Identifying one presumptive healthcare-associated case of Legionnaires' disease in this timeframe raises concern regarding the potential for ongoing transmission within your facility. [HD name] would like to begin an epidemiologic and environmental investigation, in consultation with infection control, building maintenance engineers, and risk management staff, to help ensure that they have minimized any ongoing risk for *Legionella* transmission.

The following steps will help identify all potentially healthcare-associated cases:

- Perform a retrospective record review of hospitalizations for the past 12 months to identify pneumonia cases that could have been healthcare-associated, and if so, determine if patients were tested for *Legionella*.
- Implement active clinical surveillance for [2–6 months; see the [Active Clinical Surveillance section to learn more](#) at www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html#clinical-surv] following confirmation of the last possible or definite healthcare-associated case of Legionnaires' disease. [Specify components of active clinical surveillance; see the [Active Clinical Surveillance section for suggestions](#) at www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html#clinical-surv].
- Remind clinicians to test patients with healthcare-associated pneumonia who are at risk for Legionnaires' disease. The preferred diagnostic tests for Legionnaires' disease are both culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on media that supports growth of *Legionella* and the *Legionella* urinary antigen test. A fact sheet about Legionnaires' disease is included with this letter and available at: www.cdc.gov/legionella/downloads/fs-legionella-clinicians.pdf.

Please inform [HD name] immediately if you learn of other Legionnaires' disease diagnoses among patients, visitors, or staff in your facility.

[HD name] will follow up with you to schedule an appointment to visit your facility. Further information is available from the [HD and/or CDC website], or by calling the [HD name] information line, [phone number].

We appreciate the opportunity to work with you and your staff throughout this process. If you have any questions regarding this notice, please do not hesitate to contact [name and contact details for HD].

Thank you for your time and attention.

Sincerely,

[HD POC name and contact details]

LN3

Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.

Commissioner

Dear Neighbor,

The [REDACTED] Health Department is working with building management to test the water in your building because two tenants have been reported sick with Legionnaires' disease within the past 12 months. Following the Health Department's public notification protocol for Legionnaires' disease, tenants are notified when there are two or more cases reported at a single address in a 12-month period. We wanted to notify you right away about this testing, and we will keep you informed once we have the results.

Legionnaires' disease is a type of pneumonia caused by bacteria. People who inhale water vapor (mist) that contains the bacteria can get sick. Water vapor can be warm or cool and can come from showers, faucets or cooling towers (units usually located on top of a building that cool the building.)

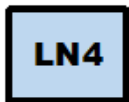
The risk of getting sick from a building's water supply is very low, especially for healthy people. The most important thing you can do is to get medical attention right away if you start having symptoms such as fever, chills, muscle aches and cough. This is even more important if you are aged 50 or older (especially if you smoke cigarettes), have chronic lung disease, have a weakened immune system or take medicines that weaken your immune system.

If you have one of the health issues above, take these extra steps as a precaution:

- Don't take a shower, even a cool shower – since it could create water vapor (mist). Instead, take a bath, but fill the tub slowly. Try to minimize your time in the bathroom while the tub is filling.
- It's fine to wash dishes, but fill the sink slowly to avoid creating mist.
- It's fine to drink cold water from the tap, but start with cold water when heating water for tea, coffee or cooking.
- You do not need to wear a mask.

We will continue to update you on important information about your building. If you have questions about your building, please leave a message with the Health Department's Community Affairs Unit by calling [REDACTED]. Be sure to include your name and contact information. Please visit [REDACTED] for the latest information on Legionnaires' disease.

Sincerely,



Rick Scott
Governor

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Vision: To be the **Healthiest State** in the Nation

Celeste Philip, MD, MPH
State Surgeon General

Date

Dear Hotel Management at HOTEL:

It has come to our attention that a recent guest of your hotel has been diagnosed with Legionnaires' disease. Legionnaires' disease is a serious form of pneumonia that is spread from aerosolized water that has *Legionella* bacteria. We are providing this letter to you for your information only.

Hotel spas, whirlpools, and showers have previously been shown to be sources of Legionnaires' disease outbreaks. People get Legionnaires' disease when they breathe in a mist or vapor (small droplets of water in the air) that has been contaminated with the bacteria. One example might be from breathing in the bubbles from a whirlpool spa that has not been properly cleaned and disinfected. The bacteria are not spread from one person to another person. This guest did not report spa exposure during their stay at your hotel but we advise you so you are aware.

Legionella bacteria are common in the environment and can persist unless proper steps are taken to remove it. While there are currently no legal restrictions or actions required for this specific situation, we are informing you to ensure that you have updated information, to help you minimize the risk of *Legionella* contamination in your buildings' water systems.

You may wish to review your water maintenance procedures to help minimize future risk. The American Society of Heating, Refrigerating, and Air Conditioning Engineers has developed Guideline 12-2000 "Minimizing the Risk of Legionellosis Associated with Building Water Systems". This document is available at www.ashrae.org. Additional information regarding water system maintenance is available through the Centers for Disease Control at <https://www.cdc.gov/legionella/water-system-maintenance.html>.

It is possible that other guests will contact you because they know of other persons with Legionnaires' disease or because they believe that they have had Legionnaires' disease. Please let us know immediately if you are informed of other cases related to your hotel, whether the guests were local, out-of-state, or international.

We are here to answer your questions and to make your hotel safe and comfortable for your guests. Please do not hesitate to call us at _____.

Best regards,

NAME, MPH
Florida Department of Health in Orange County
Epidemiology Program

**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Vision: To be the **Healthiest State** in the Nation

Rick Scott
Governor

Celeste Philip, MD, MPH
State Surgeon General

DATE

ADDRESS

Dear Facility Administrator:

Thank you for your cooperation in our investigation of a case of Legionnaires' disease (LD) in a resident of your facility. We are providing this letter to you for your information only.

As you may know, LD is a form of pneumonia caused by bacteria of the *Legionella* species. Typically, exposure to *Legionella* occurs through exposure to airborne water droplets. Although anyone can acquire *Legionella*, immunocompromised people are at greater risk for contracting the illness. The incubation period between exposure to *Legionella* and when symptoms develop is generally 2 to 14 days.

Legionella bacteria are common in the environment and can persist unless proper steps are taken to remove it. While there are currently no legal restrictions or actions required for this specific situation, we are informing you to ensure that you have updated information, to help you minimize the risk of *Legionella* contamination in your buildings' water systems.

You may wish to review your water maintenance procedures to help minimize future risk. The American Society of Heating, Refrigerating, and Air Conditioning Engineers has developed Guideline 12-2000 "Minimizing the Risk of Legionellosis Associated with Building Water Systems". This document is available at www.ashrae.org. Additional information regarding water system maintenance is available through the Centers for Disease Control at <https://www.cdc.gov/legionella/water-system-maintenance.html>.

LD should be considered as a possible cause of illness among residents and staff who have signs and symptoms consistent with LD. Persons suspected of having pneumonia or who have fever with cough or other symptoms suggestive of pneumonia should be evaluated by a clinician. If LD is a possible cause of the illness, the following should be performed:

- Chest radiograph to look for evidence of pneumonia
- Diagnostic laboratory tests, including but not limited to the following:
 - *Legionella* urinary antigen testing
 - Culture of sputum/respiratory secretions if specimens can be obtained (Note: clinicians must specifically request *Legionella* cultures. Routine respiratory cultures will NOT detect *Legionella* and are not sufficient)
 - Serologic testing – Acute serum needs to be collected at the time of illness and convalescent serum should be collected approximately three weeks after the acute serum collection date
 - Antibiotics prophylaxis is not a recommendation for control of Legionellosis outbreaks.
- Please report all possible cases of LD immediately to DOH-Orange 407-858-1420.

Please do not hesitate to contact us if you have any questions or concerns.

Sincerely,

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Rick Scott
Governor

Celeste Philip, MD, MPH
State Surgeon General

Vision: To be the **Healthiest State** in the Nation

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**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Rick Scott
Governor

Celeste Philip, MD, MPH
Surgeon General and Secretary

Vision: To be the **Healthiest State** in the Nation

[TODAY'S DATE]

[ADDRESS]

Dear [ADMINISTRATOR],

This letter is in follow-up to the investigation of a case of Legionnaires' disease (LD), confirmed by *Legionella pneumophila* serogroup 1 urine antigen test, in a resident of your facility. We have received the results from post-remediation testing of bulk water and environmental swab samples collected from _____ Senior Living on [DOC]. These results indicate suppression or absence of *Legionella* bacteria at all sites tested.

Based on these results and your intent to continue longer-term water management at _____, we have the following follow-up recommendations:

1. Continue to work with your contract water safety consultants to institute the longer-term plan to suppress and/or eliminate *Legionella* from the potable water system in your facility.
2. Water restrictions that were placed on showering, drinking tap water, brushing teeth with tap water, flushing nasogastric tubes using tap water or using tap water to prepare medication, and consumption of ice from automatic ice machines, may be discontinued at this time. However, if there are additional *Legionella* positive locations identified in follow-up testing, please address in your water safety management plan what corrective actions will take place.
3. LD should be considered as a possible cause of illness among residents and staff who have signs and symptoms consistent with LD. Persons suspected of having pneumonia or who have fever with cough or other symptoms suggestive of pneumonia should be evaluated by a clinician. If LD is a possible cause of the illness, the following should be performed:
 - a. Chest radiograph to look for evidence of pneumonia
 - b. Diagnostic laboratory tests, including but not limited to the following:
 - i. *Legionella* urinary antigen testing
 - ii. Culture of sputum/respiratory secretions if specimens can be obtained (Note: clinicians must specifically request *Legionella* cultures. Routine respiratory cultures will NOT detect *Legionella* and are not sufficient)
 - iii. Serologic testing – Acute serum needs to be collected at the time of illness and convalescent serum should be collected approximately three weeks after the acute serum collection date
 - iv. Antibiotics prophylaxis is not a recommendation for control of legionellosis outbreaks.
4. Report all possible cases of LD immediately to DOH-Orange 407-858-1420.

Your cooperation in this investigation has been appreciated. We are closing the immediate investigation at this time, however, please be aware that any additional cases of Legionnaires' disease associated with _____ within one year, would warrant additional investigation and control measures.

Please feel free to reach out to me directly at (407) _____.

Sincerely,

NAME

Epidemiologist

Florida Department of Health in Orange County



Appendix I: Sample staff/resident notification letter

<Date>

Dear Staff and Patients,

This letter serves to inform you that the <County Health Department> and the Maryland Department of Health are investigating a case of Legionnaires' disease possibly associated with our facility. Legionnaires' disease is a serious form of pneumonia that persons may acquire after being exposed to water containing *Legionella* bacteria. While it has not been definitively determined where this individual was exposed to the bacteria, the health and safety of our patients is our top priority and we are fully cooperating with the health department's investigation, and working with experts to <Insert Actions Taken/Planned>.

Legionella bacteria are spread by the release of small droplets of contaminated water into the air. People who have Legionnaires' disease are infected by breathing in these droplets of water, **NOT** through contact with a sick person. Therefore, to limit the risk of becoming ill, the <Health Department> recommends the following:

- i. No showering
- ii. No oral consumption of tap water
- iii. No brushing of teeth with tap water
- iv. No flushing of nasogastric tubes or preparation of medications with tap water
- v. No oral consumption of ice from the ice machines

There are common available antibiotics to treat Legionnaires' disease. Attached to this letter is a Legionnaires' disease Fact Sheet with additional information.

If you experience symptoms of pneumonia, such as fever, cough, or shortness of breath, please contact <Insert Contacts and Phone Numbers>.

If you have any questions or concerns, please contact <County Health department> during normal business hours at <Insert Phone Number>.

We will provide additional details regarding specific treatments and water interruptions as the information becomes available. Thank you for your patience and cooperation.

Sincerely,



STATE OF MICHIGAN

GRETCHEN WHITMER
GOVERNOR

DEPARTMENT OF HEALTH AND HUMAN SERVICES
LANSING

ROBERT GORDON
DIRECTOR

Date

Hospital Name

Address

Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.

Dear [Infection Preventionist],

On [DATE] a confirmed case of Legionnaires' disease was reported to the Michigan Disease Surveillance System. This case-patient meets the criteria for possible health care-associated Legionnaires' disease, given that they received [inpatient/outpatient care or was a visitor] at [HOSPITAL NAME] during the 10 days before their illness onset. Most individuals who develop Legionnaires' disease were exposed to water containing the *Legionella* bacteria sometime during the 10 days before illness onset.

Following the identification of potential health care-associated Legionnaires' disease at your facility, there is concern that the building's water system(s) may be at risk of amplifying and transmitting *Legionella* bacteria. Please consider the recommendations below:

- *Legionella* water management programs are now an industry standard for health care facilities in the United States. For more information about water management programs, please visit <https://www.cdc.gov/legionella/maintenance/wmp-toolkit.html>.
- Clinicians should be reminded to test patients with health care-associated pneumonia for Legionnaires' disease. The preferred diagnostic tests for Legionnaires' disease are culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on selective media and the *Legionella* urinary antigen test.

If a second case of Legionnaires' disease with exposure to [HOSPITAL NAME] is identified within 1 year of the first case, the [LOCAL HEALTH JURISDICTION] and/or MDHHS may ask for more information to attempt to determine whether the infection was acquired in your facility. This may include the following: a request to perform a retrospective review of patients who acquired pneumonia during their stay at your facility, conducting an environmental assessment, reviewing your water management plan, and conducting environmental water sampling at your facility.

Please inform the [LOCAL HEALTH JURISDICTION] immediately if you learn of other Legionnaires' disease diagnoses among patients, visitors, or staff in your facility.

Further information regarding Legionnaires' disease is available from the Centers for Disease Control and Prevention website at <https://www.cdc.gov/legionella/index.html>. We appreciate the opportunity to work with you and your staff throughout this process. If you have any questions regarding this notice, please do not hesitate to contact the MDHHS Communicable Disease Division.

Sincerely,

[NAME]

[TITLE]

Michigan Department of Health and Human Services
Division of Communicable Disease

[PHONE]

[EMAIL]

cc: [LOCAL HEALTH JURISDICTION/MDHHS CONTACTS]

[Date]

Dear [Facility name] patient,

We are writing to inform you that a patient was recently diagnosed with Legionnaires' disease (LD) after being [hospitalized/other] for several days at [facility name]. We are working with the Michigan Department of Health and Human Services (MDHHS) as well as the [County] County Health Department, in conjunction with the CDC.

What is Legionnaires' Disease? LD is a form of bacterial pneumonia spread chiefly by breathing in water droplets. The CDC provides more information at: <https://www.cdc.gov/legionella/about/causes-transmission.html>.

What are the symptoms of LD? Similar to other types of pneumonia (lung infection), symptoms include cough, shortness of breath, fever, muscle aches, and headaches. Associated symptoms may also include diarrhea, nausea, and confusion.

When do LD symptoms begin after exposure? Symptoms usually begin two to 10 days after exposure, but people should watch for symptoms for up to two weeks.

What should I do if I have symptoms listed above? Please see your doctor right away and discuss the need for LD testing. Testing includes urine and sputum (phlegm) specimens.

What is the treatment for LD? LD is treated with antibiotics (medicines that kill bacteria in the body), and most cases of this illness can be treated successfully. If your physician diagnoses you with LD, they are required to notify the Health Department.

How is [Facility name] keeping patients safe? [Edit response as applicable] In addition to monitoring of the water supply and safety, our patient areas are being flushed and tested repeatedly. We have also installed supplemental water treatments in various hot water systems throughout our facility. We are in the midst of installing water filters on the showerheads and sinks.

Your safety and well-being are our top priorities at [Facility name]. If you have further questions, please call us at [Facility contact number].

To **[patient name]**,

This letter is to inform current and recent patients that we have recently treated a patient with Legionnaires' disease (LD) with exposure to **[facility name]**. Since this patient spent **[number]** of days in our facility prior to the onset of symptoms, we are responding with an abundance of caution. **[facility name]** is cooperating with the Michigan Department of Health and Human Services and the **[County]** County Health Department regarding this matter.

[Response actions, edit as applicable] We will be installing water filters on faucets and showers throughout our facility over the next couple of weeks. Additionally, we have installed supplemental water treatment systems to reduce the growth and spread of *Legionella* in various hot water systems throughout our facility.

Individuals at a higher risk of getting sick include the following: people over age 50, current or former smokers, people with chronic lung disease, people with weakened immune systems from diseases, such as cancer, diabetes or liver or kidney failure, and/or people who take immunosuppressant drugs. LD is very similar to other types of pneumonia (lung infection), with symptoms that include: cough, shortness of breath, fever, muscle aches, and headaches. LD can also be associated with other symptoms such as diarrhea, nausea, and confusion. Symptoms usually begin 2 to 10 days after being exposed to the bacteria, but it can take longer so people should watch for symptoms for about 2 weeks after exposure.

If you develop symptoms listed above, please see your doctor right away and ask if you should have testing for LD. Testing is recommended to be done on urine and sputum (phlegm) specimens. Legionnaires' disease requires treatment with antibiotics (medicines that kill bacteria in the body), and most cases of this illness can be treated successfully. If your physician diagnoses you with LD, they are required to notify the Health Department.

If you'd like more information about this, please contact **[contact information]**

Sincerely,



[Date]

Dear [Facility name] patient,

We are writing to inform you that a patient was recently diagnosed with Legionnaires' disease (LD) after being [hospitalized/other] for several days at [facility name]. We are working with the Michigan Department of Health and Human Services (MDHHS) as well as the [County] County Health Department.

Legionnaires' disease is a form of bacterial pneumonia spread primarily by breathing in water droplets (e.g. shower mist). It is not transmitted from person to person. Out of an abundance of caution we are instituting the following guidelines for water use, effective [date]:

[Edit as applicable]

- No showers are permitted in patient rooms that do not have a filter attachment. If a shower is necessary, your caregiver will make arrangements for in-room bathing options.
- Your care team will provide water for drinking, brushing teeth, face washing and other hygienic needs.
- The cold water in ice machines and water fountains [may / should not] be used

[Response actions, edit as applicable] Our water system has been tested and flushed, and we have installed supplemental water treatments in various hot water systems throughout our facility. We are also in the process of installing filters on showerheads and faucets.

Your safety and well-being are our top priorities at [Facility name], and we apologize for the inconvenience these safety measures may cause during your stay. If you have further questions, please talk to your physician or caregiver.



Date

Property Name

Address

RE: Travel related Legionnaires' disease case

Dear Facility Management:

Your assistance is requested in compliance with Nevada Administration Code (NAC) 441A.280.

NAC 441A.280 Duty of persons to cooperate with health authority during investigations and carrying out of measures for prevention, suppression and control of communicable diseases.

A case, suspected case, carrier, contact or other person shall upon request by a health authority, promptly cooperate during:

1. An investigation of the circumstances or cause of a case, suspected case, outbreak or suspected outbreak.
2. The carrying out of measures for the prevention, suppression and control of a communicable disease, including procedures of exclusion, isolation and quarantine.

The Southern Nevada Health District (SNHD) has been informed by the Centers for Disease Control and Prevention (CDC) of a confirmed case of Legionnaires' disease whose illness may be associated with travel. This person reported staying at the [facility name] during the incubation period prior to the disease onset between [enter date range]. [Add comments of specific exposures, like Misters, hot tubs, etc.]

SNHD is requesting [facility name] assistance in verifying the client's stay and the room number at the facility. Thank you for your anticipated assistance in this matter. Should you have any questions, please feel free to contact [Name], [Title], at [phone number].

Sincerely,

SOUTHERN NEVADA HEALTH DISTRICT

By: _____
[Name]
[Title]

LN13



Date

Facility Name

Address

RE: Travel related Legionnaire's disease case

Dear Facility Management:

Your assistance is requested in compliance with Nevada Administration Code (NAC) 441A.280.

NAC 441A.280 Duty of persons to cooperate with health authority during investigations and carrying out of measures for prevention, suppression and control of communicable diseases.

A case, suspected case, carrier, contact or other person shall upon request by a health authority, promptly cooperate during:

1. An investigation of the circumstances or cause of a case, suspected case, outbreak or suspected outbreak.
2. The carrying out of measures for the prevention, suppression and control of a communicable disease, including procedures of exclusion, isolation and quarantine.

The Southern Nevada Health District has been informed by the Center of Disease Control and Prevention of a confirmed case of Legionnaires' disease whose illness may be associated with travel. This person reported spending time at facility name during the incubation period prior to the disease onset in month and year and exposure to water mist from the fountains and utilizing resort hot tub and whirlpool spa.

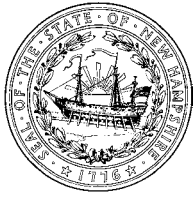
SNHD is requesting facility name assistance in sampling this public area at the facility. Thank you for your anticipated assistance in this matter. Should you have any questions, please feel free to contact [REDACTED], [REDACTED], at [REDACTED].

Sincerely,

SOUTHERN NEVADA HEALTH DISTRICT

By: _____

[REDACTED]
[REDACTED]



LN14

STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH SERVICES
BUREAU OF INFECTIOUS DISEASE CONTROL

Jeffrey A. Meyers
Commissioner

Lisa M. Morris
Director

29 HAZEN DRIVE, CONCORD, NH 03301
603-271-4496 1-800-852-3345 Ext. 4496
Fax: 603-271-0545 TDD Access: 1-800-735-2964
www.dhhs.nh.gov

September 6, 2018

Dear Guest of the [REDACTED],

The New Hampshire Department of Health and Human Services is investigating an outbreak of Legionnaires' disease, a serious type of bacterial pneumonia, in [REDACTED], NH. A number of individuals have become ill after staying at the [REDACTED] on [REDACTED], NH this summer. People can get Legionnaires' disease by breathing in small water droplets containing *Legionella* bacteria. Your individual risk of coming down with Legionnaires' disease may increase if you are 50 years or older, smoke cigarettes, or have certain medical conditions, such as a weakened immune system.

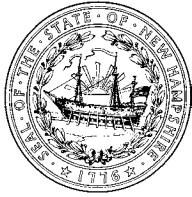
In response to this situation, the New Hampshire Department of Health and Human Services, the New Hampshire Department of Environmental Services, the Town of Hampton, NH, and the U.S. Centers for Disease Control and Prevention are conducting an investigation. Preliminary laboratory testing at the [REDACTED] has identified *Legionella* bacteria in the hot tub and other locations in the [REDACTED] water system. NH DHHS issued a public health order on the [REDACTED] on September 2nd, requiring the establishment to notify guests of the potential risk of Legionnaires' disease if they stay at the [REDACTED]. As required by NH DHHS, the [REDACTED] has hired a company to get rid of the bacteria that may be present in the hotel.

If you develop symptoms of pneumonia within two weeks of staying at the [REDACTED], please seek medical attention right away. Please also show this letter to your doctor so that he/she knows to test you for Legionnaires' disease. Pneumonia symptoms typically include cough, shortness of breath, fever, muscle aches, and headache. Ask your doctor to test you with both a urine test and a respiratory culture. If you test positive, ask your doctor to report your illness to your local or state health department as soon as possible. Your doctor should prescribe you an antibiotic for treatment if you develop symptoms and are diagnosed with Legionnaires' disease. You may also need care in the hospital. If your visit was longer than 14 days ago, you are beyond the usual time it takes to develop disease.

The New Hampshire Department of Health and Human Services will continue working with the [REDACTED] to protect the health of guests and employees. A fact sheet about Legionnaires' disease is included with this letter. You can learn more on our website (<https://www.dhhs.nh.gov/dphs/cdcs/legionella.htm>). Please share this information with others who stayed in your room. If you have any questions or concerns, please contact the New Hampshire Department of Health and Human Services public inquiry line at 603-271-9461.

Sincerely,

The Bureau of Infectious Disease Control



STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH SERVICES
BUREAU OF INFECTIOUS DISEASE CONTROL

Jeffrey A. Meyers
Commissioner

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29 HAZEN DRIVE, CONCORD, NH 03301
603-271-4496 1-800-852-3345 Ext. 4496
Fax: 603-271-0545 TDD Access: 1-800-735-2964
www.dhhs.nh.gov

September 2, 2018

Dear Guest of the [REDACTED],

The New Hampshire Department of Health and Human Services (DHHS) and U.S. Centers for Disease Control and Prevention (CDC) are investigating an outbreak of Legionnaires' disease, a serious type of bacterial pneumonia caused by *Legionella* bacteria. This summer in Hampton New Hampshire (NH), DHHS has confirmed 14 people with Legionnaire's disease. Many, but not all, of these people stayed at the [REDACTED] on [REDACTED], Hampton, NH. Water samples were tested to find out where the *Legionella* bacteria are coming from. These tests show that *Legionella* has been, and may still be present, in this hotel's water system. The investigation is still in progress and we are collaborating with many partners to clean the water system.

We want to make you aware of this situation so you can make a decision as to whether to stay at the [REDACTED] or visit Hampton. People get Legionnaires' disease by breathing in small water droplets containing *Legionella* bacteria. You do not get Legionnaire's disease from other people, from eating food, or from swimming or bathing in water. Your risk of getting severe Legionnaires' disease is increased if you are 50 years of age or older, smoke cigarettes, and/or have certain medical conditions, such as a weakened immune system.

If you choose to stay at the [REDACTED], the following measures may help prevent infection:

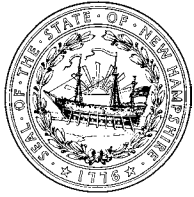
- Take a bath instead of a shower. Showering is associated with an increased risk of Legionnaires' disease. A bath is safer because less water is aerosolized than during shower.
- Use bottled water for oral hygiene practices or drinking water in order to reduce any risk of inhaling or aspirating water containing the bacteria.

If you develop symptoms of pneumonia (such as fever, cough, and shortness of breath) within two weeks of staying at [REDACTED], please seek medical attention right away. Show this letter to your healthcare provider so that he/she knows to test you for Legionnaires' disease. If your healthcare provider decides to test you, request that he/she use both a urine antigen test and a respiratory culture. If you are diagnosed with Legionnaires' disease, your healthcare provider will prescribe an antibiotic, may suggest you get care in the hospital, and should immediately report your diagnosis to your local or state health department.

The NH DHHS and CDC will continue working with the [REDACTED] to protect the health of guests and employees. A fact sheet about Legionnaires' disease is included with this letter. You can learn much more about our investigation on our website (<https://www.dhhs.nh.gov/dphs/cdcs/legionella.htm>). Please share this information with others who stayed in your room. If you have any questions or concerns, please contact the New Hampshire Department of Health and Human Services public inquiry line at 603-271-9461.

Sincerely,

The Bureau of Infectious Disease Control



LN16

STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH SERVICES
BUREAU OF INFECTIOUS DISEASE CONTROL

Jeffrey A. Meyers
Commissioner

Lisa M. Morris
Director

29 HAZEN DRIVE, CONCORD, NH 03301
603-271-4496 1-800-852-3345 Ext. 4496
Fax: 603-271-0545 TDD Access: 1-800-735-2964
www.dhhs.nh.gov

PUBLIC HEALTH NOTICE

Risk of Legionnaires' Disease

- Guests have been diagnosed with Legionnaires' disease after recently staying at the [REDACTED].
- Legionnaires' disease is a serious bacterial pneumonia that people get by breathing in small water droplets containing *Legionella* bacteria.
- Water tests at this property show *Legionella* bacteria have been, and may still be, present in our water system.
- Your risk of Legionnaires' disease may increase if you are 50 years or older, smoke cigarettes, or have certain medical conditions, such as a weakened immune system.

For more information, call the New Hampshire Department of Health and Human Services at **603-271-9461**, or visit our website at <https://www.dhhs.nh.gov/dphs/cdcs/legionella.htm>

Bureau of Infectious Disease Control

**Cluster of Legionnaires' disease Associated with an Area of
Ashworth Avenue in Hampton, New Hampshire**

**Frequently Asked Questions
September 6, 2018**

What is the situation in Hampton with Legionnaires' disease?

The New Hampshire Department of Health and Human Services' Division of Public Health Services (DPHS) has identified **15 people** with Legionnaires' disease, a potentially serious bacterial pneumonia (lung infection) caused by *Legionella* bacteria. One of these people, an elderly adult, has died due to complications of Legionnaire's disease. These people likely acquired their infections between early June and mid-August in the Hampton Beach area.

Where is it coming from?

DPHS and experts from the U.S. Centers for Disease Control and Prevention (CDC) are working diligently to identify a potential source of the bacteria and possible additional cases of Legionnaire's disease. The majority of cases stayed or resided in the Ashworth Avenue area between Island Path and M Street but may have had other exposures in the area. As a precautionary measure, DPHS has closed the hot tub spas at the [REDACTED] and the [REDACTED] because hot tub spas in general are a known source of the bacteria that causes Legionnaire's. The hot tubs no longer present a potential risk to the public. Preliminary laboratory testing has identified *Legionella* bacteria in the hot tub and other locations in the [REDACTED] water system. NH DHHS is continuing to investigate the cause of this outbreak and is waiting for additional testing of samples taken from the [REDACTED] and other locations during the community investigation to be completed.

What is DPHS doing about this situation?

DPHS continues to work closely with the Town of Hampton, the Department of Environmental Services and the US CDC. We are investigating possible additional cases and investigating the source of these infections. DPHS has closed the implicated hot tubs until

further notice, and they no longer present a potential risk to the public. DPHS is also working with local business and residents to minimize economic impact to the community. NH DHHS has issued a public health order on the [REDACTED] requiring the establishment to notify guests of the potential risk of Legionnaires' disease if they stay at the [REDACTED]. The [REDACTED] is also required to hire a company to try to get rid of the bacteria that may be present in the hotel.

Who do I call with questions about this situation?

If you have information or questions about this situation, please call the New Hampshire Department of Health and Human Services. A public inquiry phone line is available to answer questions from 8am -4pm, including over the weekend, by calling 603-271-9461, or for those calling from within New Hampshire, toll-free at 1-800-852-3345 ext 9461.

What is Legionnaires' disease and how common is it in New Hampshire?

Legionnaires' disease is a very serious type of pneumonia caused by bacteria called *Legionella*. Between 12 and 63 cases are reported each year in New Hampshire with an average of 32. Most cases occur as single isolated events. Outbreaks are rare in New Hampshire.

Why is it called Legionnaires' disease?

An outbreak of this disease in Philadelphia in 1976, largely among people attending a state convention of the American Legion, led to the name "Legionnaires' disease." Subsequently, the bacterium causing the illness was named *Legionella pneumophila*.

How severe is the illness?

Legionnaires' disease is a very serious type of pneumonia that can be severe enough to cause death. About 1 in 10 people who get Legionnaires' disease will die from the infection.

Where are *Legionella* bacteria found?

Legionella bacteria exist naturally in water and moist soil. They have been found in creeks and ponds, hot and cold water taps, hot water tanks, water in air conditioning cooling towers and evaporative condensers, hot tubs, decorative fountains, and soil at excavation sites.

How is Legionnaires' disease spread?

People can get Legionnaires' disease by breathing in small droplets of water in the air (e.g., mist) containing *Legionella* bacteria. Less commonly, someone can breathe in *Legionella* when water accidentally goes into the lungs while drinking. In general, people do not spread Legionnaires' disease to other people. However, this may be possible under rare circumstances.

Who gets Legionnaires' disease?

Most healthy individuals do not become infected with *Legionella* bacteria after exposure. People at increased risk of getting sick are those 50 years of age or older, current or former smokers, those with a chronic lung disease (like COPD or emphysema), those with a weak immune system from diseases like AIDS, cancer, diabetes, or kidney failure, and people who take drugs that suppress (weaken) the immune system (like after an organ transplant or chemotherapy).

What are the usual symptoms of Legionnaires' disease?

The early symptoms of Legionnaires' disease may be flu-like with muscle aches, headache, tiredness and dry cough followed by fever, chills and occasionally diarrhea. Like with other types of pneumonia, common symptoms of Legionnaires' disease include rapid breathing or difficulty breathing and chest pain.

How soon do symptoms occur/appear?

The incubation period for Legionnaires' disease ranges from two to 10 days, but is usually five to six days. Sometimes it can take longer so people should watch for symptoms for about two weeks after exposure.

How can I get tested?

If you are not ill, you do not need to be tested for this infection. If you have symptoms consistent with pneumonia, then you should be seen by a healthcare provider. Your healthcare provider may perform a chest x-ray. They may also test your urine or do a laboratory test that involves taking a sample of sputum (phlegm) or washing from the lung. It is best to get both kinds of samples. The test results for these laboratory tests can take a few days to a week or more to get the results back.

I don't have insurance but have been sick and need to get tested?

A healthcare provider must see you to evaluate your symptoms and decide if testing is appropriate. Unfortunately there is no way for us to provide you with this evaluation.

What is the treatment?

Legionnaires' disease requires treatment with antibiotics (medicines that kill bacteria in the body), and most cases of this illness can be treated successfully. Healthy people usually get better after being sick with Legionnaires' disease, but they often need care in the hospital.

I think I have (or had) Legionnaire's disease. What do I do?

If you have questions about your health, please contact your healthcare provider. If you have information or questions about this cluster, please call 603-271-9461.

I have been diagnosed with Legionnaires' disease, is my family at risk?

There is very little risk that you can spread this infection to your family.

I visited Hampton, NH. What do I do?

If your visit was longer than 14 days ago, you are beyond the usual time it takes to develop disease. If your visit was within 14 days, your risk of disease is very low. If you become ill, share your travel history and concerns with your primary care clinician and s/he can test, treat and report, if appropriate. If your visit was within 14 days, and you are not ill, there is no recommendation for you to be tested or take antibiotics.

I live in Hampton, NH. What do I do?

Although risk is low, DPHS recommends that people who are at higher risk of Legionnaire's disease should continue to take steps to protect their health, including consideration of avoiding the area of Ashworth avenue if they are concerned about their health and talking to their healthcare providers. People who are at increased risk include those who are 50 or older, who have chronic respiratory disease, or who have a weakened immune system. People who elect to travel should avoid going into hot tubs.

I have a trip planned to Hampton, NH. Should I cancel?

While the investigation is underway, in an abundance of caution, DPHS recommends that people who are at higher risk of Legionnaire's disease should continue to take steps to protect their health, including consideration of postponing their visit to the area if they are concerned about their health and talking to their healthcare providers. People who are at increased risk include those who are 50 or older, who have chronic respiratory disease, or who have a weakened immune system. People should avoid going into hot tubs.

I cancelled my reservation or tickets for an event and was not provided a refund. What can I do?

You will need to work directly with the establishment or company to request a refund. Different companies may have different refund policies and you will need to work with the company directly to resolve the matter.

Should I wear a mask in town?

In general, we do not have evidence that this will help prevent disease. We are working to identify the source and may update this as we learn more.

Can I catch Legionnaire's from other people?

It is extremely unlikely for Legionnaires' disease to spread from person to person.

Should I stay indoors?

Since we have no evidence whether the *Legionella* bacteria are in an outdoor or indoor water source, we do not recommend staying indoors at this time. DPHS is actively investigating where the *Legionella* bacteria are coming from, but we do not know yet. As we learn more, we may change our recommendations about areas to avoid.

Can I get Legionnaire's Disease from my home air conditioning unit?

No. *Legionella* grows and spreads in water sources. Home and car air-conditioning units do not use water to cool the air, so they are not a risk for *Legionella* growth.

Should I drink bottled water?

DPHS has not made a recommendation to avoid drinking tap water.

Can I get Legionnaire's Disease from swimming in the ocean?

No. Legionnaire's disease is usually acquired by inhaling aerosol droplets of water containing *Legionella* bacteria. Sources of the aerosol droplets can include showers, hot tubs, faucets, cooling towers, misters, and decorative fountains.

Should the DPHS or town cancel events or close hotels in town?

While we believe that the current overall health risk to the community is low, DPHS is actively investigating where the *Legionella* bacteria are coming from. We are concerned by the preliminary test results at the [REDACTED] and have taken steps to address these concerns with the establishment through a public health order. There are additional cases that did not stay at the [REDACTED] and we are working to identify the source of these infections. In some situations, the source of the bacteria is never identified. If we identify the source, we will do whatever it takes to prevent additional transmission.

Why didn't DPHS close the [REDACTED]?

The public's health is our main priority. We continue to intensively and collaboratively investigate all possible sources of the *Legionella* bacteria. In consultation with CDC and Town officials, we are requiring the [REDACTED] to remediate the outbreak, including notifications to all past, current and future guests of the presence of *Legionella* in the water system at the [REDACTED] and immediate water treatment to remove the *Legionella* bacteria through effective, standard methods. The [REDACTED] is currently complying with these requirements to assure there are no *Legionella* present in the establishment. We are continuing to investigate and if we find more *Legionella* bacteria or if new illnesses are identified, we may take additional measures to protect the public.

How does *Legionella* grow and multiply in a building water system?

A variety of internal and external factors, such as water main breaks, water temperature fluctuations, and inadequate levels of disinfectant, can lead to a *Legionella* problem in a building. *Legionella* grows and spreads in building water systems that have inadequate levels of disinfectant or temperature fluctuations allowing for *Legionella* bacteria to grow and spread, including in devices such as hot water tanks, showerheads, and hot tubs. It is critical that building owners and managers take steps to reduce the risk of *Legionella* in their buildings.

Should I be concerned about drinking the municipal water in Hampton, NH?

No. People get Legionnaires' disease when they breathe in small droplets of water in the air that contain the bacteria, not by drinking it.

How do I get my water tested or treated?

DPHS is not currently recommending that Hampton residents test or treat their water. The CDC has developed resources on how businesses that have devices that may make small droplets of water, such as shower heads, hot tub spas, and decorative fountains, can properly manage their water systems to prevent Legionnaire's disease available at:

<https://www.cdc.gov/legionella/wmp/index.html>

Where can I learn more about Legionnaires' disease and this outbreak?

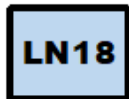
General information on Legionnaires' disease is available on the CDC website at:

<https://www.cdc.gov/legionella/index.html>

Information about this outbreak is available on the NH DHHS website at:

<https://www.dhhs.nh.gov/dphs/cdcs/legionella.htm>

NH DHHS will continue to report results and updates as they become available and relevant for public health.



[INSERT local or state letterhead per preference]

[INSERT Facility Point of Contact

Facility Name

Facility Address

Facility City, State, Zip]

[INSERT Date]

[Dear Mr./Mrs. XXXXXXX -OR- To Whom It May Concern],

The [Tennessee Department of Health -OR- Metro / Regional Health Department Name] is notifying you that a person infected with *Legionella* reported staying at your [hotel / rental property / using your spa / etc.] on [Month, Day, Year], during the period of time when the illness might have been acquired. *Legionella* is one of the illnesses reported to the Tennessee Department of Health because of the potential for outbreaks.

As you may know, *Legionella* bacteria can cause pneumonia (a serious lung infection) called Legionnaires' disease, or legionellosis. *Legionella* bacteria are naturally found in freshwater environments, such as lakes and streams; however more commonly cause human infection when they grow and spread in building water systems (e.g., when people inhale droplets of water from hot water tanks and heaters, showerheads and sink faucets, large plumbing systems, hot tubs, cooling towers, or other water-containing sources). More information about legionellosis can be found on the Centers for Disease Control and Prevention's website (<https://www.cdc.gov/legionella/about/causes-transmission.html>).

At this time, there is no direct evidence that this case of legionellosis was acquired at your [facility / property / etc.]; however we felt it was prudent to notify you. If we determine that other persons with legionellosis also stayed at or visited your facility, we may ask for your assistance in investigating further.

CDC recommends that certain building types, including healthcare facilities, buildings that house people >65 years of age, buildings with multiple housing units and a centralized hot water system (e.g. hotels), and buildings with >10 stories, should have a water management program to reduce the risk of *Legionella* growth and spread. More information about water management programs and *Legionella* prevention can be found on the Centers for Disease Control and Prevention's website (<https://www.cdc.gov/legionella/wmp/overview.html>).

Please feel free to contact the [Tennessee Department of Health -OR- Metro / Regional Health Department Name] (c/o [point-of-contact name]) if you have any questions.

Sincerely,

[Epidemiologist/Health Director/POC Name per preference]

[INSERT POC Title

Health Department Name

Address; City, State, Zip

Phone Number | Email Address]



[INSERT Facility Point of Contact

Facility Name

Facility Address

Facility City, State, Zip]

[INSERT Date]

[Dear Mr./Mrs. XXXXXXXX -OR- To Whom It May Concern],

The [Tennessee Department of Health -OR- Regional Health Department Name] is notifying you that a person infected with *Legionella* reported staying at your [hotel / rental property / using your spa / etc.] on [Month, Day, Year], during the period of time when the illness might have been acquired. *Legionella* is one of the illnesses reported to the Tennessee Department of Health because of the potential for outbreaks.

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At this time, there is no direct evidence that this case of legionellosis was acquired at your [facility / property / etc.]; however we felt it was prudent to notify you. If we determine that other persons with legionellosis also stayed at or visited your facility, we may ask for your assistance in investigating further.

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Please feel free to contact the [Tennessee Department of Health -OR- Regional Health Department Name] (c/o [point-of-contact name]) if you have any questions.

Sincerely,

[Epidemiologist/Health Director/POC Name per preference]

[INSERT POC Title

Health Department Name

Address, City, State, Zip

Phone Number; Email Address]



LN19

STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH SERVICES
BUREAU OF INFECTIOUS DISEASE CONTROL

Jeffrey A. Meyers
Commissioner

Lisa M. Morris
Director

29 HAZEN DRIVE, CONCORD, NH 03301
603-271-4496 1-800-852-3345 Ext. 4496
Fax: 603-271-0545 TDD Access: 1-800-735-2964
www.dhhs.nh.gov

SCRIPT FOR [REDACTED] RESERVATIONS

I need to inform you that there is a currently an outbreak of Legionnaires' disease in Hampton, NH. Legionnaires' disease is a serious type of bacterial pneumonia caused by inhaling water droplets containing *Legionella* bacteria. The outbreak investigation is still in progress, but some of the people diagnosed with Legionnaires' disease have been guests at our property. Water samples collected at our property show that the *Legionella* bacteria are present in our water system.

People get Legionnaires' disease by breathing in small water droplets containing *Legionella* bacteria. Your risk of getting Legionnaires' disease is higher if you are 50 years or older, smoke cigarettes, or have certain medical conditions, such as a weakened immune system.

We are cooperating with the NH Department of Health and Human Services to make sure the water is safe, and we are working to remove the bacteria from our water system. If you want more information about this situation, call the NH Department of Health and Human Services at 603-271-9461.



Date

Facility name

Address

Las Vegas, NV 89101

RE: Travel related Legionnaires' disease case

Dear Facility Management:

Your assistance is requested in compliance with Nevada Administration Code (NAC) 441A.280.

NAC 441A.280 Duty of persons to cooperate with health authority during investigations and carrying out of measures for prevention, suppression and control of communicable diseases.

A case, suspected case, carrier, contact or other person shall upon request by a health authority, promptly cooperate during:

1. An investigation of the circumstances or cause of a case, suspected case, outbreak or suspected outbreak.
2. The carrying out of measures for the prevention, suppression and control of a communicable disease, including procedures of exclusion, isolation and quarantine.

The Southern Nevada Health District (SNHD) has been informed by the Centers for Disease Control and Prevention (CDC) of two confirmed cases of Legionnaires' disease within a 12-month period, whose illness may be associated with your facility. The first person reported staying at the Facility Name during their incubation period in XXXX. The most recent person reported staying at Facility Name during their incubation period in XXXX.

SNHD is requesting a meeting with Facility Name to assist in verifying the client's stay and the room number as well as perform an environmental assessment as recommended by (CDC).

Thank you for your anticipated assistance in this matter. Should you have any questions, please feel free to contact [Name], [Title], at [phone].

Sincerely,

SOUTHERN NEVADA HEALTH DISTRICT

By:

[Name]
[Title]

[Name]
[Title]



CONFIDENTIAL

City of Bellmead

City of Beverly Hills

City of Bruceville-
Eddy

City of Crawford

City of Gholson

City of Golinda

City of Hallsburg

City of Hewitt

City of Lacy-Lakeview

City of Leroy

City of Lorena

City of Mari

City of McGregor

City of Moody

City of Riesel

City of Robinson

City of Ross

City of Waco

City of West

City of Woodway

McLennan County

Dear Guest(s):

This letter is to inform you that you may have been exposed to *Legionella* bacteria, which cause Legionnaires' disease during your stay at the [REDACTED]

Legionnaires' disease is a form of pneumonia caused by *Legionella* bacteria. The risk of developing Legionnaires' disease is low, but it occurs more frequently in the elderly, those who smoke, and in individuals that are at higher risk of infection; such as those with a chronic illness, respiratory disease, or compromised immune system. The infection is caused by breathing in a mist or vapor containing the *Legionella* bacteria. It is not contagious and almost never spreads from person to person. Most cases are successfully treated with antibiotics. Symptoms include high fever, chills, cough, fatigue, muscle aches, and headaches. These symptoms usually begin 2-14 days after being exposed. If you have developed any combination of these symptoms within two weeks of your stay at the hotel, please contact us immediately at 254-750-5411.

Waco-McLennan County Public Health District (WMCPHD) is working with [REDACTED] to identify possible sources of *Legionella* bacteria growth in the hotel's water system.. Appropriate actions are being taken to protect the health of guests and employees and to disinfect the hotels' water system.

Please find enclosed a fact sheet with additional information on Legionnaires' disease. If you have any questions, please feel free to contact WMCPHD at 254-750-5411 or WacoEpi@wacotx.gov

Additional information on Legionnaires' disease is available from the CDC website at <https://www.cdc.gov/legionella/downloads/fs-legionnaires.pdf>

Sincerely,

[REDACTED]

Dr. Farley Verner, M.D.
Local Health Authority

[REDACTED]

Director



CONFIDENTIAL

City of Bellmead

City of Beverly Hills

City of Bruceville-
Eddy

City of Crawford

City of Gholson

City of Golinda

City of Hallsburg

City of Hewitt

City of Lacy-Lakeview

City of Leroy

City of Lorena

City of Mart

City of McGregor

City of Moody

City of Riesel

City of Robinson

City of Ross

City of Waco

City of West

City of Woodway

McLennan County

Dear Guest(s):

This letter is to inform you that Waco-McLennan County Public Health District (WMCPHD) is currently investigating a Legionnaires' disease outbreak at the [REDACTED]

Legionnaires' disease is a form of pneumonia caused by *Legionella* bacteria. The risk of developing Legionnaires' disease is low, but it occurs more frequently in the elderly, those who smoke, and in individuals that are at higher risk of infection; such as those with a chronic illness, respiratory disease, or compromised immune system. The infection is caused by breathing in a mist or vapor containing the *Legionella* bacteria. It is not contagious and almost never spreads from person to person. Most cases are successfully treated with antibiotics. Symptoms include high fever, chills, cough, fatigue, muscle aches, and headaches. These symptoms usually begin 2-14 days after being exposed.

WMCPHD is working with [REDACTED] to identify possible sources of *Legionella* bacteria growth in the hotel's water system. Appropriate actions are being taken to protect the health of guests and employees and to disinfect the hotels' water system.

During your stay, the following measures may help prevent potential infection:

- Showering can be associated with an increased risk of infection. Please consider taking a bath instead.
- Please refer to the attached fact sheet to determine your risk of acquiring Legionnaires' disease. If you have one or more of the risk factors outlined in the fact sheet, please consider rescheduling your visit
- If you have special concerns about your risk for this infection, you are welcome to use bottled water for hygiene practices or drinking water.

If you experience any of the symptoms mentioned in the enclosed fact sheet within fourteen days of your stay at the [REDACTED] please contact your health care provider (HCP). Let your HCP know that you may have been exposed to Legionnaire's Disease and contact WMCPHD at 254-750-5411 or WacoEpi@wacotx.gov at your earliest convenience

Additional information on Legionella is available from the CDC website at <https://www.cdc.gov/legionella/downloads/fs-legionnaires.pdf>.

If you or your provider has any additional questions, please feel free to contact **WMCPHD at 254-750- 5411 or WacoEpi@wacotx.gov**

Sincerely,

[REDACTED]
Dr. Farley Verner, M.D.
Local Health Authority

[REDACTED]
[REDACTED]
Director

Public Health Notice to Guests

Dear Guest(s):

The [facility name] was recently notified by the [LHD] and the Wisconsin Department of Health Services (DHS) that several guests who stayed at [facility] during the last [x months/years] were diagnosed with Legionnaires' disease within two weeks of their stay.

[Insert facility name] is cooperating fully with [LHD] and DHS in their investigation to identify possible sources of *Legionella* bacteria in our [hotel/motel/resort]'s water system. [Numerous water samples and swabs of plumbing fixtures were tested to determine the possible source(s) of *Legionella* at the [facility]. Results of water sample testing confirmed that *Legionella* bacteria were present in the [hotel/motel/resort]'s water system.] The investigation is still in progress and we continue to proactively work towards a solution for remediation of this issue in conjunction with [LHD/DHS/Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP)/Wisconsin Department of Safety and Professional Services (DSPS)] so that we may provide safe water to our guests.

Legionnaires' disease is a form of pneumonia caused by inhaling *Legionella* bacteria contained in mist or water droplets. The risk of developing Legionnaires' disease is low, but it occurs more frequently among people aged 50 years and older, those who smoke, and among individuals who are at higher risk of infection, such as those with a chronic illness, respiratory disease, or a weakened immune system. The illness is caused by breathing in a mist or vapor containing the *Legionella* bacteria. It is not contagious and almost never spreads from person to person. Most cases of Legionnaires' disease are successfully treated with antibiotics. Symptoms include high fever, chills, cough, fatigue, muscle aches, and headaches. These symptoms usually begin 2-14 days after being exposed. If you are ill with any combination of these symptoms, we strongly encourage you to see your health care provider.

[Insert facility name] will continue to work in conjunction with [LHD] to take appropriate actions to protect the health of guests and employees and to disinfect the water system. In the meantime, the following measures may help prevent potential infection during your stay with us:

- Please refer to the [fact sheet](#) to determine your risk of acquiring Legionnaires' disease. If you have one or more of the risk factors outlined in the fact sheet, please consider rescheduling your visit with us.
- If you have special concerns about your risk for this infection:
 - Do not use bathroom sinks, showers, or bar sinks in your hotel room. Avoid being in the same room with people using showers and sinks.
 - Use bottled water for drinking water and for personal hygiene practices (for example, brushing teeth).

If you become ill within 14 days of your stay at [facility], please refer to the [attached fact sheet](#) regarding the symptoms of this illness and seek medical attention if you become symptomatic. If you experience symptoms of Legionnaires' disease, please provide your physician this information and ask him/her to contact the [LHD] or DHS to obtain further instruction on how to report your illness as soon as possible after your diagnosis. Also, please share this information with others who stayed in your room during your visit to [facility].

Additional information on *Legionella* is available from the [CDC website](#).

If you have any concerns or questions, please contact the [LHD] at [(xxx) xxx-xxxx] or email at xxxxxxxxxxx@xxx.xxx

Sincerely,

[Facility contact]

[Facility Management]

[Facility phone number and/or email]

Note to facility: Please share final copy with LHD.

SAMPLE

MEMORANDUM

[DATE]

To: [LTCF NAME] Residents, Families, and Staff

From: [LTCF NAME] Administration

Re: Legionnaires' disease

We are providing our staff, residents, and families with this letter to provide information about recent cases of Legionnaires' disease at [LTCF NAME] and measures we are taking to protect the health of our residents, staff and visitors.

Legionnaires' disease is a form of pneumonia caused by the *Legionella* bacteria. Symptoms include high fever, chills, cough, body aches, headache and fatigue. Individuals with Legionnaires' disease may need to be hospitalized. The disease typically begins 2–10 days after exposure to the bacteria. It can be treated effectively with antibiotics.

Legionella bacteria are found naturally in fresh water environments, like lakes and streams. It can become a health concern when it grows and spreads in manmade water systems, like hot tubs, cooling towers, hot water tanks, large plumbing systems, and decorative fountains. People can get infected when they breathe in a mist or vapor (small droplets of water in the air) that has been contaminated with *Legionella* bacteria. Most people who are exposed to the *Legionella* bacteria do not become ill. *Legionella* does not spread from person-to-person.

As of [DATE], [xx] facility resident(s) have had Legionnaires' disease.

[LTCF] is working closely with the [LHD] Public Health Department, the Wisconsin Department of Health Services, and the Wisconsin Department of Safety and Professional Services to investigate the source of these infections and take actions to prevent other people from becoming ill.

[Preliminary tests of water samples taken at the facility were positive for *Legionella* bacteria.] As part of the public health investigation, water samples will be taken at the facility and tested for *Legionella* bacteria.] Despite the fact that [LTCF] has not been definitively identified as the source of illnesses, we are taking a number of proactive measures in cooperation with the local and state public health departments in an effort to protect the safety and well-being of our residents, staff and visitors. Most of the precautions are related to the facility's water system and may involve some inconvenience to staff and residents. However, it is our opinion and the opinion of the

[LHD] Public Health Department that these measures are necessary in our continued effort to provide the highest level of care and protection to our residents.

These control measures include:

- Using bottled water for drinking, rinsing the mouth, brushing teeth, and shaving;
- Not using showers since the water mists from showers may be more easily inhaled (consider taking sponge baths instead and stepping out of the bathroom while the tub is being filled);
- Not using faucets until filters are placed;
- Restricting admission of new residents while the investigation is ongoing;
- Restricting visitors who are immune compromised while the investigation is ongoing.

[Option: LTCF is also working to install special filters that are effective in removing *Legionella* bacteria on all sinks and showers currently in use.] In addition, we will engage the services of an engineering consulting company to conduct testing for *Legionella* bacteria in the facility and help with remediation. We continue to conduct proactive monitoring for signs and symptoms of Legionnaires' disease in residents.

[LTCF] is committed to the safety and well-being of our residents and staff. We will continue to provide you with the most current information. Please do not hesitate to contact us with questions or concerns.

Additional resources:

Legionnaires' disease fact sheet: <https://www.dhs.wisconsin.gov/library/p-42066.htm>

DATE:

MEMO TO: ALL EMPLOYEES

FROM: MANAGEMENT OFFICIAL

SUBJECT: Legionnaires' Disease

On _____, we were notified that one or more employees in our company had contracted Legionellosis, commonly referred to as Legionnaires' disease. We are cooperating fully with local health officials who are investigating this matter.

We want to share with you some general information concerning the disease. We also want to tell you what we are currently doing here at _____ to ensure that all necessary steps are taken to address health concerns.

Legionellosis, or Legionnaires' disease, is a pneumonia caused by *Legionella* bacteria. Legionnaires' disease is not contagious, and you cannot catch it from another person. The bacteria are common and grow in water. People often receive low-level exposure in the environment without becoming sick. Legionellosis usually occurs only when someone who is already susceptible has a significant exposure to *Legionella* bacteria; exposures to small amounts of the bacteria in the environment are often not enough to cause an infection. Persons who are heavy smokers or drinkers, elderly, organ transplant recipients, using certain drug therapies (e.g. corticosteroids), or whose ability to resist infection is reduced (e.g., immunosuppressed individuals) are more likely to contract Legionnaires' disease than healthy nonsmokers. Around 6,000 with Legionnaires' disease cases are reported annually in the U.S. In most cases Legionellosis is isolated and is not associated with an outbreak.

To identify other possible Legionnaires' disease cases, we are doing several things. We will review sick leave records from _____ to the present. Employees who are experiencing, or who have experienced, pneumonia-like symptoms (e.g., fever, shortness of breath, cough, headache, diarrhea) during this time are encouraged to arrange a confidential interview with the contact person listed below. We will also contact employees who took sick leave during this time period and request that they also arrange a confidential interview with the contact person listed below.

Confidential Interview Contact: [list name, organization, phone and other contact information]

We may also ask any employees who experienced a pneumonia-like illness and saw their healthcare provider to sign a medical release form to allow the company or the Occupational Safety and Health Administration (OSHA) to obtain additional information from the provider. In these cases, medical information may be communicated only with your written permission. The

purpose of obtaining this information, including any diagnosis you may have received, is to protect you and your fellow workers against the potential threat of legionellosis.

To ensure that you are protected during the interim, we are evaluating possible *Legionella* exposure sources and taking the necessary steps to prevent exposure. We are also offering counseling and employee information services. If you would like to use these services or want more information, contact your manager. For now, please pay attention to the following important points:

WHAT YOU SHOULD DO NOW:

1. If you are not sick, there is no need for you to see a doctor.
2. If you are now sick with a cough, fever, shortness of breath, headache, or diarrhea:
 - I. See your private healthcare provider or contact _____ to arrange to see a healthcare provider.
 - II. Tell the healthcare provider that you work in a building where there has been a case or an outbreak of Legionnaires' disease.
 - III. If you see a healthcare provider, notify _____ so our company can track your illness.

If you have any concerns or questions regarding this issue, please discuss with your manager. Your health and safety are important to us, and we appreciate your cooperation in this matter. As further information develops, we will keep you informed.

Notification letter template to hotel/travel accommodation guests regarding a Legionnaires' disease outbreak investigation

Dear Guest,

Recently, the [state/local health department (HD) name] determined that [# of people] who stayed at [accommodation name] between [month and year] and [month and year] were diagnosed with Legionnaires' disease, a serious type of pneumonia. People can get Legionnaires' disease by breathing in small water droplets containing *Legionella* germs.

In response to this information, [HD name] along with [collaborating agencies] and with the full cooperation of [accommodation name] management conducted an investigation. Early testing results found *Legionella* germs in samples taken from [list possible exposure sites]. We do not know whether the [hotel/resort]'s [possible exposure site(s)] [was/were] the source(s) of the germs that caused the [# person/people] to become sick. The investigation is ongoing.

We are working to help prevent additional people from becoming sick. Currently, we are disinfecting and maintaining all water systems at the [hotel/resort] in a way that will kill off any remaining *Legionella* and prevent more from growing. [List remediation/prevention efforts.] We believe the risk of Legionnaires' disease is low because of the actions the [hotel/resort] has already taken. Your individual risk may increase if you are 50 years or older, smoke cigarettes, or have certain medical conditions, such as a weakened immune system.

If you develop symptoms of pneumonia within two weeks of staying at [accommodation name], seek medical attention right away. Please show this letter to your doctor so that he/she knows to test you for Legionnaires' disease. Pneumonia symptoms typically include cough, shortness of breath, fever, muscle aches, and headache. Additional symptoms may be present, such as headache, confusion, nausea, or diarrhea. Ask your doctor to test you with both a urine test and a respiratory culture. If you test positive, ask your doctor to report your illness to your local or state health department as soon as possible after your diagnosis. Your doctor should prescribe you an antibiotic for treatment. You may also need care in the hospital.

[HD name] will continue working with [accommodation name] to protect the health of guests and employees. A fact sheet about Legionnaires' disease is [attached to this letter/included on the reverse side of this letter]. You can learn more at [HD and/or CDC website]. Also, please share this information with others who stayed in your room. If you have any questions or concerns, please contact [HD contact information].

Sincerely,

[HD POC name and contact details]

Notification letter template to hotel management regarding a single Legionnaires' disease case possibly associated with the hotel

Dear Hotel Management:

It has come to our attention that a recent guest of your hotel has been diagnosed with Legionnaires' disease. Legionnaires' disease is a serious form of pneumonia caused by *Legionella* bacteria, which can live in water. We are providing this letter to you for your information only. It is important to note that the source of the guest's illness has not been determined, and this letter does not implicate your facility. Information about Legionnaires' disease is available at www.cdc.gov/legionella.

It is possible that other guests will contact you because they know of other people with Legionnaires' disease or because they believe that they have had Legionnaires' disease. **Please let us know immediately if you are informed of other cases related to your hotel and whether the guests were local, out-of-state, or international.**

You may wish to review your water maintenance procedures to help minimize future risk. The CDC *Legionella* Water Management Program toolkit will be a useful resource for you: www.cdc.gov/legionella/wmptoolkit.

Hotel hot tubs, whirlpools, and showers have been sources of Legionnaires' disease outbreaks. People can get Legionnaires' disease when they breathe in mist (small droplets of water in the air) containing *Legionella*. One example might be from breathing in the mist from a hot tub that has not been properly cleaned and disinfected. In general, the bacteria do not spread from one person to another person.

Legionella is common in the environment and can persist unless proper steps are taken to reduce the risk for it. There are currently no legal restrictions or actions required for this specific situation. However, we are informing you to ensure that you have updated information to help you minimize the risk of *Legionella* in your buildings' water systems.

We are here to answer your questions and to make your hotel safe and comfortable for your guests. Please do not hesitate to call us at **[insert HD contact information]**.

Sincerely,

Thank you for participating in the on-site meeting [REDACTED] on [REDACTED] with [REDACTED] [REDACTED] regarding your water management program and assessment for *Legionella*. We appreciate all the steps that you have taken to date regarding surveillance and assessment activities.

Case Identification

- Should any guests or staff report respiratory illness or pneumonia either during or following a stay at your facility, please share that information with Public Health Epidemiology (c/o [REDACTED] [REDACTED]). Epidemiology can investigate further to determine if the illness is consistent with *Legionella*.
- Public Health at the local, state, and national level will continue to monitor *Legionella* cases for reports of travel during the incubation period, and will notify you if any other cases are identified as possibly associated with your facility.

Environmental Assessment and Management Program Activities

- It is important to move forward with technical assessment of the water distribution system for the facility [REDACTED] [REDACTED].
- **Please consult with a premise plumbing engineer or industrial hygienist with expertise in remediation for and control of *Legionella* by [REDACTED].**
- Your consultant should conduct an on-site technical assessment of the hot water distribution system, cold water distribution system, and any other plumbed water features at the facility. That assessment should be conducted in the context of a *Legionella* investigation, and should therefore identify any features of the water system with the potential to enable *Legionella* growth, biofilm presence, and *Legionella* exposure.
- Upon completion of the technical assessment, the contractor should develop a sampling plan for *Legionella*. We request that the sampling plan be submitted for Public Health review [REDACTED] [REDACTED] prior to sample collection to ensure that the sampling plan is appropriate for public health purposes. The sampling plan should be submitted by [REDACTED].
- Test for *Legionella* throughout your facility in conjunction with an ELITE laboratory. **It is important to have water samples collected by someone experienced with testing for *Legionella*.** Your contracted engineer, the ELITE laboratory, or [REDACTED] should be able to help with this. [REDACTED] [REDACTED]
- Please share all environmental test results with Public Health Epidemiology (c/o [REDACTED] [REDACTED] within two business days of receipt from the testing laboratory.
- Should *Legionella* be detected, it is important to conduct emergency remediation of your water distribution system. Thermal eradication or shock chlorination should be conducted as soon as possible. After emergency remediation has been conducted, long-term management activities can

be implemented. Please consult with your contracted environmental engineer for assistance with both emergency and long-term *Legionella* remediation.

- Conduct testing for free chlorine throughout your facility, including at the point of introduction from the municipal water source. The free chlorine residual should be greater than or equal to 0.5 ppm throughout the system to prevent *Legionella* growth. The EPA maximum residual disinfectant level for chlorine is 4 ppm.¹
- Monitor temperatures throughout your facility, including at the point of introduction from the municipal water source. Cold water should circulate throughout the entire cold water distribution system at temperatures equal to or lower than 68°F to prevent *Legionella* growth. Hot water should circulate throughout the entire hot water distribution system at temperatures equal to or greater than 125°F to prevent *Legionella* growth.²
- *Legionella* growth and proliferation can be prevented through multiple mechanisms. Measures must be undertaken to prevent *Legionella* in both the hot water distribution system and the cold water distribution system. Prevention efforts may be different for each system depending on what works best for your facility. These efforts should be incorporated into the water management program. ***Legionella* prevention activities should be determined in conjunction with your contracted technical advisor.**
- Incorporate flushing of low-use fixtures into your water control and management plan, where not already included. Include any emergency water systems as they are likely to be low-use. Additional recommendations for the water control management plan are available in the CDC toolkit and ASHRAE Standard 188-2015.^{3 4}

Communication

Thank you again for your communication to date. We will move forward with communication via email and will schedule conference calls to review ongoing activities as-needed. Please feel free to reach out to Public Health Epidemiology (c/o [REDACTED]) if you have any questions. [REDACTED] are happy to coordinate with your facility regarding any public communications or requests, as well.

Sincerely,

[REDACTED]

References

1. EPA: Comprehensive Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2): Quick Reference Guide <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100C8XW.txt>
2. OSHA Technical Manual Section III: Chapter 7 https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_7.html
3. CDC: Developing a Water Management Program to Reduce *Legionella* Growth and Spread in Buildings <http://www.cdc.gov/legionella/downloads/toolkit.pdf>
4. ASHRAE Standard 188-2015. Legionellosis: Risk Management for Building Water Systems. (2015)



01

STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
OFFICE OF LEGAL AND REGULATORY SERVICES
BUREAU OF GENERAL COUNSEL

Jeffrey A. Meyers
Commissioner

Melissa A. St. Cyr, Esq.
Chief Legal Officer

129 PLEASANT STREET, CONCORD, NH 03301-3857
603-271-9226 1-800-852-3345 Ext. 9226
Fax: 603-271-5590 TDD Access: 1-800-735-2964
www.dhhs.nh.gov

ORDER TO NOTIFY GUESTS AND REMEDIATE BUILDING

TO: [REDACTED], Owner, [REDACTED]

ADDRESS: [REDACTED]

The New Hampshire Department of Health and Human Services ("DHHS") has identified an outbreak of Legionella among individuals who stayed at the [REDACTED], New Hampshire beginning in July 2018. Legionella is a communicable disease that may adversely impact public health. People may be exposed to Legionella when they inhale aerosolized water droplets containing bacteria. Legionella can grow in water systems in the premise plumbing of large buildings (hot water heaters, storage tanks, and pipes), cooling towers, air conditioning systems, decorative fountains and hot tubs. The "premise plumbing system" is the portion of the water distribution system from the water meter to the tap in homes and buildings.

In accordance with NH RSA 141-C:9, I, the Commissioner of DHHS may investigate incidents of communicable disease. These investigations shall include, but not be limited to, inspections of buildings and conveyances and their contents and laboratory analysis of samples collected during the course of such inspections. This week, a number of samples were collected from several locations at [REDACTED] by the Centers for Disease Control working in support of the Department's investigation of a Legionella outbreak in [REDACTED]. Additionally, pursuant to NH RSA 141-C:11-16, the Commissioner of DHHS may take actions necessary to protect public health, including the decontamination of your buildings at [REDACTED]. See RSA 141-C:16-a, I.

Whereas to date nine individuals who have stayed at your property since July 2018 have been diagnosed with Legionnaires' Disease, and whereas preliminary testing at the Centers for Disease Control and Prevention has detected the presence of Legionella bacteria DNA in your establishment's hot tub, water heater, outdoor shower hose, and on the shower/sink heads in three guest rooms, DHHS orders you to take the following actions:

1. Immediately post signage, to be provided by the Department, notifying guests and visitors of the Legionella outbreak occurring at your establishment. This signage must be visible to all persons at all entries to the premises and at the registration desk.
2. Immediately notify all guests at the time of check-in, using documents provided by the Department, of the Legionella outbreak occurring at your establishment. We suggest you retain documentation that each notification was made.
3. Immediately notify all guests at the time of reservation (all forms including phone, internet, and in-person), using documents and exact wording provided by the Department, of the Legionella outbreak occurring at your establishment.
4. Within 48 hours of this order, hire at your own expense the services of a Legionella consultant or environmental consulting firm to conduct an assessment and initiate remediation actions within 24 hours of hire.
5. Within 24 hours of hire, have an assessment performed by the consultant and provide the Department with a written summary of actions taken toward remediation at least every 48 hours.
6. Perform ongoing Legionella testing to confirm remediation and report results to the Department as they become available.

This order will be in effect until DHHS is satisfied with remediation steps at [REDACTED] to decrease transmission of Legionella bacteria to the public.

If you object to this Order, you may request a hearing in the superior court in accordance with RSA 141-C:14-a. You may make this request by filling out the form attached to this Order. Once you have completed the form, the law enforcement official or other person who delivered this order or a representative of DHHS will promptly deliver the form to the Superior Court. The court will then schedule a hearing to review this order.

Questions regarding this order may be directed to [REDACTED] Chief, Bureau of Infectious Disease, Department of Health and Human Services, Tel. [REDACTED]

[REDACTED]
Jeffrey A. Meyers, Commissioner
New Hampshire Department of Health and Human Services

[REDACTED]
Date

I hereby certify that this order was served in-hand to the above-named individual and upon the establishment of [REDACTED] on

[REDACTED] at [REDACTED] a.m./p.m.

[REDACTED]
Signature of Person Serving Order

THE STATE OF NEW HAMPSHIRE

_____, SS
Name of County

SUPERIOR COURT

**REQUEST FOR SUPERIOR COURT HEARING UNDER RSA 141-C:14-a TO REVIEW
ORDER TO COOPERATE WITH THE ORDER TO NOTIFY GUESTS AND REMEDIATE
BUILDING**

Name: _____

Address: _____

Telephone Number: _____

NH RSA 141-C:14-a, I provides that: "Any person subject to an order for submission of a specimen or for examination, immunization, treatment, isolation, quarantine, **provision of information**, inspection of a building or conveyance, **or any other order** of the commissioner under this chapter ...may request a hearing in the superior court to contest such order."

My property, located at _____ is subject to an Order to Notify Guests and Remediate Building by the NH Department of Health and Human Services (DHHS) pursuant to RSA 141-C:12.

I hereby request a hearing in the superior court to contest this order.

I understand that I have the right to a hearing and a decision by the Court within 48 hours but no later than 120 hours after the time this request for a hearing is made.

I understand that if I sign this request and return it to the person serving the order, they must file it with the court under RSA 141-C:14-a, II. If I do not return it to the person serving me, I understand that I must file it with the court and provide notice to DHHS as provided below.

Signature of Person Requesting Hearing

Date and Time of Signature

I have served notice of this request for hearing on the Commissioner of the NH Department of Health and Human Services/Legal Unit, 129 Pleasant Street – Brown Building, Concord, NH 03301 and to the NH Department of Justice, 33 Capitol Street, Concord, NH 03301.

Date: _____

Signature of Person requesting hearing

TITLE X

PUBLIC HEALTH

CHAPTER 141-C

COMMUNICABLE DISEASE

Section 141-C:16-a

141-C:16-a Closure; Decontamination. –

I. The commissioner, with the written approval of the governor, may close, direct, and compel the evacuation and decontamination of any building located within the state that is accessible to the public, such as businesses, primary and secondary schools, and universities, regardless of whether publicly or privately owned, when there is reasonable cause to believe the building may present an imminent danger to the public health. The commissioner may also cause any material located within or on the grounds of a building to be decontaminated or destroyed when there is reasonable cause to believe that the material may present imminent danger to the public health. Destruction of any material under this chapter shall be considered a taking of private property and shall be subject to the compensation provisions of RSA 4:46.

II. Notice shall be made by posting notice on all means of ingress or egress of the building and, within 24 hours of posting, mailing the notice, return receipt requested, to the owner of record. The notice shall state the reason for the action and its anticipated duration.

III. Orders issued pursuant to this section shall be effective immediately and shall remain in effect in accordance with this section unless the superior court issues a decision directing otherwise. Any person who is aggrieved by an order pursuant to this section may request a hearing in the superior court to contest that order. The superior court shall schedule and hold a hearing and issue a decision within 5 working days of the court's receipt of the request for a hearing, unless a shorter period is required for review. At the hearing, the burden of proof shall be on the commissioner to prove by clear and convincing evidence that the action taken is reasonably necessary to protect the health of the public.

IV. Orders issued under this section shall be subject to the due process provisions of RSA 141-C:14-a.

Source. 2002, 258:22. 2008, 336:1, eff. July 7, 2008.



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE

Mary T. Bassett, MD, MPH

Commissioner

ORDER OF THE COMMISSIONER

TO: ALL PERSONS WHO OWN, MANAGE OR OTHERWISE CONTROL BUILDINGS WITH WATER-RECIRCULATING COOLING TOWERS WITHIN THE CITY OF NEW YORK

Respondents.

WHEREAS, during July and August 2015, the New York City Department of Health and Mental Hygiene (the “Department” or “DOHMH”) received multiple reports of legionellosis, a communicable disease reportable to the Department pursuant to §11.03 of the New York City Health Code (the “Health Code”) and §2.1 of the New York State Sanitary Code [10 N.Y.C.R.R. Part 2] (the “Sanitary Code”), occurring in persons residing in South Bronx who may have been exposed to aerosolized water containing *Legionella* organisms from the above referenced cooling tower; and

WHEREAS, samples taken by DOHMH from several cooling towers in the vicinity of the residences of people who have developed Legionellosis detected *Legionella* organisms at concentrations the Department has determined may present public health risk; and

WHEREAS, pursuant to § 11.03 of the Health Code, the Department is authorized “to...take such steps as may be necessary to prevent morbidity and mortality” from such communicable disease; and

WHEREAS, pursuant to Health Code § 3.07, “no person shall do or assist in any act which is or may be detrimental to the public health or to the life or health of any individual...or fail to do any reasonable act or take any necessary precaution to protect human life and health.”

IT IS HEREBY ORDERED, pursuant to Health Code § 3.09, upon service of this Order that you shall take the following actions and provide the Department with the following documents:

- (1) Obtain the services of an environmental consultant with demonstrated experience performing disinfection in accordance with current standard industry protocols including, but not limited to, American Society of Heating, Refrigeration

and Air-Conditioning Engineers (ASHRAE) Standard 188P and Cooling Technology Institute Guidelines WTB-148; and

(2) Under supervision of the environmental consultant, evaluate the cooling tower and associated equipment for the presence of organic material, biofilm, algae and other visible contaminants; and

Regardless of the outcome of the evaluation required by item (2) above, direct the environmental consultant to carry out a disinfection/treatment sufficient to remove organic material, biofilm, algae and other contaminants and disinfect in a manner sufficient to control for the presence of *Legionella* organisms within 14 days of receipt of this letter; and

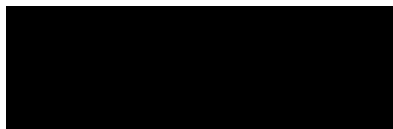
(3) Maintain records on-site of the consultant's inspection and remediation, and make them available upon request to the City of New York in person, or by fax or email as requested.

(4) If an identical assessment and any disinfection procedure has been conducted at this building within the past 30 days, in lieu of the items ordered in numbers 1-3, above, maintain records on-site of the consultant's inspection and remediation, and make them available upon request to the City of New York in person, or by fax, or email as requested.

For information about how to comply with this Order, you may contact 311 or go to <http://www.nyc.gov/html/doh/html/diseases/cdlegi.shtml>.

If you wish to contest (object to) the order, please write or fax [REDACTED], General Counsel, New York City Department of Health and Mental Hygiene, 42-09 28th Street (WS 14-38) Long Island City NY 11101-4132; [REDACTED]@health.nyc.gov telephone: [REDACTED]; fax: [REDACTED], within three business days of receiving the order, and provide a statement of the reasons for your objection to the order.

Dated: August 6, 2015



Mary T. Bassett, MD MPH
Commissioner

WARNING

Failure to comply with an Order of the Commissioner is a violation of the Health Code and a misdemeanor for which you may be subject to civil and criminal penalties, including fines, forfeitures and imprisonment.

**Department
of Health**

Mike DeWine, Governor
Jon Husted, Lt. Governor

Amy Acton, M.D., MPH, Director

In Re: Response to Legionella Outbreak**DIRECTOR'S ADJUDICATION ORDER**

I, Amy Acton, MD, MPH, Director of the Ohio Department of Health (ODH), pursuant to R.C. 3701.14 shall investigate or make inquiry as to the cause of disease or illness, including contagious, infectious, epidemic, pandemic, or endemic conditions, and take prompt action to control and suppress it. To this end, "The department of health shall have supervision of all matters relating to the preservation of the life and health of the people..." R.C. 3701.13. Further, "The department may make special or standing orders or rules...for preventing the spread of contagious or infectious diseases...." R.C. 3701.13.

The Franklin County Public Health ("Franklin County") has documented six (6) cases of Legionnaires' disease (LD) from May 12, 2019 to date. These cases include patients of the [REDACTED] healthcare facility located at [REDACTED], Ohio. ODH and Franklin County investigated and found the following:

1. On May 31, 2019, ODH identified a cluster of LD cases associated with obtaining treatment at [REDACTED]. ODH and Franklin County contacted [REDACTED] regarding these cases.
2. LD is serious type of pneumonia caused by the bacterium *Legionella pneumophila*. According to the Centers for Disease Control and Prevention, LD has a twenty-five percent mortality rate when acquired in a healthcare facility.
3. [REDACTED] operates a [REDACTED]-bed, [REDACTED]-floor facility in [REDACTED] Ohio that opened on [REDACTED]. The first LD case stayed at the facility between April 29, 2019 through May 7, 2019. Five subsequent cases stayed at the facility from May 8 through May 20, 2019. Onset dates of LD cases ranged from May 12, 2019 to May 29, 2019 and were confirmed through urine antigen testing.
4. [REDACTED] has provided information on disinfection of water lines prior to the initially planned opening in February 2019 but was unable to confirm that additional disinfection of the water systems was performed prior to opening of the facility on April 28, 2019. On May 31, 2019, [REDACTED] provided verbal information on water testing for *Legionella* on the [REDACTED] floor, and the [REDACTED] Department that occurred between the dates of May 23, 2019 to present. Initial test results confirmed the presence of *Legionella* at 20 colony forming units (cfu) on the [REDACTED] floor and the detection of *Legionella* through PCR testing in the [REDACTED] Department.

5. Via conversation with [REDACTED] on May 31, 2109, ODH advised that the facility immediately flush all hot and cold water lines and fixtures throughout the entire facility, implement immediate remediation practices to disinfect the hot and cold water lines and fixtures, test and clean all ice machines, ensure the two on-site cooling towers are cleaned and serviced, provide testing results, their water management plan, and related facility information. ODH informed [REDACTED] of the CDC recommendations for remediation and immediate control measures to implement during an outbreak.

Accordingly, based on the information gathered to date by Franklin County, disease surveillance by ODH, and information shared with ODH by [REDACTED] representatives, I hereby **ORDER** [REDACTED] to immediately flush all hot and cold water lines and fixtures throughout the entire facility, to implement immediate remediation measures, including but not limited to thermal or chemical disinfection, notify all employees, visitors, and patients of the outbreak of LD, and implement water restrictions to prevent exposure to aerosols upon receipt of this order until all actions listed above are implemented and Legionella is no longer present in the hot and cold water distribution systems. On May 31, 2019, [REDACTED] representatives indicated that the facility is or will be immediately be implementing the actions detailed above. If [REDACTED] fails to immediately implement the actions detailed above, the facility shall not admit new patients.

[REDACTED]
Amy Acton, MD, MPH
Director of Health

[REDACTED]
Date



WACO-McLENNAN COUNTY
Public Health District

04

Waco-McLennan County Public Health District

225 W. Waco Drive, Waco, Texas 76707

Phone 254-750-5492

Fax: 254-750-5405

Order of Control Measures on Property

Date: August 18, 2017

To: [REDACTED] Owner

Property: [REDACTED]

Purpose: To minimize the probability of additional cases of infection with Legionella Bacteria

Pursuant to Texas Health & Safety Code § 81.084, I, the Local Health Authority for the Waco-McLennan County Public Health District (WMCPHD) hereby issues this order imposing the control measures listed in Exhibit "A" on the Property.

Based on information and belief, you are the owner of the [REDACTED] property located at [REDACTED]

This order is being issued based on reasonable cause to believe that the property is or may be infected or contaminated by a communicable disease that could constitute a threat to the public health.

You are hereby ordered to authorize entry to and submit the property to investigation by the Local Health Authority. The property at issue may not be moved, caused to move, or allowed to move from its current location until authorization is received from the WMCPHD and the Local Health Authority.

Additional information regarding any technically feasible control measures to be implemented will be provided to you in a timely manner.

If you have any questions, information, or concerns or if you are not the owner, person in control, or registered agent for the property, please contact [REDACTED] at [REDACTED]

Failure to abide by this order and further instructions from the WMCPHD and/or the Local Health Authority may result in criminal penalties and/or further legal action.

This order is issued under my authority as the Local Health Authority for the Waco-McLennan County Public Health District on this the 18th day of August, 2017.

[REDACTED]

E. Farley Verner, M.D.
Local Health Authority, Waco-McLennan County Public Health District

City of Bellmead

City of Beverly Hills

City of Bruceville-Eddy

City of Crawford

City of Gholson

City of Golluda

City of Hallsburg

City of Hewitt

City of Lacy-Lakeview

City of Leroy

City of Lorena

City of Mart

City of McGregor

City of Moody

City of Riesel

City of Robinson

City of Ross

City of Waco

City of West

City of Woodway

McLennan County

EXHIBIT "A"

To minimize the likelihood of additional infection of residents, employees, or visitors to [REDACTED] with the infectious agent that causes Legionnaire's Disease (*Legionella pneumophila*), the following control measures shall be instituted:

- I. Administrative Control Measures
 - A. Immediately notify [REDACTED] via email [REDACTED] if [REDACTED] is unable to comply with any component of the Control Order(s).
- II. Disease Surveillance Control Measures
 - A. Immediately notify the WMCPhD via the 24/7 Diseases Reporting Line 254-750-5411 of any suspected or confirmed cases of Legionellosis and any known guests, staff, volunteers, and/or regular visitors exhibiting any symptoms compatible with *Legionella* infection.
- III. Notification:
 - A. Immediately provide the attached Public Health Information Bulletin to all employees and visitors of [REDACTED]
 - B. The information contained in the Public Health Information Bulletin shall be communicated to all guests with current reservations and any guests with reservations prior to October 18, 2017 at the property.
 - C. The Public Health Information Bulletin shall be posted on the front entrance to the property, placed within view of the public at the front desk, and a copy shall be provided to all guests at check-in.
 - D. The information contained in the Public Health Information Bulletin shall be provided to all guests that resided at the property between August 4-18, 2017. Records of this notification shall be provided to the WMCPhD.
- IV. Environmental Health Control Measures
 - A. Testing of water systems for Legionella
 1. Provide results of all water testing to the WMCPhD within one business day of receipt, via email to [REDACTED]
 - B. Inspection of Water Supply Systems Within Facility
 1. Retain the services of an environmental consultant who is both (1) able to develop and implement an ASHRAE 188-compliant water management program and (2) capable of Legionella environmental testing at an ELITE-certified lab (or able to subcontract with such a lab.) The chosen consultant must be reviewed and approved by WMCPhD prior to conducting any inspections or services. **Compliance deadline is Friday, August 25, 2017.**
 2. Increase the temperature of all five hot water heaters to a minimum of 140°F, following local and state anti-scald regulations. **Compliance deadline is Friday, August 25, 2017.**
- V. Additional Control Measures
 - A. Additional control measures may be required based on lab results from water sampling that was conducted on August 8, 2017, and/or based on any future findings from the development of a water management plan.

Public Health Notice to Guests

Dear Guest(s):

The Waco-McLennan County Public Health District (WMCPHD) has been notified by the Texas Department of State Health Services and the Centers for Disease Control and Prevention (CDC) of guests who stayed at [REDACTED] over the last year and were diagnosed with Legionnaires' disease.

[REDACTED] is cooperating with WMCPHD and is participating in an investigation by WMCPHD to identify possible risks of *Legionella* bacteria growth in the hotel's water system. Numerous water samples were taken from the hotel and are undergoing tests in order to determine the possible source(s) of the water contamination. The results of these tests are still pending. The investigation is still in progress and we are proactively working with WMCPHD towards a solution for remediation of this issue to provide safe water to our guests.

Legionnaires' disease is a form of pneumonia caused by *Legionella* bacteria. The risk of developing Legionnaires' disease is low, but it occurs more frequently in the elderly, those who smoke, and in individuals that are at higher risk of infection; such as those with a chronic illness, respiratory disease, or compromised immune system. The infection is caused by breathing in a mist or vapor containing the *Legionella* bacteria. It is not contagious and almost never spreads from person to person. Most cases are successfully treated with antibiotics. Symptoms include high fever, chills, cough, fatigue, muscle aches, and headaches. These symptoms usually begin 2-14 days after being exposed. If you have developed any combination of these symptoms, we strongly encourage you to see your doctor.

[REDACTED] will continue with WMCPHD to take appropriate actions to protect the health of guests and employees and to disinfect the hotel's water system. In the meantime, the following measures may help prevent potential infection during your stay with us:

- Showering can be associated with an increased risk of infection. Please consider taking a bath instead.
- Please refer to the attached fact sheet to determine your risk of acquiring Legionnaires' disease. If you have one or more of the risk factors outlined in the fact sheet, please consider rescheduling your visit with us.
- If you have special concerns about your risk for this infection, you are welcome to use bottled water for hygiene practices or drinking water.

If you become ill within 14 days of your stay at [REDACTED] please refer to the attached fact sheet regarding the symptoms of this illness and seek medical attention if you become symptomatic. If you experience symptoms of Legionnaires' disease, please provide your physician this information and ask him or her to contact the WMCPHD at 254-750-5411 to obtain further instruction on how to report your illness as soon as possible after your diagnosis. Also, please share this information with others who stayed in your room during your visit to [REDACTED]

Additional information on *Legionella* is available from the CDC website at <https://www.cdc.gov/legionella/downloads/fs-legionnaires.pdf>.

If you have any concerns or questions, please contact the WMCPHD at 254-750-5411.

Sincerely,

**MODIFICATION TO
Order of Control Measures on Property**

Issued on August 18, 2017

Date: September 28, 2017

To [REDACTED]

Property: [REDACTED]

Purpose: To minimize the probability of additional cases of infection with Legionella Bacteria

Pursuant to Texas Health & Safety Code § 81.084, I, the Local Health Authority for the Waco-McLennan County Public Health District (WMCPHD) hereby issues this MODIFIED order, imposing the control measures listed in Exhibit "A" on the Property.

Based on information and belief, you are the owner of the [REDACTED]

This order is being issued based on reasonable cause to believe that the property is or may be infected or contaminated by a communicable disease that could constitute a threat to the public health.

You are hereby ordered to authorize entry to and submit the property to investigation by the Department of State Health Services and/or the Local Health Authority. The property at issue may not be moved, caused to move, or allowed to move from its current location until authorization is received from the Department of State Health Services or Local Health Authority.

Additional information regarding any technically feasible control measures to be implemented will be provided to you in a timely manner.

If you have any questions, information, or concerns or if you are not the owner, person in control, or registered agent for the property, please contact WMCPHD at WacoEpi@wacotx.gov.

Failure to abide by this order and further instructions from the WMCPHD and/or the Local Health Authority may result in criminal penalties and/or further legal action.

This MODIFIED order is issued under my authority as the Local Health Authority for the Waco-McLennan County Public Health District on this the 28 day of September, 2017.

[REDACTED]

Farley E. Verner, M.D.

Local Health Authority, Waco-McLennan County Public Health District

City of Bellmead

City of Beverly Hills

City of Bruceville-Eddy

City of Crawford

City of Ghoslon

City of Gollinda

City of Hallsburg

City of Hewitt

City of Lacy-Lakeview

City of Leroy

City of Lorena

City of Mart

City of McGregor

City of Moody

City of Riesel

City of Robinson

City of Ross

City of Waco

City of West

City of Woodway

McLennan County

EXHIBIT "A"

To minimize the likelihood of 1) additional infection of residents, employees, or visitors to [REDACTED] the infectious agent that causes Legionnaire's Disease (*Legionella pneumophila*), and 2) the building's water system becoming contaminated with *Legionella pneumophila*, the following control measures shall be instituted:

I. Administrative Control Measures

- A. Immediately notify the Epidemiology Program at WMCPHD via email (WacoEpi@wacotx.gov) if [REDACTED] is unable to comply with any component of the Control Order(s)

II. Disease Surveillance Control Measures

- A. Immediately notify the WMCPHD via the 24/7 Diseases Reporting Line 254-750-5411 of any suspected or confirmed cases of Legionellosis and any known guests, staff, volunteers, and regular visitors exhibiting any symptoms compatible with *Legionella* infection.

III. Environmental Health Control Measures

A. Inspection of Water Supply Systems Within Facility

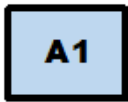
1. The hotel's water system shall be tested for *Legionella pneumophila* according to the Water Management Plan devised by [REDACTED] to verify the effectiveness of treatment on the hotel's water system. Said water management program shall require routine testing for *Legionella pneumophila* using culture methods, said routine testing shall be performed at least quarterly, and said Program shall remain in place through the termination date of this Order.
 - If the hotel's contract with [REDACTED] terminates early for any reason, then immediately implement and maintain an ASHRAE 188-compliant water management program with another environmental consultant who is capable of *Legionella* environmental testing at an ELITE-certified lab (or who is able to subcontract with such a lab.) Said water management program shall require routine testing for *Legionella pneumophila* (using culture methods), said routine testing shall be performed at least quarterly, and said Program shall remain in place through the termination date of this Order.
2. At a minimum, each routine set of tests shall include a representative sample of the building's water system including but not limited to the following locations:
 - Distal, mesial, and proximal locations from the hot water heaters
 - Hot water heaters
 - Hot tub
3. Provide results of all water testing to the WMCPHD (via email to the Epidemiology Program (WacoEpi@wacotx.gov)) within one business day of the hotel's receipt of said results.
4. Inform WMCPHD within one business day of all remediation measures via email to the Epidemiology Program (WacoEpi@wacotx.gov).

IV. Notification:

- A. As of Thursday, September 28, 2017 at 11:30 am, [REDACTED] does not need to provide a Public Health Information Bulletin to employees or guests
- B. If water samples collected from the hotel's water system test positive for *Legionella pneumophila* at any time, appropriate remediation measures should be put in place and this Order may be further modified.

V. Completion of Control Order

When all components of this Order have been satisfied and in the absence of any additional lab confirmed cases of Legionellosis, this Control Order will terminate, effective August 31, 2020. A new or amended control order may be issued if a new report of a lab-confirmed case that is epidemiologically linked to [REDACTED] is received by WMCPHD.



Call for Cases: Legionnaires' Disease Associated With Travel to Hampton, New Hampshire -- 2018

The New Hampshire Department of Health and Human Services is investigating four cases of Legionnaires' disease in Hampton, New Hampshire. Health departments are asked to report cases with travel to this area within 14 days of illness onset.

Description:

The New Hampshire Department of Health and Human Services (NH DHHS) is investigating four cases of Legionnaires' disease who likely acquired *Legionella* at the end of July or early August in the area of Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire. Additional potential cases are under investigation.

The four confirmed cases report overnight stays at three different locations on Ashworth Avenue in Hampton, New Hampshire. Illness onset dates range from July 25 – August 7, 2018. All patients' illnesses were confirmed by *Legionella* urinary antigen testing. Three cases were hospitalized and no deaths have been reported. NH DHHS is currently working to identify the source of these infections.

Whenever possible, diagnostic testing of travelers with community-acquired pneumonia should include collection of urine for antigen testing and lower respiratory specimens for culture of *Legionella*. Clinical *Legionella* isolates are valuable for comparison with environmental isolates while conducting investigations.

The NH DHHS is requesting that state and local health departments examine reports of suspected or confirmed cases of legionellosis to determine whether any could be associated with travel to Hampton, New Hampshire since June 1st, 2018.

Public health officials who identify suspected or confirmed cases of Legionnaires' disease or Pontiac fever among persons with a similar travel history and illness onsets within 14 days of travel are asked to contact the New Hampshire Bureau of Infectious Disease Control at 603-271-4496.

Update: Legionnaires' Disease Associated With Travel to Hampton, New Hampshire -- 2018

The New Hampshire Department of Health and Human Services continues to investigate cases of Legionnaires' disease in people who visited Hampton, New Hampshire this summer. Health departments are asked to report cases with travel to Hampton, New Hampshire within 14 days of illness onset.

Description:

The New Hampshire Department of Health and Human Services (NH DHHS) continues to investigate cases of Legionnaires' disease who likely acquired *Legionella* in June to August 2018 in Hampton, New Hampshire. Currently, there are 14 cases associated with this outbreak and additional potential cases are under investigation. Illness onset dates range from June 14 – August 24, 2018. All patients' illnesses were confirmed by *Legionella* urinary antigen testing. Twelve cases were hospitalized and one died. NH DHHS and partners continue to work to identify the source of these infections.

The 14 confirmed cases report overnight stays at several different locations in a small area of Hampton Beach, New Hampshire. However, more than half report staying at the [REDACTED], Hampton, NH. NH DHHS is sending notification letters to guests who are known to have stayed at this property since August 3, 2018 based on hotel records. Guests reside in 17 states (AZ, CA, CT, FL, IL, MA, ME, NE, NH, NJ, NY, OH, PA, RI, UT, VA, VT) and Canada. Investigation of any suspected illness identified through this notification will be communicated and coordinated with the respective state or provincial health department.

Testing patients for *Legionella* should be considered in individuals who present with a community-acquired pneumonia with onset of illness within 14 days of travel away from home; testing for *Legionella* should include collection of urine for antigen testing and collection of lower respiratory specimens for *Legionella* culture. Clinical *Legionella* isolates are valuable for comparison with environmental isolates while conducting investigations.

The NH DHHS is requesting that state and local health departments examine reports of suspected or confirmed cases of legionellosis to determine whether any could be associated with travel to Hampton, New Hampshire since June 1st, 2018.

Public health officials who identify suspected or confirmed cases of Legionnaires' disease or Pontiac fever among persons with a similar travel history and illness onsets within 14 days of travel are asked to contact the New Hampshire Bureau of Infectious Disease Control at 603-271-4496 or email at nhbidc@dhhs.nh.gov.

Distributed by the NH Health Alert Network
Health.Alert@nh.gov
August 25, 2018 0800 EDT
NH-HAN 20180825



Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.

Cluster of *Legionella pneumophila* Pneumonia (Legionnaire's Disease) Associated with an area of Ashworth Avenue in Hampton, NH

Key Points and Recommendations:

1. The New Hampshire Division of Public Health Services (DPHS) has confirmed four patients with *Legionella* pneumonia (also known as Legionnaire's Disease) associated with Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire.
2. These four cases likely acquired disease in late July or early August, based on clinical symptoms and the incubation period of *Legionella* bacteria.
3. NH DPHS is working with the Department of Environmental Services (DES) to identify potential sources of exposure and mitigate risk of additional cases.
4. Health care providers should consider *Legionella* infection when evaluating community-acquired pneumonia and ask patients about travel (including local travel) in the 10 days prior to symptom onset.
5. Diagnostic testing for *Legionella* infection should include both urine antigen and culture of respiratory specimens. The New Hampshire Public Health Laboratories is available to support testing.
6. While the investigation is underway, in an abundance of caution, DPHS has recommended that people who are at increased risk for severe disease from *Legionella* may consider postponing their visit to the area of Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire. People who are at increased risk include those who are older than 50, who have chronic respiratory disease, or who have a weakened immune system.
7. Healthcare providers should report suspected and confirmed cases of *Legionella* infection to the Bureau of Infectious Disease Control at 603-271-4496 (after hours 603-271-5300).

Background

The NH Division of Public Health Services (DPHS) has been notified of four patients with *Legionella pneumophila* pneumonia (Legionnaire's Disease) and has discovered that all four had traveled to the area of Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire during the last week of July and first week of August, which is consistent with the incubation of *Legionella*. NH DPHS is also actively investigating additional suspect cases and is working closely with the Town of Hampton and the Department of Environmental Services to identify and mitigate the possible environmental source.

Legionella bacteria are aerobic, gram-negative, intracellular pathogens that are commonly found in water and soil. Human infection is typically acquired through inhalation of contaminated aerosols. Most *Legionella* infections are sporadic; however, outbreaks can occur and are often

associated with exposure to communal water supplies in large facilities such as hospitals, hotels, hot tubs, or apartment buildings. Prior outbreaks have also identified water or cooling towers as sources of *Legionella* bacteria.

The two major clinical syndromes caused by *Legionella pneumophila* are Legionnaires' disease (pneumonia) and Pontiac fever; the latter being an acute, nonspecific, self-limited febrile illness. Legionnaire's disease is a pneumonia characterized by fever, cough, shortness of breath, muscle aches, headaches, and pulmonary infiltrates consistent with pneumonia. Illness typically is severe enough to require hospitalization and has an up to 10% fatality rate. Symptoms develop 2-14 days following exposure to an environmental source. Because of the self-limited and nonspecific nature of Pontiac fever, the epidemiology and pathogenesis of this disease have not been well characterized.

Legionella species are estimated to cause about 2-10 percent of cases of community acquired pneumonia, with over 75% of cases occurring in adults >50 years old. In addition to older age, risk factors for Legionnaires' disease include smoking, chronic respiratory disease, diabetes mellitus, and other immunocompromising conditions.

From 2013 - 2017, DPHS received an average of 32 cases of *Legionella* pneumonia each year, with more cases generally occurring in the months of July and August. Nationally there has been an increase in cases since 2000. This may be a true increase in the frequency of disease due to several factors (e.g., older U.S. population, more at-risk people, plumbing infrastructure, or climate change) or partially attributed to increased use of diagnostic testing or better disease reporting. There are more cases of *Legionella* diagnosed in mid-late summer months' due seasonality of exposures (e.g., cooling units, water sources).

Laboratory Diagnosis and Treatment

Diagnostic tests include urine antigen testing (although this test only detects *L. pneumophila* serogroup 1, accounting for 70-80% of infections) and culture of sputum or bronchoalveolar lavage fluid for *Legionella*. Culture requires special culture media (Buffered Charcoal Yeast Extract medium), which is not always routinely available. Respiratory specimens should be collected prior to antibiotic administration, if possible. The NH Public Health Laboratories can support providers with *Legionella* culture. Laboratory testing can be arranged by calling the Bureau of Infectious Disease Control at 603-271-4496 (after hours 603-271-5300). For patients with compatible or confirmed illness, treatment with azithromycin or levofloxacin is recommended.

Additional Resources

Centers for Disease Control and Prevention (CDC) Frequently Asked Questions:

<https://www.cdc.gov/legionella/qa-media.html>

CDC Materials for Providers: <https://www.cdc.gov/legionella/clinicians.html>

CDC Materials for Diagnosis, Testing, treatment, and prevention:

<https://www.cdc.gov/legionella/clinicians/diagnostic-testing.html>

NH DHHS-DPHS
NH-HAN #20180825 Legionella in Hampton

For any questions regarding the contents of this message, please contact NH DHHS Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345 ext. 5300).

To change your contact information in the NH Health Alert Network, contact [REDACTED] at [REDACTED] or email [REDACTED].

Status: Actual
Message Type: Alert
Severity: Moderate
Sensitivity: Not Sensitive
Message Identifier: NH-HAN 20180825 Legionella in Hampton
Delivery Time: 12 hours
Acknowledgement: No
Distribution Method: Email, Fax
Distributed to: Physicians, Physician Assistants, Practice Managers, Infection Control Practitioners, Infectious Disease Specialists, Community Health Centers, Hospital CEOs, Hospital Emergency Departments, Nurses, NHHA, Pharmacists, Laboratory Response Network, Manchester Health Department, Nashua Health Department, Public Health Network, DHHS Outbreak Team, DPHS Investigation Team, DPHS Management Team, Northeast State Epidemiologists, New Hampshire Health Officers and Deputy Health Officers, MMRS, MRC, and Zoonotic Alert Team
From: Dr. Elizabeth A. Talbot, MD – Deputy State Epidemiologist
Originating Agency: NH Department of Health and Human Services, Division of Public Health Services

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Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.

The Michigan Department of Health and Human Services (MDHHS) and the [County] County Health Department, in consultation with the Centers for Disease Control and Prevention (CDC), are currently investigating possible healthcare-associated cases of Legionnaires' disease (LD) at [facility name]. This case spent part of their incubation period at [facility name] with an illness onset in [month year].

In general, most individuals who develop LD were exposed to water containing the *Legionella* bacteria sometime during the 10 days before illness onset. There is heightened concern for exposures in hospitals and healthcare facilities because they service vulnerable populations and have potable water systems that are often large and complex (with greater opportunity for bacterial growth and dispersion). Healthcare facilities are made aware of these incidents and asked to review records and evaluate water systems whenever a possible healthcare-associated LD case is identified. The CDC recommends a full environmental investigation and the initiation of active case surveillance when two or more possible cases are identified within a 12-month period, or a single definite healthcare exposure occurs.

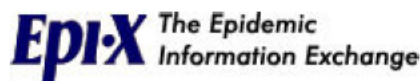
The MDHHS is sharing information about this investigation with the healthcare community to facilitate clinical awareness, to enable providers to assess possible healthcare exposures, and to rule in/out LD when evaluating patients presenting with pneumonia. Clinicians are reminded to test patients with suspected healthcare-associated pneumonia for LD. The recommended diagnostic tests for LD are culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on selective media and the *Legionella* urinary antigen test. These tests should be conducted concurrently **and prior to antibiotic administration**. *Legionella* isolates (or clinical respiratory specimens from urinary antigen positive patients) should be submitted to the MDHHS Bureau of Laboratories. (Clinical Guidance attached)

Please inform the [County] County Health Department if you learn of other LD diagnoses among **recent** patients, visitors, or staff from [facility name].

Further information regarding Legionnaires' disease is available from the CDC website at: <https://www.cdc.gov/legionella/index.html>. If you have any questions regarding this notice, please do not hesitate to contact the [County] County Health Department at [LHD Phone number] or the MDHHS Communicable Disease Division at (517) 335-8165.

A4

Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.



Call for Cases: Legionnaires' Disease Associated With a Hotel in Port Huron, Michigan – 2019

Access and Notification:

[Click to see who has viewed this report.](#)

Distribution:

Distribute on a need-to-know basis

Contributor's instructions for distributing this report.

Brief Summary of Report:

Michigan health officials are investigating 3 cases of legionellosis among guests of a Port Huron, MI hotel. Please report travel-associated legionellosis cases with exposure to hotels in Port Huron, MI in the 10 days prior to symptom onset.

Description:

The St. Clair County Health Department and the Michigan Department of Health and Human Services (MDHHS) are investigating 3 cases of Legionnaires' disease among guests of a hotel in Port Huron, MI. Illness onset occurred between October 2018 and August 2019. All cases were diagnosed by urine antigen. An epidemiologic investigation and environmental assessment are in process.

Public health officials who identify confirmed or suspected cases of legionellosis among persons with a similar travel history and illness onset within 10 days of travel are asked to contact [REDACTED] or call the MDHHS Division of Communicable Disease at (517) 335-8165.

Report Category:

Infectious Disease: Bacterial

Type of Cases:

Human

Number of Cases:

Actual

Confirmed: 3

Total Ill or Injured: 3

Hospitalized: 3

Date First Case Became Ill or Injured:

10/25/2018

Cause/Agent:

Legionella pneumophila

Setting:

Hotel or Other Lodging Establishment

Location:

USA

Other Location Information:

Port Huron, Michigan (St Clair County)

Public Health Actions Taken:

Investigation in Progress, Surveillance

Other Contributors to This Report:

[REDACTED]

Status Information

Contributor:

[REDACTED]

Job Title:

[REDACTED]

Employer:

Michigan Department of Community Health

Editor:

[REDACTED]

Submitted:

08/21/2019 3:19PM

Posted:

08/21/2019 5:42PM

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A5



Date: July 10, 2019

DPH Memo BCD-2019-10
Replaces DPH Memo BCD-2018-09

To: Wisconsin Clinicians, Infection Preventionists, Laboratorians, Local Health Departments, and Tribal Health Agencies

From: Jon Meiman, MD
Acting Chief Medical Officer and State Epidemiologist for Communicable Diseases

Increased reports of laboratory-confirmed cases of legionellosis (Legionnaires' disease)

PLEASE DISTRIBUTE WIDELY

An increase in reported laboratory-confirmed cases of [Legionnaires' disease](#) has been detected among Wisconsin residents. Since May 1, 2019, the Division of Public Health (DPH) has received reports of 40 confirmed cases of Legionnaires' disease. Case-patients' ages range from 37 to 89 years, and the median age is 63 years.

Legionnaires' disease is on the rise in Wisconsin and nationally, with over 330 laboratory-confirmed cases reported in Wisconsin during 2018 and 180 during 2017, compared to an annual average of 120 cases (2012–2016).

We request your assistance with [diagnosing](#) and [reporting](#) cases of Legionnaires' disease to help promptly determine possible sources of exposure to *Legionella* so that we may prevent further infections. Please see detailed information below for health care providers, laboratorians, and local and tribal public health agencies.

For Health Care Providers

Testing for Legionnaires' disease is recommended for patients with pneumonia who:

- Have failed outpatient antibiotic therapy for community-acquired pneumonia.
- Have severe illness, such as those requiring admission to the intensive care unit.
- Are immunocompromised.
- Have traveled away from their home within 14 days before illness onset.
- Have a known or possible exposure to *Legionella* (for example, during an outbreak).
- May have healthcare-associated pneumonia (onset 48 hours or more after admission).

The urinary antigen assay **and** culture of lower respiratory secretions on selective media (buffered charcoal yeast extract [BYCE] agar) are the preferred [diagnostic tests](#) for Legionnaires' disease. **We strongly encourage clinicians to order both *Legionella* cultures and urinary antigen tests for any patients suspected of having Legionnaires' disease.** Of note, culturing lower respiratory specimens

(e.g., sputum or bronchoalveolar lavage) from patients infected with *Legionella* may allow for the detection of all species and serogroups of *Legionella*, unlike the urinary antigen test, which detects only *Legionella pneumophila* serogroup 1.

Please note that *Legionella* will not grow on standard media used for routine respiratory cultures. **Thus, *Legionella* culture must be specifically ordered to allow for isolate recovery.** Characterization of clinical isolates of *Legionella* is essential to determine linkages between clinical cases and with environmental sources.

If your laboratory does not perform *Legionella* culture, specimens should immediately be sent to the Wisconsin State Laboratory of Hygiene (WSLH) for testing. DPH will approve fee-exempt testing for *Legionella* (culture of lower respiratory specimens, pleural fluid, lung tissue, or other normally sterile site) at the WSLH for patients meeting the criteria above who have clinical or radiographic evidence of pneumonia.

To obtain approval for fee-exempt testing of these specimens, please contact the DPH Bureau of Communicable Diseases at 608-267-9003.

For Laboratorians

If your laboratory does not perform *Legionella* culture, DPH will approve fee-exempt testing for *Legionella* (culture of lower respiratory specimens, pleural fluid, lung tissue, or other normally sterile site) at the WSLH for patients meeting the criteria above who have clinical or radiographic evidence of pneumonia. To obtain approval for fee-exempt testing of these specimens, please contact the DPH Bureau of Communicable Diseases at 608-267-9003.

For patients with a positive *Legionella* urine antigen test result, please send residual sputum or other lower respiratory specimens to the WSLH for *Legionella* culture as part of our enhanced surveillance efforts.

Laboratories sometimes reject lower respiratory specimens during a work-up for pneumonia based on specimen quality (e.g., due to lack of white blood cells/polymorphonuclear leukocytes in the sample or contamination with other bacteria). However, laboratories should not reject lower respiratory specimens for these reasons when testing for Legionnaires' disease because *Legionella* can often be recovered on selective media (BCYE agar plus antibiotics which inhibit normal respiratory tract flora), and sputum produced by patients with Legionnaires' disease may not have many white blood cells (see the CDC-recommended [Specimen Collection](#) section).

In addition, please **forward all clinical *Legionella* isolates** to the WSLH for further characterization using pulsed field gel electrophoresis and whole genome sequencing.

Specimens should be shipped to:

Wisconsin State Laboratory of Hygiene
2601 Agriculture Drive, Madison, WI 53718
Attention: Bacteriology

If needed, specimens and isolates may be shipped fee-exempt to WSLH by contacting [REDACTED] at [REDACTED] to arrange package pick-up.

If you have questions regarding specimen kits and shipping, please contact the WSLH Customer Service at 800-862-1013.

For Local Health Departments and Tribal Health Agencies

Investigations of clusters of [Legionnaires' disease](#) depend on aggressive follow-up of the case-patients' history and possible exposures to *Legionella*. The case-patient or a member of their family should be interviewed to determine possible sources of their illness **as soon as possible** following diagnosis.

Please use the expanded [legionellosis hypothesis-generating questionnaire](#) for all interviews. After the patient interview, please enter data into the Wisconsin Electronic Disease Surveillance System (WEDSS), complete all exposure fields, and upload a scanned copy of the supplemental questionnaire with additional exposure information into the WEDSS Filing Cabinet.

If the case-patient reports staying in a lodging, health, or long-term care facility during the 14 days prior to illness onset, please notify the state legionellosis surveillance coordinator, [REDACTED], by [REDACTED] or [REDACTED], as soon as possible.

Questions

Thank you for your continued assistance in this important matter. Optimal and efficient surveillance for Legionnaires' disease requires cooperation and partnership among many agencies.

If you have any questions about the content of this memo or about [Legionnaires' disease](#), please contact [REDACTED], Communicable Diseases Epidemiologist, at [REDACTED], or the Bureau of Communicable Diseases at 608-267-9003.

Connecticut State Department of Public Health

[\(/DPH\)](#)[CT.gov Home](#) [\(/\)](#) [Department of Public Health](#) [\(/DPH\)](#) DPH Investigating Cases of Legionnaires' Disease at Rocky Hill Nursing Facility

Press Releases

07/26/2019

DPH Investigating Cases of Legionnaires' Disease at Rocky Hill Nursing Facility

Legionella Bacteria Found In Water Of Apple Rehab, Inc.; DPH Working With Facility To Protect Patients

The Connecticut Department of Public Health (DPH) together with the management of Apple Rehab in Rocky Hill is coordinating a response to two confirmed cases of Legionnaires' disease, a bacterial respiratory infection caused by exposure to the Legionella bacteria. Two cases of Legionnaires' disease have been confirmed among residents of Apple Rehab, and one patient died recently. The DPH was notified on July 17, 2019 of a resident of the facility with Legionnaires' disease. Legionella bacteria were also found in water samples tested by the facility.

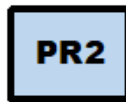
Legionnaires' disease is a type of pneumonia (lung infection) caused by breathing in aerosolized (small droplets) water containing Legionella bacteria. Legionella is a bacteria normally found in freshwater lakes and streams that can grow in human-made building water systems. Inhalation of droplets of water containing Legionella coming out of showerheads, sinks, and other water sources can cause Legionnaire's disease. Legionnaires' disease is not transmitted person-to-person. Most healthy people exposed to Legionella do not develop Legionnaires' disease. People at increased risk of developing Legionnaires' disease include: people 50 years or older, current or former smokers, people with chronic lung diseases, and people with weakened immune systems.

DPH and Apple Rehab personnel are continuing a joint investigation to identify the environmental source of Legionella bacteria to protect patients, staff and visitors. DPH personnel have reviewed Centers for Disease Control and Prevention (CDC) recommendations and discussed implementation with Apple Rehab administrators. The water system at Apple Rehab has also undergone chlorine treatment and further testing is underway. Patients, staff, and visitors have been notified of the finding of Legionella in the water system. Moving forward, DPH will be monitoring Apple Rehab's water quality and disease prevention measures.

CDC recommendations for Legionella control measures in facilities can be viewed here: <https://www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html#measures-facilities> (<https://www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html#measures-facilities>).

More information about the Legionella bacteria can be found on the DPH website here:

<https://portal.ct.gov/DPH/Epidemiology-and-Emerging-Infections/Legionnaires-disease> ([/DPH/Epidemiology-and-Emerging-Infections/Legionnaires-disease](https://portal.ct.gov/DPH/Epidemiology-and-Emerging-Infections/Legionnaires-disease)).



(/DPH)

Connecticut State Department of Public Health

[CT.gov Home](#) [\(/\)](#) [Department of Public Health](#) [\(/DPH\)](#) DPH Issues Emergency Order to Rocky Hill Nursing Home After Water Samples Test Positive for Legionella

Press Releases

04/14/2021

DPH Issues Emergency Order to Rocky Hill Nursing Home After Water Samples Test Positive for Legionella

The Connecticut Department of Public Health (DPH) has issued an emergency order by Acting Commissioner Deidre S. Gifford, directing immediate actions by the Apple Rehab nursing home in Rocky Hill after the facility failed to respond adequately to drinking and bathing water samples testing positive for Legionella.

The actions include a suspension of new admissions and remedial actions to protect the health and safety of residents. Apple Rehab is a 120-bed chronic and convalescent nursing home that currently has 64 residents.

In 2017 and 2018, the federal Centers for Medicare and Medicaid directed that skilled nursing facilities must develop and adhere to policies and procedures that inhibit microbial growth in building water systems that reduce the risk of growth and spread of Legionella and other opportunistic pathogens in water. However, during an investigation of the water management program at Apple Rehab of Rocky Hill, DPH noted several failures. These failures included, but were not limited to, failing to maintain a water management plan to mitigate the risk of Legionella and other waterborne pathogens; and failure to establish and maintain an infection prevention and control program designed to provide a safe, sanitary, and comfortable environment and to help prevent the development and transmission of waterborne pathogen diseases and infections.

The DPH emergency order includes: prohibition of admission of new residents; requirement to use bottled water; retrospective surveillance review to identify residents with pneumonia of unknown etiology; testing of all residents for Legionella; environmental assessments and sampling activities; establishment of a water sampling plan; remediation/decontamination of possible environmental sources when identified; contracting with an independent contractor with expertise in waterborne pathogens to conduct a water management review, remediation and to repair/replace/correct identified deficiencies; provision of a comprehensive plan of correction to DPH by April 16.

"DPH will continue to closely monitor this deeply concerning situation and take further action, if necessary, to protect the health and safety of residents," Commissioner Gifford said.

For a copy of the [DPH emergency order, click here](#) .

IDPH Investigating Legionella Possibly Associated with a Chicago Hospital [1]

26th Jul, 2019

Two patients at Rush Oak Park Hospital test positive

SPRINGFIELD - The Illinois Department of Public Health (IDPH) is investigating two cases of Legionnaires' disease in individuals who were both patients at Rush Oak Park Hospital, one in May and the other in mid-July. The individuals were patients at the hospital for part of the time when they could have been exposed to the bacteria.

IDPH is working with the Oak Park Department of Public Health and the hospital to collect information and further investigate these cases. IDPH was on-site this week to sample the facility's water. Previous water samples collected by the hospital showed results positive for *Legionella* bacteria.

The hospital has reported to public health officials that it routinely conducts water testing and has already taken steps to reduce any potential exposure, such as adding disinfectant to the water, flushing pipes, and installing point-of-use filters. The facility is also conducting surveillance to identify other potential cases and to ensure appropriate testing and clinical management of patients.

Legionella bacteria occur naturally in the environment. Water containing *Legionella* can be aerosolized through cooling towers, showers, hot tubs, and decorative fountains, and can cause Legionnaires' disease, a serious lung infection (pneumonia) when inhaled. Legionnaires' disease is not passed from person to person. Outbreaks are most commonly associated with buildings or structures that have complex water systems like hotels, hospitals, long-term care facilities, and cruise ships. The bacteria can become a health concern when they grow and spread in human-made water systems, like hot tubs, cooling towers, hot water tanks, large plumbing systems, and decorative fountains. Most healthy people do not get Legionnaires' disease after being exposed to *Legionella* bacteria.

More information about Legionnaires' disease can be found on the [IDPH website](#) [2] and the Centers for Disease Control and Prevention [website](#) [3].

Resources / Related Reading:

default

Source URL: <http://www.dph.illinois.gov/news/idph-investigating-legionella-possibly-associated-chicago-hospital-1>

Links

[1] <http://www.dph.illinois.gov/news/idph-investigating-legionella-possibly-associated-chicago-hospital-1>

[2] <http://www.dph.illinois.gov/topics-services/diseases-and-conditions/diseases-a-z-list/legionellosis>

[3] <https://www.cdc.gov/legionella/index.html>

Cluster of Legionella Pneumonia (Legionnaire's Disease) Associated with An Area of Ashworth Avenue in Hampton, NH

Contact:

Public Information Office
(603) 419-0329

Bureau of Infectious Disease Control

Publish Date:

August 25, 2018

Concord, NH – The New Hampshire Department of Health and Human Services' Division of Public Health Services (DPHS) has identified four persons with Legionella pneumonia, also known as Legionnaire's disease, a potentially serious bacterial pneumonia. These individuals likely acquired Legionella at the end of July or early August, in the area of Ashworth Avenue, between Island Path and H Street in Hampton, New Hampshire. DPHS is investigating possible additional cases. DPHS is also actively investigating the source of these infections, which is usually from inhaling aerosol droplets of water contaminated with the bacteria. Sources of the aerosol can include showers, hot tubs, faucets, cooling towers, misters, and decorative fountains. It is not spread by drinking or swimming in water.

While the investigation is underway, in an abundance of caution, DPHS recommends that people who are at increased risk for severe disease from Legionella consider postponing their visit to the area of Ashworth Avenue, between Island Path and H Street in Hampton, New Hampshire.

People who are at increased risk of getting sick include:

- People 50 years or older
- Current or former smokers
- People with chronic lung disease
- People with weakened immune systems
- People who take drugs that can weaken their immune systems (after a transplant operation or chemotherapy)
- People with underlying illnesses such as diabetes, kidney failure, or liver failure

"Legionella is a serious infection," said Lisa Morris, Director of the Division of Public Health Services. "We want to make sure the public is aware of the potential risk of this disease so that each person can make a decision for themselves about visiting the area in the best interest of their health."

Legionnaires' disease is a type of pneumonia caused by the Legionella bacteria. Most people exposed to Legionella will not get sick; however, it can cause severe illness and sometimes result in death. People do not spread Legionnaires' disease to other people. Legionnaires' disease symptoms are very similar to other types of pneumonia and can include cough, shortness of breath, fever, muscle aches, and headaches.

Symptoms will usually begin within 2 to 10 days after exposure to the bacteria. However, people should watch for symptoms for about two weeks after exposure. People who visited the area more than two weeks ago and have not developed symptoms are not at risk for disease. If an individual visited this area and developed symptoms within 14 days of their stay, they should contact their healthcare provider and seek medical attention.

If you have information or questions about this outbreak, please call the New Hampshire Department of Health and Human Services. A public inquiry phone line is available to answer questions from 8am - 4pm, including over the weekend, by calling 603-271-9461, or for those calling from within the state of New Hampshire, toll-free at 1-800-852-3345 ext 9461.

For further information on Legionnaires' disease, please visit the CDC webpage at www.cdc.gov/legionella/.



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NJ Department of Health, Hamilton Twp. Officials say Water is Safe to Drink, But Urge Precautions During Ongoing Legionnaires' Disease Investigation

PO Box 360
Trenton, NJ 08625-0360

Judith M. Persichilli
Commissioner

For Release:
September 22, 2021

For Further Information Contact:
Office of Communications
(609) 984-7160

NJ Department of Health, Hamilton Twp. Officials say Water is Safe to Drink, But Urge Precautions During Ongoing Legionnaires' Disease Investigation

Four cases of Legionnaires' disease were reported in Hamilton Township, Mercer County between May-August 2021, along with an additional reported case from November 2020. The Hamilton Township Division of Health continues to work closely with the New Jersey Department of Health (NJDOH) to investigate these cases as part of a larger investigation, which was initiated in August 2020 following a reported cluster of four cases. Hamilton Township reported two deaths in August 2020 and an additional death was reported late last month in an elderly township resident among the nine reported cases.

Legionnaires' disease is a type of pneumonia that people can get after breathing in aerosolized water (small droplets of water in the air) containing *Legionella* bacteria. Symptoms of Legionnaires' disease include cough, shortness of breath, fever, muscle aches, and headaches which are similar to symptoms caused by other respiratory infections, including COVID-19. Most healthy people exposed to *Legionella* do not become ill. However, people who are 50 years or older, especially those who smoke cigarettes, or those with certain medical conditions, including weakened immune systems, chronic lung disease or other chronic health conditions, are at increased risk for Legionnaires' disease.

Legionnaires' disease is treatable with antibiotics, so it is important that anyone who thinks they have symptoms of Legionnaires' disease contact their health care provider and seek medical evaluation. Healthcare providers use chest x-rays or physical exams to check for pneumonia. Your provider may also order tests on a sample of urine and sputum (phlegm) to see if your lung infection is caused by *Legionella* bacteria.

Health officials are urging residents and business owners in Hamilton Township to take actions to reduce the risk of *Legionella* growth in their household and building plumbing. Recommendations for homeowners and building owners are available below. It can be possible for *Legionella* to enter buildings (including homes) when receiving treated drinking water. Health officials are partnering with NJ Department of Environmental Protection (NJDEP) and Trenton Water Works (TWW) to monitor for *Legionella* in the Hamilton Township water distribution system owned and operated by TWW. While water samples collected at TWW treatment plant and central pumping station have consistently shown no presence of *Legionella*, water samples collected from homes and businesses in Hamilton Township served by TWW, have identified the presence of *Legionella*. There is concern that *Legionella* may be present in other buildings and homes in the area.

"The water is safe to drink, but there are basic precautions that residents can take to help protect themselves – such as regularly flushing water at their taps and maintaining their hot water tank," said State Epidemiologist Dr. Tina Tan. "Additionally, home A/C units do not use water to cool, so these home units do not aerosolize water and are not a risk for *Legionella* growth."

"We continue to work with our partners at the New Jersey Department of Health and Hamilton Township to empower residents in Hamilton and in our service area on how to protect themselves and their families from Legionnaires' disease," said Mark A. Lavenberg, Director of the City of Trenton's Department of Water and Sewer, which operates Trenton Water Works. "To that end, starting on October 1, Trenton Water Works is launching a public awareness campaign to educate our service-area consumers on this critical public health issue."

Hamilton Township Division of Health and NJDOH want to remind healthcare providers to maintain a high index of suspicion for Legionnaires' disease when evaluating patients for community-acquired and healthcare-associated pneumonia, especially among residents of Hamilton Township. This is important to ensure patients receive appropriate and timely treatment.

"I want to thank NJDEP and NJDOH for their involvement in studying the frustrating frequency of Legionnaires' disease cases in Hamilton over the past decade and working with TWW and our Division of Health to keep the residents of Hamilton safe," said Mayor Jeff Martin. "Clean and safe drinking water is a human right – one that we will continue to fight to make sure all residents can comfortably know they have access to."

RECOMMENDED ACTIONS FOR RESIDENTS

According to NJDOH, residents can follow recommended best practices to reduce *Legionella* growth in their household water. For more information on best practices, please visit NJDOH's *Legionella* webpage at: <https://www.nj.gov/health/cd/topics/legion.shtml>

- **Let your faucets and showers run for at least 3 minutes** when they have been out of use for more than a week. Care should be taken to minimize exposure to splashing and aerosol generation, for example, leaving the room while the water is running.
- **Thoroughly clean or replace your shower heads and faucet aerators** (screens) 3–4 times per year. To disinfect, use a 1:100 diluted solution of regular household bleach (1/4 cup bleach to 1 gallon of water). For concentrated bleach use 3 tablespoons for 1 gallon. Follow instructions found on the back of the bottle for safe use including only using disinfection products in a ventilated area.
- **Drain and flush your hot water tank** every 6–12 months. Consider hiring a licensed plumbing professional to perform this.
- **Clean and/or replace all water filters** per manufacturer instructions, such as whole house (e.g., water softeners) and point-of-use filters (e.g., built-in refrigerator filters).
- **Remove, shorten, and/or regularly flush existing dead legs** (a section of pipe capped off with little to no water flow). For future renovations, ensure your plumber avoids creating dead legs.
- **Keep your hot water tank set to a minimum of 120°F.** This temperature will reduce *Legionella* growth while minimizing risk of hot water burns. Higher temperatures can further reduce the risk of *Legionella* growth, but you should first **install a mixing valve to prevent hot water burns when using the water.** Check with manufacturer recommendations prior to raising the temperature.
- **Medical devices and portable humidifiers should be operated, cleaned, and disinfected** per manufacturer instructions. Do not use tap water if sterile water is recommended.
- **Drain garden hoses and shut off the water line** when not in use for the season.
- **Maintain chemical levels in your hot tub** per manufacturer recommendations.
- **Avoid high-risk activities.** If you are at an increased risk for Legionnaires' disease, consider avoiding power washing, or similar activities, which may generate increased amounts of aerosols or mist.

RECOMMENDED ACTIONS FOR BUILDING OWNERS

- **Complete this quick yes/no worksheet to determine if your building, or certain devices in your building, need a Water Management Program.** Resources to help you develop a Water Management Program and for *Legionella* control in common sources of exposure are available at NJ Department of Health's *Legionella* <https://www.nj.gov/health/cd/topics/legion.shtml>
- **Store hot water at temperatures above 140°F and ensure hot water in circulation does not fall below 120°F** (or at highest temperature allowable by local regulations and codes). Install thermostatic mixing valves as close as possible to fixtures to prevent scalding while permitting circulation hot water temperatures above 120°
- **Clean and maintain water system components**, such as thermostatic mixing valves, aerators, showerheads, hoses, filters, storage tanks, and expansion tanks, regularly per manufacturer instructions.
- **Flush hot and cold water at all points of use (faucets, showers, drinking fountains) at least weekly** to replace the water that has been standing in the pipes. Healthcare settings and facilities that house vulnerable populations should flush at least twice a week.
- **Remove dead legs or, where unavoidable, make them as short as possible** (a section of pipe capped off with little or no water flow). Where a dead leg cannot be avoided, it should be flushed regularly to avoid water stagnation. This may require the installation of a drain valve.
- **Monitor water quality parameters such as temperature, disinfectant residuals, and pH regularly.** Adjust frequency of monitoring based on stability of values. For example, increase frequency of monitoring if there is a high degree of measurement variability.
- **Safely operate and conduct regular maintenance of cooling towers to protect staff, visitors, and the adjacent community from exposure to Legionella.** Use a Water Management Program to establish, track, and improve operation and maintenance activities. Resources to help you develop a Water Management Program for your cooling tower are available at the bottom of this section.

Follow recommendations from the NJ Department of Health when reopening your facility following a prolonged shutdown or reduced operation due to the COVID-19 Pandemic. Recommendations are available at: bit.ly/2XxlBaw

ABOUT LEGIONNAIRES' DISEASE AND *LEGIONELLA*

NJDOH receives approximately 250–350 reports of Legionnaires' disease each year reported throughout New Jersey. Legionnaires' disease is a type of pneumonia (lung infection) caused by the bacteria *Legionella*. *Legionella* is a type of bacteria found naturally in freshwater environments such as lakes and streams and becomes a health concern when it enters and grows inside human-made water systems. People can get Legionnaires' disease by breathing in aerosolized (small droplets) water containing *Legionella*. Aerosolized water can come from plumbing systems and devices such as cooling towers (air-conditioning units for large buildings), hot tubs, cooling misters, and decorative fountains. Less commonly, people can get sick by aspiration of tap water containing *Legionella*. This happens when water accidentally goes into the lungs while drinking ("goes down the wrong pipe"). People at increased risk of aspiration include those with swallowing difficulties. Home A/C units do not use water to cool, so these home units do not aerosolize water and are not a risk for *Legionella* growth. Legionnaires' disease is generally not spread person to person.

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STATE OF MICHIGAN

GRETCHEN WHITMER
GOVERNOR

DEPARTMENT OF HEALTH AND HUMAN SERVICES
LANSING

ROBERT GORDON
DIRECTOR

FOR IMMEDIATE RELEASE:
July 5, 2019

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Michigan experiencing increase in legionellosis cases

LANSING, Mich. – The Michigan Department of Health and Human Services (MDHHS) is coordinating with local health departments across the state to investigate cases of legionellosis this summer. To date in 2019, there have been 140 confirmed cases of legionellosis reported in 38 counties compared to 135 confirmed cases during the same timeframe in 2018.

Confirmed cases include 19 in Oakland County, 16 in Wayne County, 13 in Macomb County, 11 in Genesee County and 10 cases each in the City of Detroit and Kent County.

This increase corresponds with national increases in legionellosis. Legionellosis is most common in the summer and early fall when warming, stagnant waters present the best environment for bacterial growth in water systems.

MDHHS and local health departments are working to inform healthcare providers of the increase in cases and share information regarding testing and treatment. Legionellosis is a respiratory infection caused by *Legionella* bacteria. Legionnaires' disease is an infection with symptoms that include fever, cough and pneumonia. A milder form of legionellosis, Pontiac fever, is an influenza-like illness without pneumonia that resolves on its own.

"With warmer days now here, we want everyone to be aware of Legionnaire's disease, especially if they may be at higher risk for illness," said Dr. Joneigh Khaldun, MDHHS chief medical executive and chief deputy director for health. "We also want all healthcare providers to remain vigilant and test and treat appropriately."

Legionella bacteria are found naturally in fresh water lakes and streams but can also be found in man-made water systems. Potable water systems, cooling towers, whirlpool spas and decorative fountains offer common environments for bacterial growth and transmission if they are not cleaned and maintained properly. Warm water, stagnation and low disinfectant levels are conditions that support growth in these water systems.

- MORE -

Transmission to people occurs when mist or vapor containing the bacteria is inhaled. Legionellosis does not spread person to person. Risk factors for exposure to *Legionella* bacteria include:

- Recent travel with an overnight stay.
- Recent stay in a healthcare facility.
- Exposure to hot tubs.
- Exposure to settings where the plumbing has had recent repairs or maintenance work.

Most healthy individuals do not become infected after exposure to *Legionella*. Individuals at a higher risk of getting sick include the following:

- People over age 50.
- Current or former smokers.
- People with chronic lung disease.
- People with weakened immune systems from diseases, such as cancer, diabetes or liver or kidney failure.
- People who take immunosuppressant drugs.

Individuals with any concerns about Legionnaires' disease or exposure to the *Legionella* bacteria should talk to their healthcare provider. MDHHS and local health departments will continue to monitor cases and provide updates to the public. More information on *Legionella* and Legionnaires' disease can be found on the [Centers for Disease Control and Prevention website](https://www.cdc.gov/disease/index.html).

#



Short publication: Legionnaires' Disease: A Problem for Health Care Facilities (CDC)

Legionnaires' Disease

A problem for health care facilities

Legionnaires' disease (LD) is a serious, and often deadly, lung infection (pneumonia). People usually get it by breathing in water droplets containing *Legionella* germs. People can also get it if contaminated water accidentally goes into the lungs while drinking. Many people being treated at health care facilities, including long-term care facilities and hospitals, have conditions that put them at greater risk of getting sick and dying from LD. *Legionella* grows best in buildings with large water systems that are not managed effectively. CDC outbreak investigations show that effective water management programs—actions that reduce the risk of *Legionella* growing and spreading in building water systems—can help prevent problems that lead to LD. Health care facility leaders* should be aware that LD is a risk in their facility and that they can take action to prevent infections.

Health care facility leaders can:

- Build a team focused on keeping their facility's water safe.
- Create and use a water management program to limit *Legionella* and other waterborne germs from growing and spreading. www.cdc.gov/legionella/WMPtoolkit
- Work with healthcare providers to identify LD cases early and determine if the cases may be associated with a health care facility.
- Report LD cases to local public health authorities quickly and work with them to investigate and prevent additional cases.

Want to learn more? www.cdc.gov/vitalsigns/legionella

*Leaders may include infection control practitioners, facility managers, hospital administrators, quality assurance staff, or others.

76%

People definitely got Legionnaires' disease from a health care facility in 76% of locations reporting exposures.

1 in 4

Legionnaires' disease kills 25% of those who get it from a health care facility.

4 in 5

Most problems leading to US health care-associated outbreaks could be prevented with effective water management.



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention



Problem:

Legionnaires' disease can occur in your health care facility

Health care facilities may put people at risk for LD when they do not have an effective water management program. These limit germ growth by:

- Keeping hot water temperatures high enough.
- Making sure disinfectant amounts are right.
- Keeping water flowing (preventing stagnation).
- Operating and maintaining equipment to prevent slime (biofilm), organic debris, and corrosion.
- Monitoring factors external to buildings, such as construction, water main breaks, and changes in municipal water quality.



Contaminated water droplets can be spread by:

- Showerheads and sink faucets.
- Hydrotherapy equipment, such as jetted therapy baths.
- Medical equipment, such as respiratory machines, bronchoscopes, and heater-cooler units.
- Ice machines.
- Cooling towers (parts of large air-conditioning systems).
- Decorative fountains and water features.

Health care facility leaders and providers should be aware that some people are at increased risk for LD:

- Adults 50 years or older.
- Current or former smokers.
- People with a weakened immune system or chronic disease.

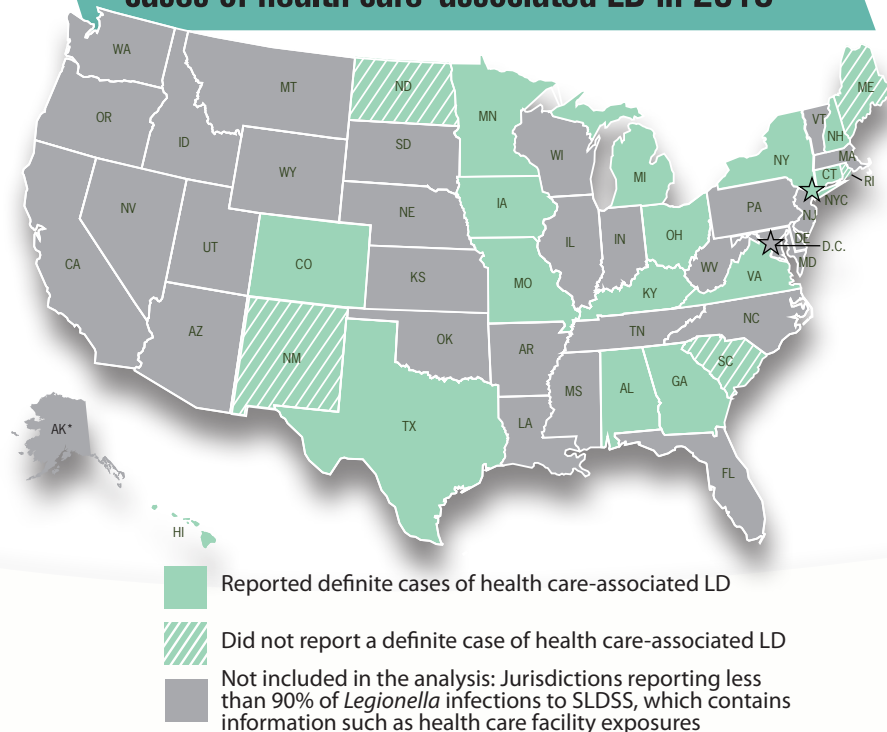
Preventing the first case

A *Legionella* water management program routinely consists of:

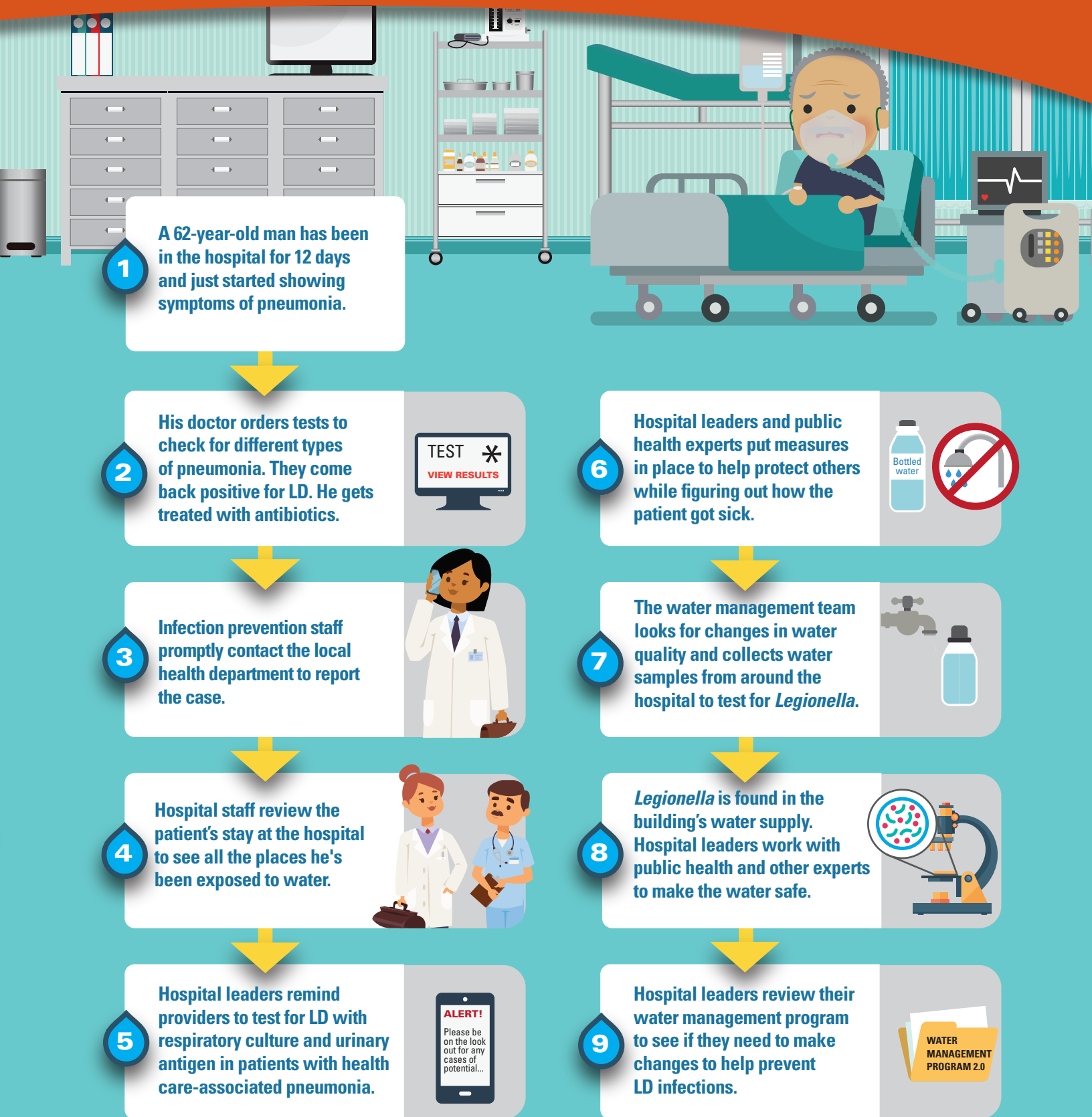
- 1** Establishing a water management program team.
- 2** Describing the building water systems using words and diagrams.
- 3** Identifying areas where *Legionella* could grow and spread.
- 4** Deciding where control measures should be applied and how to monitor them.
- 5** Establishing ways to intervene when control limits are not met.
- 6** Making sure the program is running as designed and is effective.
- 7** Documenting and communicating all the activities.

www.cdc.gov/legionella/WMPtoolkit

16 of 21 jurisdictions reported definite cases of health care-associated LD in 2015



One health care facility's LD story and what happens next*



Health care facility leaders can protect patients from LD with prevention and early recognition.

*The same steps apply when two or more cases of possible health care-associated LD (patients with LD who spent part of the 10 days before symptoms began at the same facility) are identified within 12 months of each other.

What Can Be Done?

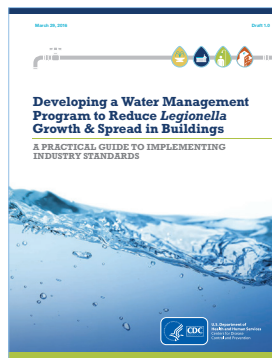


The Federal government is

- Promoting LD prevention practices and providing tools on how to develop water management programs for health care facilities and other at-risk buildings.
- Requiring LD prevention programs at Veterans Health Administration health care facilities. <http://bit.ly/2plRrhL>
- Providing information on technologies for *Legionella* control in building plumbing systems. <http://bit.ly/2cA7w3L>
- Tracking LD and providing guidance in responding to outbreaks to find the source and help prevent more infections.

Health care facility leaders can

- Build a team focused on keeping their facility's water safe.
- Create and use a water management program to limit *Legionella* and other waterborne germs from growing and spreading. www.cdc.gov/legionella/WMPtoolkit
- Work with healthcare providers to identify LD cases early and determine if the cases may be associated with a health care facility.
- Report LD cases to local public health authorities quickly and work with them to investigate and prevent additional infections.



Practical guide for developing a *Legionella* water management program

www.cdc.gov/legionella/WMPtoolkit

Healthcare providers can

- Test for LD in people with health care-associated pneumonia, especially those with severe pneumonia or in facilities where other LD cases have been identified or *Legionella* has been found in the water.
- Test for LD in people with pneumonia who have a weakened immune system or chronic disease, fail outpatient treatment, require intensive care, or report recent travel.
- Order a culture specific for *Legionella* from a lower respiratory specimen (e.g., sputum), preferably before giving antibiotics. Also order a urinary antigen test.
- Talk to their laboratories to make sure they do *Legionella* tests on site or have another way to quickly get results.

State and local officials can

- Improve monitoring for LD in health care facilities (including reviewing previous cases to look for patterns), and respond promptly to reports of cases.
- Understand capacity of laboratories to process *Legionella* specimens, and encourage laboratories to save patient isolates for public health investigations.
- Report details, including visits to health care facilities, for all LD cases to CDC. <http://bit.ly/2qcoR4U>
- Report details for all LD outbreaks to CDC's National Outbreak Reporting System. www.cdc.gov/nors
- Provide tools and information to help health care facility leaders create and use *Legionella* water management programs.

1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348

www.cdc.gov

Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30329

Publication date: 06/06/2017

P2

Fact sheet: What Clinicians Need to Know about
Legionnaires' Disease (CDC)

What Clinicians Need to Know about LEGIONNAIRES' DISEASE

Legionnaires' disease is a sometimes fatal form of pneumonia that is on the rise in the United States. Unfortunately, this disease is also underrecognized and underdiagnosed. Clinicians are in a unique position to make sure cases are detected, allowing rapid investigation by public health officials and prevention of additional cases.

Diagnosis and Testing

Clinical features of Legionnaires' disease include cough, fever, and radiographic pneumonia. Signs and symptoms for Legionnaires' disease are similar to pneumonia caused by other pathogens; the only way to tell if a pneumonia patient has Legionnaires' disease is by getting a specific diagnostic test. Indications that warrant testing include:

- Patients who have failed outpatient antibiotic therapy for community-acquired pneumonia
- Patients with severe pneumonia, in particular those requiring intensive care
- Immunocompromised patients with pneumonia*
- Patients with a travel history (patients who have traveled away from their home within 10 days before the onset of illness)
- All patients with pneumonia in the setting of a Legionnaires' disease outbreak
- Patients at risk for Legionnaires' disease with healthcare-associated pneumonia (pneumonia with onset ≥ 48 hours after admission)

* Clinicians may also consider testing for Legionnaires' disease in patients with other risk factors for this infection (see page 2).

Testing for healthcare-associated Legionnaires' disease is especially important if any of the following are identified in your facility:

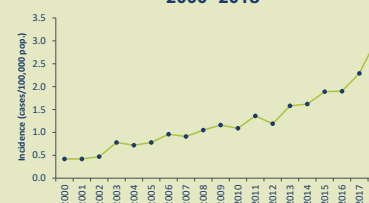
- Other patients with healthcare-associated Legionnaires' disease diagnosed in the past 12 months
- Positive environmental tests for *Legionella* in the past 2 months
- Current changes in water quality that may lead to *Legionella* growth (such as low chlorine levels)

Infection control staff may have more information about these situations in your facility.

The preferred diagnostic tests for Legionnaires' disease are culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on selective media and the *Legionella* urinary antigen test. Serological assays can be nonspecific and are not recommended in most situations. Best practice is to obtain both sputum culture and a urinary antigen test concurrently. Sputum should ideally be obtained prior to antibiotic administration, but antibiotic treatment should not be delayed to facilitate this process. The urinary antigen test can detect *Legionella* infections in some cases for days to weeks after treatment. The urinary antigen test detects *Legionella pneumophila* serogroup 1, the most common cause of Legionnaires' disease; isolation of *Legionella* by culture is important for detection of other species and serogroups and for public health investigation. Molecular techniques can be used to compare clinical isolates to environmental isolates and confirm the outbreak source.

Order both a culture of a lower respiratory specimen and a urinary antigen test when testing patients for *Legionella*.

**Legionnaires' Disease Is On the Rise
2000–2018***



*National Notifiable Disease Surveillance System

In the United States, reported cases of Legionnaires' disease have grown by nearly nine times since 2000. Nearly 10,000 cases of Legionnaires' disease were reported in 2018, but this number is likely an underestimate as the illness is thought to be underdiagnosed.

More illness occurs in the summer and early fall, but Legionnaires' disease can happen any time of year.



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Treatment

If your patient has Legionnaires' disease, see the most recent guidelines for treatment of community-acquired pneumonia (<http://bit.ly/CommunityPneumoniaGuide>) and hospital-acquired pneumonia (<http://bit.ly/HospitalPneumonia>). Macrolides and respiratory fluoroquinolones are currently the preferred agents for treating Legionnaires' disease.

Reporting

Make sure your infection control department or lab are promptly reporting cases of Legionnaires' disease to your local health department. Timely identification and reporting of cases is important, as this allows public health officials to quickly identify and stop potential clusters and outbreaks by linking new cases to previously reported ones.

Etiology

Legionnaires' disease is a severe form of pneumonia that often requires hospitalization and is fatal in about 10% of cases overall, and in 25% of healthcare-associated cases. Legionnaires' disease is caused by *Legionella* bacteria. There are at least 60 different species of *Legionella*, and most are considered capable of causing disease. However, most disease is caused by *L. pneumophila*, particularly serogroup 1.

Transmission

While *Legionella* is found in natural, freshwater environments, it can become a health concern in human-made water systems (e.g., plumbing system of large buildings, cooling towers, certain medical devices, decorative fountains, hot tubs) where conditions allow it to multiply and come in contact with vulnerable persons. People contract *Legionella* by inhaling aerosolized water droplets containing the bacteria, or, less commonly, by aspiration of contaminated drinking water. *Legionella* is usually not transmitted from person to person; however, a single episode of person-to-person transmission has been reported. Fortunately, most people exposed to the bacteria do not become ill.

Risk Factors

Risk factors for developing Legionnaires' disease include:

- Age ≥50 years
- Smoking (current or historical)
- Chronic lung disease, such as emphysema or COPD
- Immune system disorders due to disease or medication
- Systemic malignancy
- Underlying illness, such as diabetes, renal failure, or hepatic failure

Prevention

The key to preventing Legionnaires' disease is maintenance of the water systems in which *Legionella* may grow. If *Legionella* is found in a healthcare facility's water system, the facility should work to eliminate the bacteria. CDC encourages all building owners, and especially those in healthcare facilities, to develop comprehensive water management programs to reduce the risk of *Legionella* growth and spread. Learn more about how to develop a water management program at www.cdc.gov/legionella/WMPtoolkit.

Timely reporting of Legionnaires' disease cases is important for controlling clusters and outbreaks.

Common Sources of Infection

Outbreaks of Legionnaires' disease are most often associated with large or complex water systems, like those found in hospitals, long-term care facilities, hotels, and cruise ships.

The most likely sources of infection include:



Water used for showering (potable water)



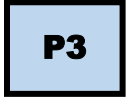
Cooling towers (parts of large air conditioning systems)



Decorative fountains



Hot tubs



Fact sheet: Legionnaires' Disease (CDC)

LEGIONNAIRES' DISEASE

Legionnaires' (LEE-juh-nares) disease is a very serious type of pneumonia (lung infection) caused by bacteria called *Legionella*. If you develop pneumonia symptoms and may have been exposed to *Legionella*, see a doctor right away. Be sure to mention if you have used a hot tub, spent any nights away from home, or stayed in a hospital in the last two weeks.

Legionnaires' Disease Can Cause Pneumonia Symptoms

Signs and symptoms of Legionnaires' disease can include:

- ▶ Cough
- ▶ Muscle aches
- ▶ Fever
- ▶ Shortness of breath
- ▶ Headache

Doctors use chest x-rays or physical exams to check for pneumonia. Your doctor may also order tests on a sample of urine and sputum (phlegm) to see if your lung infection is caused by *Legionella*.

Legionnaires' Disease Is Serious, but Can Be Treated with Antibiotics

Legionnaires' disease is treated with antibiotics (drugs that kill bacteria in the body). Most people who get sick need care in a hospital but make a full recovery. However, about 1 out of 10 people who get Legionnaires' disease will die from the infection.

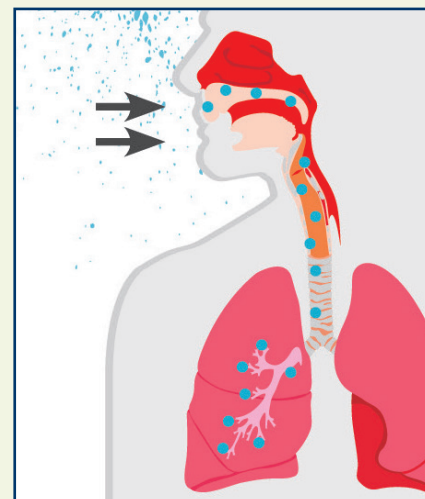
Certain People Are at Increased Risk for Legionnaires' Disease

Most healthy people do not get Legionnaires' disease after being exposed to *Legionella*. Being 50 years or older or having certain risk factors can increase your chances of getting sick. These risk factors include:

- ▶ Being a current or former smoker
- ▶ Having chronic lung disease, such as emphysema or chronic obstructive pulmonary disease (COPD)
- ▶ Having a weakened immune system from diseases like cancer, diabetes, or kidney failure
- ▶ Taking medication that weakens your immune system

Legionella Are Usually Spread through Water Droplets in the Air

In nature, *Legionella* live in fresh water and rarely cause illness. In man-made settings, *Legionella* can grow if water is not properly maintained. These man-made water sources become a health problem when small droplets of water that contain the bacteria get into the air and people breathe them in. In rare cases, someone breathes in *Legionella* while they are drinking water and it "goes down the wrong pipe" into the lungs. In general, people do not spread Legionnaires' disease to other people.



Legionnaires' disease, a type of severe pneumonia, is caused by breathing in small droplets of water that contain *Legionella*.

Common Sources of Infection

Outbreaks of Legionnaires' disease are often associated with large or complex water systems, like those found in hospitals, hotels, and cruise ships.

The most likely sources of infection include:



Water used for showering (potable water)



Cooling towers (parts of large air conditioning systems)



Decorative fountains



Hot tubs

Acute Communicable Disease Control (ACDC) Communication Guidance

Notification of Patients, Visitors, and Healthcare Personnel Affected by Outbreaks Identified in Hospitals and Skilled Nursing Facilities

Purpose

This document provides guidance for ACDC when working with facilities to communicate information to patients, visitors, and healthcare personnel (HCP) affected by an outbreak (suspected or confirmed) identified at their hospital or skilled nursing facility (SNF) that has possible risk of transmission within their facility setting. While there are currently no national guidelines on communicating outbreaks to patients and families, clinicians should provide clear and effective communication. Although the circumstances surrounding outbreaks may vary, communication is critical for controlling and preventing further disease transmission and needs to be truthful, clear, and timely (e.g. ideally as soon as an outbreak has been identified so changes or enhancements in infection control practice can be adhered to by patients, visitors, and HCP). This guidance also includes templates and resources to facilitate the communication process.

When to use

This guidance is to be used when an outbreak or increase in infections is identified with the possible risk of transmission to patients within the hospital or SNF setting. As assessment of the risk evolves during an investigation, information about those changes can be communicated to the affected patients, visitors, and HCP.

Note that this guidance is not designed to assist with the epidemiologic investigation of an outbreak.

Definitions

- A) “Outbreak” includes an outbreak as defined in 17 CCR § 2500¹ and could include but is not limited to the following:
- i. Two or more cases of a similar illness shown by investigation to result from a common exposure (e.g. invasive staphylococcal infection in patients undergoing same invasive procedure or postoperative bacterial or fungal infections in patients receiving same procedure).
 - ii. Cluster with clear association between cases, with or without a recognized common source (examples could include: three or more cases of *Clostridium difficile* with evidence of transmission or common source (e.g., same room, shared bathroom, or same caregiver) with symptom onset within 7 days; or onset of two or more

¹ 17 CCR § 2500: Occurrence of cases of a disease (illness) above the expected or baseline level, usually over a given period of time, in a geographic area or facility, or in a specific population group. The number of cases indicating the presence of an outbreak will vary according to the disease agent, size and type of population exposed, previous exposure to the agent, and the time and place of occurrence. Thus, the designation of an outbreak is relative to the usual frequency of the disease in the same facility or community, among the specified population, over a comparable period of time. A single case of a communicable disease long absent from a population or the first invasion by a disease not previously recognized requires immediate reporting and epidemiologic investigation.

epidemiologically linked Norovirus cases within a 3-day period; or 3 or more cases of Influenza or Respiratory syncytial virus in a defined setting within a 3-day period).

- iii. A single case that may constitute an indication for notification (e.g. legionellosis if the patient has been in the hospital or SNF for the entire incubation period of 10 days) and source control measures are going to be implemented (e.g. point of use filters on faucets and showerheads, provision of bottled water); or identification of a single case of an emerging nosocomial pathogen such as *Candida auris* where patient notification is indicated as part of a public health investigation and response.
 - iv. Increase in the number of healthcare-associated cases of disease among patients over and above the usual number of cases (this could vary from facility to facility) over a comparable time period (e.g. multidrug-resistant organisms such as carbapenem-resistant *Enterobacteriaceae*, methicillin-resistant *Staphylococcus aureus*, *Acinetobacter*, *Pseudomonas*).
 - v. Scabies: one confirmed (positive skin scraping) and at least two clinically suspect cases identified in patients, healthcare workers, volunteers and/or visitors during a two-week period; or at least two clinically suspect cases identified in patients, healthcare workers, volunteers and/or visitors during a two-week period; and considering the epidemiologic links including the defined geographical location (e.g. nursing unit, floor or wing).
- B) Healthcare personnel or “HCP” includes both direct and indirect care personnel affected by the outbreak:
- i. Direct care (hands-on patient contact): including but not limited to physicians, interns, residents, fellows, nurses, nurses’ aides, physician assistants, respiratory therapists, nursing and medical students, phlebotomists, radiology technicians, physical and occupational therapists, volunteers, transportation staff
 - ii. Indirect care: including but not limited to environmental services, housekeeping, janitors/custodians, laboratorians, food service staff, laundry services, social workers
- C) “Notification” means written and/or verbal communication regarding an identified outbreak or increase in infections to patients, visitors, and HCP on the affected floor(s), unit(s), ward(s), or other hospital or SNF location(s).
- D) “Disclosure” means the forthright and empathetic discussion of clinically-significant facts between healthcare providers and patients or their representatives about the occurrence of a harmful adverse event, or an adverse event that could result in harm in the foreseeable future.

- E) “Epidemiologic Investigation” means the study of potentially-affected populations with the intent to ascertain a linkage between health effects (e.g. an infection) and a cause (e.g. an exposure).
- F) “Exposure” means the proximity to, or contact with, an environmental condition (e.g. an infectious pathogen) in such a manner that transmission of pathogen or harmful effects may occur.
- G) “Public notification” means broader communication outside the facility for public health purposes (e.g. for case finding, risk communication, disease prevention)

Overarching Principles:

- ☒ The healthcare provider/patient relationship is built on a foundation of trust, honesty and openness. Transparency regarding outbreaks fosters this relationship, whereas the appearance of secrecy can undermine it. The provider/facility has the primary responsibility of providing patients with information and education about outbreaks
- ☒ Transparency is paramount because it builds trust and credibility, thus increasing the likelihood that people will accept advice and comply with prevention and control measures. When information regarding potential risk is provided, those at increased risk can take appropriate actions, while those not at increased risk can be reassured.
- ☒ Facilities do not have complete control of information that may be shared during an outbreak; therefore, people may take inappropriate or unnecessary actions or feel they had been misled if information regarding their care is withheld (e.g. communicate basis for obtaining surveillance cultures, cohorting patients, enhanced infection control precautions)
- ☒ Transparency means releasing or making available upon request any information that is not required to be withheld (e.g. confidential patient information). Explain the rationale for any decision to withhold information and explain the basis to the extent possible.
- ☒ If there are no implications for the patient’s future health, unaffected patients may not need to be notified since it could cause a burden associated with unnecessarily worrying or confusing patients with inconsequential information. This needs to be balanced with the possibility that unaffected patients may become aware of or hear about an outbreak and think that the facility is hiding information from them or become concerned that they should be taking precautions.

Standard Communication Practice Recommendations

Hospital and SNF responsibilities²

- ☒ Communicate information regarding the increase in infections to affected patients (both to cases and those potentially exposed), visitors, and HCP; verbal and written communication is recommended. Provide affected patients and family members education and guidance regarding how the pathogen is transmitted, risk to others, protecting themselves from transmission, and what the facility is doing to protect patients, families, and HCP.
 - Notification should begin within 24 hours the outbreak is identified. Patients who have been infected should be notified first and notification to other prioritized groups should follow immediately/as soon as it's feasible. Notifications may occur simultaneously instead of sequentially.
- ☒ If directed by public health authorities, post visible written communications^{3,4}, on hospital or SNF letterhead about the increase in patient infections and post it in common areas of affected wards/units (content to be approved by the local public health authorities prior to posting). If a facility-wide increase is identified or the infections are not isolated to a specific ward/unit, public health will give further guidance (e.g. lobby area or front desk postings).
- ☒ Report additional cases promptly to the local health department.
- ☒ Post signage of precautionary measures that should be followed by patients and visitors to prevent further disease transmission.
- ☒ Disseminate information on a regular basis to affected HCP regarding the infection control measures (e.g. educational sessions, huddles, written communication such as emails or handouts, and signage for enhanced precautions).
- ☒ Document outbreak-related training and education of HCP on measures to prevent transmission.
- ☒ Report outbreaks or any usual occurrence that threatens the safety or health of others in the facility to the local public health authorities and to the CDPH Licensing & Certification District Office⁵ (L&C DO).

²Healthcare facilities may already have policies in place for disclosure of adverse events, the standard practices in this guidance are to complement existing practices, if not already in place. Healthcare facilities should also follow existing regulatory reporting requirements for reporting and notification.

³ Pursuant to California Health and Safety Code, Section 120175: Each health officer knowing or having reason to believe that any case of the diseases made reportable by regulation of the department, or any other contagious, infectious or communicable disease exists, or has recently existed, within the territory under his or her jurisdiction, shall take measures as may be necessary to prevent the spread of the disease or occurrence of additional cases.

⁴ Pursuant to Title 17 of the California Code of Regulations § 2501: Upon receiving a report made pursuant to Section 2500 or 2505, the local health officer shall take whatever steps deemed necessary for the investigation and control of the disease, condition, or outbreak reported.

⁵ Title 22 CCR § 70737

Local public health authority responsibilities

- ☒ Reinforce the responsibilities of the hospital or SNF in communicating information about outbreaks to patients, visitors, and HCP.
- ☒ Consider directing a facility to post written communications and signage include the time course and size of the outbreak and method of spread of the pathogen (e.g. airborne vs contact).
- ☒ Review and approve written communications; verify that it has been posted in visible areas (e.g. request that photos be sent to public health showing where notice was posted).
- ☒ Provide CDPH L&C DO with a copy of the recommendations made to the facility to prevent and control further disease transmission, including the recommendations (when issued) to post written communications in the facility to notify affected patients, visitors, and HCP.
- ☒ Communicate with the facility regarding further recommendations based on the epidemiologic investigation.
- ☒ Coordinate with public health Public Information Officers (PIOs) and the facility PIO as needed (e.g. written posting or when broader public notification is conducted).
- ☒ Communicate with the hospital or SNF when the notice can be removed.

Broader Public notification

The primary goal of broader public notification is for public health purposes to control and prevent disease transmission.

Consider the following for all types of notifications including if proceeding with broader public notification:

- Avoid creating a false sense of alarm out of proportion to actual risk.
- Address if the investigation is not completed to avoid drawing erroneous conclusions, for example implicating the wrong source and prematurely assigning blame, with potential associated costs.
- Clearly present what is known and not known and who is at risk versus not, to limit potential confusion among affected persons and/or public
- Unintended stigmatization of persons/groups affected by the outbreak or investigation.
- Unintentional identification of affected persons (confidentiality breach).

Examples when broader public notification may be indicated include:

- ☒ A novel illness is emerging, or has occurred, or is anticipated (e.g. first case of Middle East Respiratory Syndrome confirmed in the jurisdiction).

- ☒ Inability to reach those exposed that need to be notified (e.g. measles exposure).
- ☒ Case finding is needed outside the hospital or SNF where the infections were identified (e.g. *Mycobacterium chimera*).
- ☒ The increase in infections has attracted public attention, and pertinent facts are needed to allay concerns and anxiety or to more effectively communicate risks; could include incidents that involve a person or event in the news (e.g. Ebola).
- ☒ The increase in infections provides an important opportunity to communicate risks or advocate actions to a broader audience.
- ☒ The illness is severe; large number of cases affected; or there have been associated deaths.
- ☒ Notification of other healthcare facilities could prevent further disease transmission.

Templates:

- ☒ Written notification template for hospitals or SNF to post in affected unit(s) or wards(s) and common areas (e.g. lobby, nursing station, entry doors to ICU)
 - See attached samples - Sample A: generic template; Sample B: example of a CRE written notice

- ☒ Healthcare Facility Transfer Forms

These documents serve as templates that your facility can use to document and share important patient information upon transfer.

LACDPH- Healthcare Facility Transfer Form:

<http://publichealth.lacounty.gov/acd/docs/FacilityTransferForm.pdf>

CDPH HAI Program Healthcare Facility Transport Form:

<https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/Interfacility%20Transfer%20Form%20061417.pdf>

Resources:

Patient notification toolkit due to an unsafe practice or infection control breach

<https://www.cdc.gov/injectionsafety/pntoolkit/index.html>

Patient Education-Me and My Family, What Can We Do To Prevent HAI?

<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MeAndMyFamily.aspx>

SAMPLE A: GENERIC WRITTEN NOTIFICATION TEMPLATE

FACILITY LETTERHEAD

Date

Facility Name

Facility Address

City, State, Zip Code

Dear Patients, Visitors and Employees

Recently, several patients at [INSERT FACILITY NAME] in the [INSERT LOCATION/WARD/UNITS e.g. hematology-oncology, CCU, NICU, ICU] developed infections with a [BACTERIA/VIRUS/FUNGUS] called [INSERT ORGANISM NAME]. The [INSERT NAME OF COUNTY/CITY PUBLIC HEALTH DEPT] is working closely with our staff to investigate these infections and to prevent new infections.

[INSERT ORGANISM NAME] is commonly found in the [INSERT WHERE IT CAN BE FOUND e.g. water, soil, environment]. It can be spread by [INSERT ROUTES OF TRANSMISSION e.g. contact with water that is contaminated or transmitted by inadequate handwashing]. In the hospital or SNF, [INSERT ORGANISM NAME] can cause serious infections especially in people with [TYPES OF PATIENTS AT RISK FOR THE INFECTION e.g. those weakened immune systems].

[INSERT FACILITY NAME] has already taken the appropriate steps to investigate the increase in infections and has strengthened infection control practices. The risk of acquiring an infection at this facility, although low, is currently under investigation.

If you have any questions, please call our Infection Control Department at [INSERT FACILITY INFECTION CONTROL CONTACT PERSON'S NAME AND CONTACT NUMBER]

Sincerely,

FACILITY CONTACT PERSON

FACILITY NAME

SAMPLE B: EXAMPLE OF WRITTEN NOTIFICATION FOR CRE

FACILITY LETTERHEAD

Date

Facility Name

Facility Address

City, State, Zip Code

Dear Patients, Visitors, and Employees,

Recently, several patients at [FACILITY NAME] in the [NAME OF WARD/UNIT] were diagnosed with a bacterium called *Klebsiella pneumoniae* resistant to multiple antibiotics. This multidrug-resistant bacteria is a type of Carbapenem Resistant Enterobacteriaceae (CRE). The [NAME OF LOCAL PUBLIC HEALTH DEPARTMENT] is working closely with our staff to investigate how these infections occurred and to prevent new infections from occurring in our facility.

CRE are sometimes found in healthcare settings on surfaces and equipment and on patients who are infected or colonized (carriers) with the bacteria. CRE can be from spread person to person in healthcare settings. This is why it is so important for healthcare workers and visitors to wash their hands and use contact precautions such as gloves and gowns as appropriate, and for equipment and surfaces to be cleaned regularly.

While it can usually be treated, CRE is resistant to all commonly used antibiotics. In healthcare settings, CRE can cause serious infections, especially in people with weakened immune systems, people with chronic illnesses, and people with invasive medical devices.

Under the guidance of the [NAME OF LOCAL PUBLIC HEALTH DEPARTMENT] and the California Department of Public Health, [NAME OF FACILITY] is taking appropriate steps to investigate the increase in CRE infections and strengthen infection control practices. The cooperation of all staff and visitors in adhering to recommended infection control practices is crucial to preventing the spread of this bacteria in our facility.

Sincerely,

FACILITY CONTACT PERSON

FACILITY NAME



[Document removed]

P6

Short publication: Legionnaires' Disease Prevention:
Providing a Home for Guests, not *Legionella* (CDC)

LEGIONNAIRES' DISEASE PREVENTION

Providing a Home for Guests, not *Legionella*



Legionnaires' disease is a serious type of pneumonia (lung infection) caused by *Legionella* bacteria. **About 1 in 10 people who get Legionnaires' disease die from it.** Nearly 15% of Legionnaires' disease patients reported staying overnight at hotels, private homes, or vacation rental properties.

Take steps to prevent *Legionella* growth and spread at your rental properties to help keep you, your guests, and housekeeping staff safe.

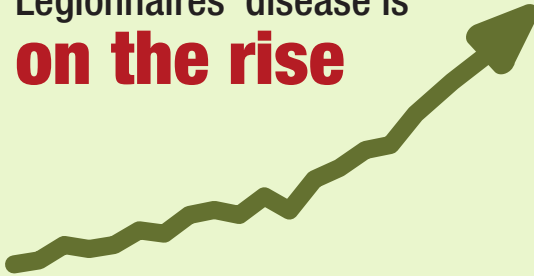
How can guests get sick from *Legionella* at your rental property?

Guests can be exposed to *Legionella* when it grows in fixtures and devices like showerheads, faucets, hot tubs, and decorative fountains. When people use or are near these items, they can breathe in small water droplets (mist). If those droplets contain *Legionella*, people can get Legionnaires' disease. Conditions that help *Legionella* grow include:

- Slowly moving or stagnant water
- Inadequate levels of disinfectant (e.g., chlorine)
- Warm water temperatures (77–113°F)
- Presence of sediment, scale, or biofilm. Sediment and scale are a build-up of minerals in a water system and use up disinfectant. Biofilm is made up of germs and the slime they secrete. Biofilm sticks to and grows on any surface that stays wet.

FACTS

Legionnaires' disease is **on the rise**



1 in 7 Legionnaires' disease patients reported travel away from home*



Half of people with Legionnaires' disease who reported travel to a vacation rental property also used a hot tub*



* Supplemental Legionnaires' Disease Surveillance System, Jan 2014–Nov 2021



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Vacation rental properties and hot tubs

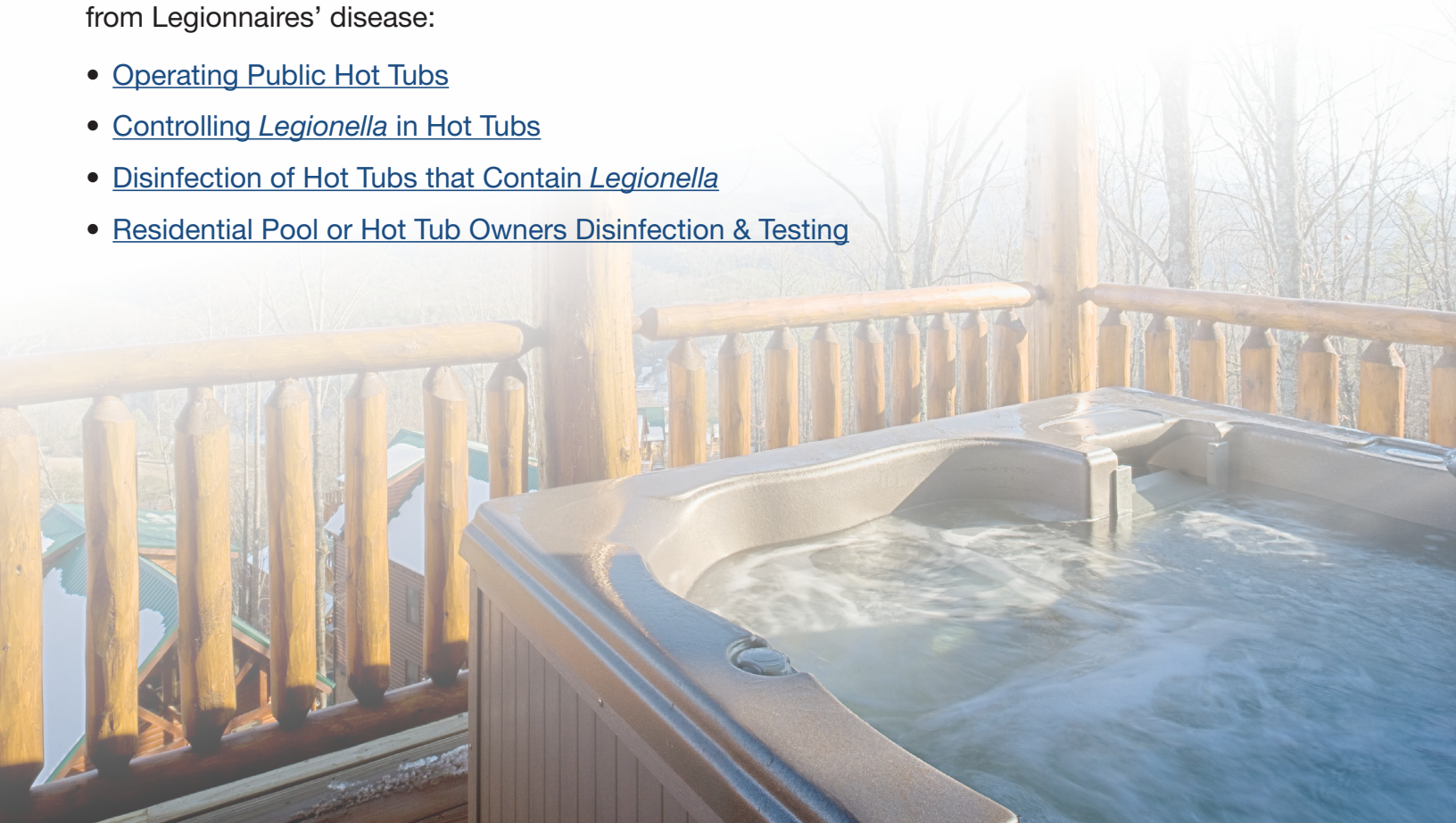
About half of Legionnaires' disease patients who reported travel and staying at a vacation rental property also reported using a hot tub. To help reduce the risk of *Legionella* in hot tubs, vacation property owners and managers should:

- Monitor and maintain adequate disinfectant levels (3–10 ppm for free chlorine or 4–8 ppm for bromine) and pH (7.2–7.8), even when the hot tub is not in use.
- Follow manufacturer recommendations for cleaning or scrubbing the hot tub (e.g., daily inspection for and removal of biofilm), replacing the filter and water, and practicing all other maintenance activities.
- Consider installing an automatic disinfectant system for the hot tub rather than handfeeding disinfectant.
- Follow any applicable local, state, territorial, federal, or tribal laws, which may differ from CDC recommendations.

If you are concerned about *Legionella* growth or if you have been made aware of guests diagnosed with Legionnaires' disease after using a hot tub at one of your properties, arrange for water samples to be collected and tested for *Legionella*. After those water samples have been collected, disinfect the hot tub. Contact your state or local public health agency for next steps and recommendations. Additional guidance on hot tub sampling and disinfection procedures are available in the [Disinfection of Hot Tubs guidance](#).

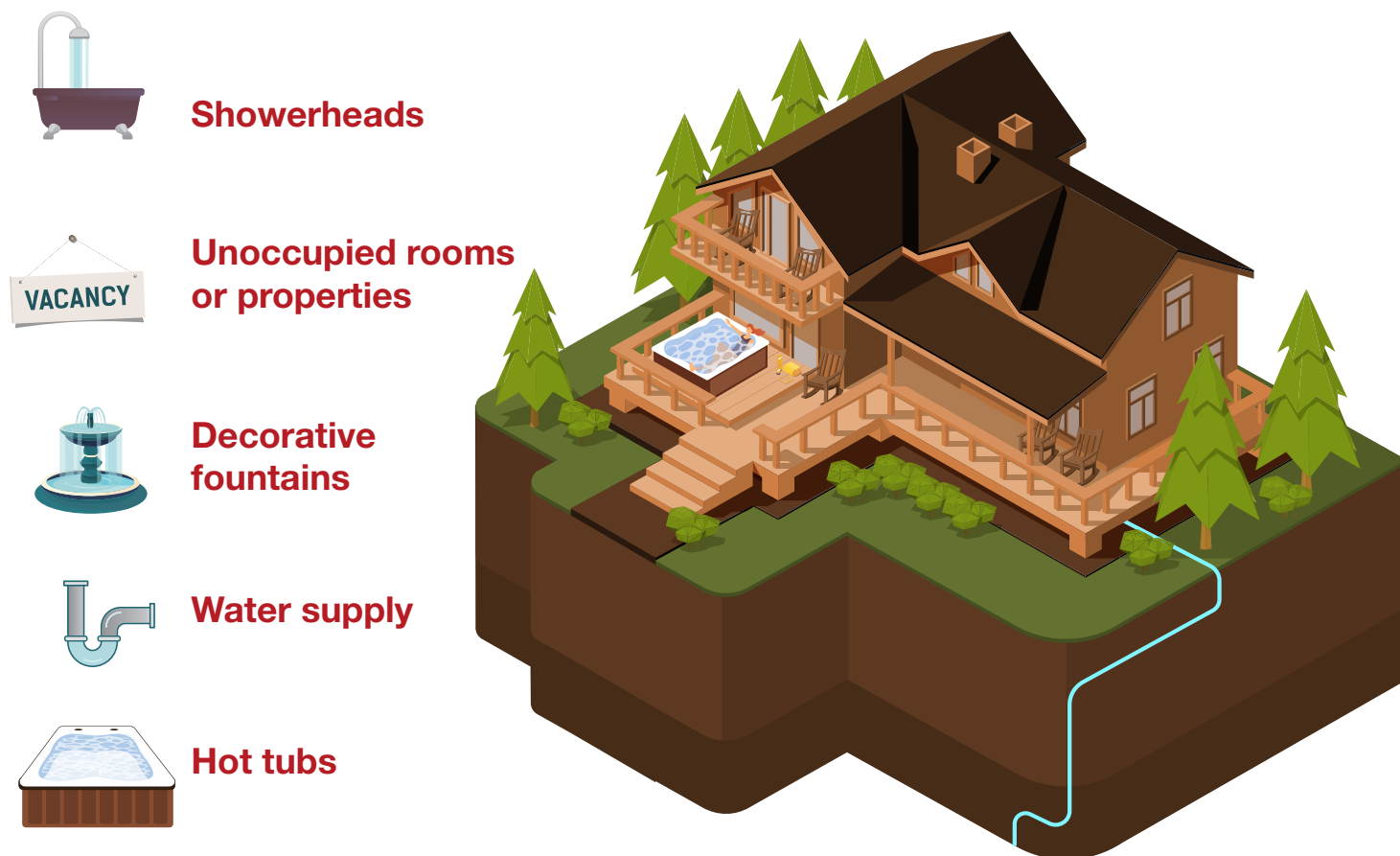
Below are additional resources on hot tub maintenance to help protect your guests and community from Legionnaires' disease:

- [Operating Public Hot Tubs](#)
- [Controlling *Legionella* in Hot Tubs](#)
- [Disinfection of Hot Tubs that Contain *Legionella*](#)
- [Residential Pool or Hot Tub Owners Disinfection & Testing](#)



Legionella can grow and spread in other areas of vacation rental properties

In addition to hot tubs, common sources of exposure to *Legionella* in vacation rental properties include other devices and fixtures that make water droplets small enough to float in the air. These include showerheads, faucets, and decorative fountains.



Showerheads: *Legionella* can grow in and spread through showerheads if they have not been used regularly (e.g., a week or more), if they have not been replaced or cleaned in a long time (e.g., there is visible buildup on the aerators), or if there are low disinfectant levels in the water.

Unoccupied rooms or properties: Low or irregular occupancy decreases water flow and can decrease disinfectant levels in water. If faucets or showerheads have not been used for a week or more, flush them shortly before guests arrive. Additional instructions are available on how to [flush faucets and showerheads](#).

Decorative fountains: Operate and maintain all fountains according to manufacturer recommendations. Minimum cleaning frequency recommendations vary by fountain size and can be found in the [Legionella Control Toolkit](#). Exposure to warm air, heat-generating submerged lights, or other factors can increase the water temperature into the range favorable for *Legionella* growth (77–113°F). Additional strategies for controlling *Legionella*, such as adding disinfectant, will be required.

Water supply: Below are considerations to lower the risk of *Legionella* growth in your property's plumbing system.

- **Public water system (municipal water, water utility):** Events that disrupt the delivery of water to the plumbing system (e.g., water main breaks, water utility repairs) can allow dirt to enter the system and use up disinfectant. Sign up (opt-in) for local alerts to stay informed about such public water system events and follow [water advisory recommendations](#).
- **Well water:** To maintain safe drinking water, private well owners are responsible for [testing](#) the quality of their drinking water and [maintaining](#) their own wells. For more information and technical assistance on well construction, maintenance, water quality, and water treatment issues, contact your state or local health department, a local agricultural extension agency, or a private well contractor.
- **Water softeners and filters:** Follow the manufacturer recommendations to properly maintain and operate water softeners and filters. Some filters, like those typically found on faucets or devices like ice machines, use carbon to get rid of disinfectant residual to improve the taste of the water. *Legionella* can still grow in these filters if not properly maintained.
- **Water heater:** Set your property's water heater at or above 120°F to minimize the growth of *Legionella*. A hotter water temperature of 130–140°F can kill many harmful germs, but also increases the risk of scalding. Be sure to follow state and local laws related to scalding. If the water heater is set above 120°F, make sure to take extra precautions to mix cold and hot water (using thermostatic mixing valves) at the faucet or shower to avoid scalding. This is especially important if young children, older adults, or other people at increased risk of scalding stay in your property. In addition to keeping the water heater at recommended temperatures, routinely flush the water heater according to manufacturer recommendations. For rental properties that are part of a condominium or apartment building, check if the water heater is maintained by the building owner or the homeowner's association. Multi-unit buildings with centralized hot water systems should have a [water management program](#) to reduce *Legionella* growth and spread.

ADDITIONAL RESOURCES on how to protect your guests and community from Legionnaires' disease:

- [Preventing Waterborne Germs at Home](#)
- [Legionella Control Toolkit](#)
- [Private Ground Water Wells](#)
- [Well Maintenance](#)
- [Well Testing](#)
- [Choosing Home Water Filters & Other Water Treatment Systems](#)
- [A Guide to Drinking Water Treatment Technologies for Household Use](#)
- [Cisterns and Other Rain Catchment Systems](#)



Fact sheet: LD fact sheet (Wisconsin)

LEGIONELLOSIS

(Legionnaires' disease, Pontiac fever)

Please note: This document may not reflect current CDC and CSTE guidance. Please refer to current CDC, CSTE, and state sources to confirm up-to-date guidance.

Legionellosis is an infection caused by *Legionella* bacteria. There are two different types of legionellosis: Pontiac fever and Legionnaires' disease. Pontiac fever is a mild respiratory illness and Legionnaires' disease is a type of pneumonia. Most of the time, legionellosis happens as a single event, but outbreaks involving large numbers of people have happened. Those who have a compromised immune system, who smoke, or who are 50 years or older are more likely to be affected by legionellosis.

How is it spread?

- ▶ *Legionella* bacteria can be found in both natural and man-made water sources.
- ▶ *Legionella* bacteria grow well in warm water (e.g., cooling towers, hot tubs, plumbing systems, hot water heaters, decorative fountains).
- ▶ People become sick when they breathe in mist from a water source that has *Legionella* bacteria.
- ▶ It cannot normally be spread from person to person.

What are the signs and symptoms?

*Symptoms usually start two to 10 days after breathing in mist or water droplets that have *Legionella* bacteria.*

- ▶ Muscle aches
- ▶ Headache
- ▶ Tiredness
- ▶ Loss of appetite
- ▶ Coughing
- ▶ Fever
- ▶ Diarrhea (occasionally)

What are the treatment options?

- ▶ Treatment depends on whether the person has Pontiac fever or Legionnaires' disease.
- ▶ Pontiac fever requires supportive care only and will go away on its own.
- ▶ Legionnaires' disease requires treatment with antibiotics.

How can it be prevented?

- ▶ There are no vaccines against *Legionella* bacteria.
- ▶ To prevent *Legionella* bacteria from growing, it is important to make sure that water systems in buildings are being properly cared for and maintained.



P8

Fact sheet: Legionnaires' Disease Prevention: Making a
Splash with Safe Water (CDC)

LEGIONNAIRES' DISEASE PREVENTION

Making a Splash with Safe Water



Legionnaires' disease is a serious type of pneumonia (lung infection) caused by *Legionella* bacteria. It can be associated with **hotels and resorts**, and may be **deadly and costly**. Prevention keeps guests and employees healthy — it makes good business sense, too!

Guest and employee safety is the first priority

Legionnaires' disease is deadly for approximately 1 in 10 people who get it. Outbreaks at hotels and resorts may interrupt services, which can diminish the guest experience and lead to considerable financial and reputational costs. However, the problems that lead to Legionnaires' disease are preventable through water management programs.

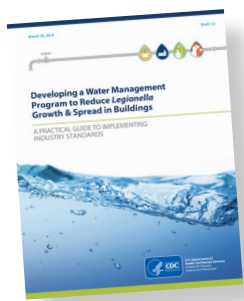
Guidance available:

Start your water management program today

A water management program is a multi-step, continuous process designed to

- Identify areas in a building where *Legionella* could grow and spread
- Reduce risk by managing and monitoring the water system
- Trigger action when risks are identified

Get started by creating a team with the right mix of skills so you can develop the most effective program possible.



Water management programs are now an industry standard for large buildings in the United States

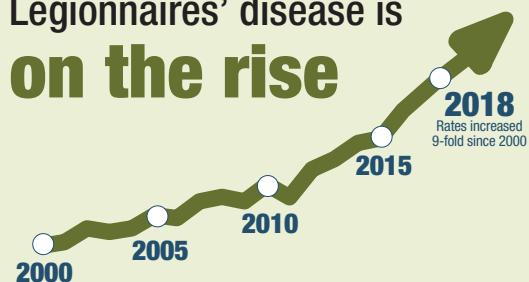
Centers for Disease Control and Prevention (CDC) has a free toolkit with practical guidance on how to tailor a water management program for your building and needs.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

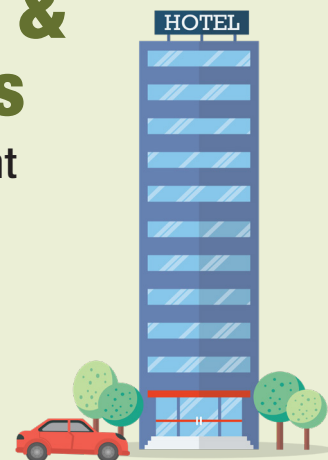
FACTS

Legionnaires' disease is
on the rise



Hotels & resorts

are frequent
settings for
outbreaks



Water management programs

**can prevent
problems**

that lead to
outbreaks



Legionella can grow and spread in **many areas of hotels and resorts**

Legionella can make people sick when the bacteria grow in water and spread in droplets small enough for people to breathe in. *Legionella* grows best in warm water that is not moving or that does not have enough disinfectant to kill the bacteria.

Cooling Towers

When disinfectant levels are low, cooling tower fans can spray water containing *Legionella*.

Unoccupied Floors or Rooms

Low occupancy decreases water flow, which can decrease disinfectant levels and increase the risk of *Legionella* growth.

Showers

Legionella can grow in and spread through showerheads if a building's water has low disinfectant levels.

Hot Tubs

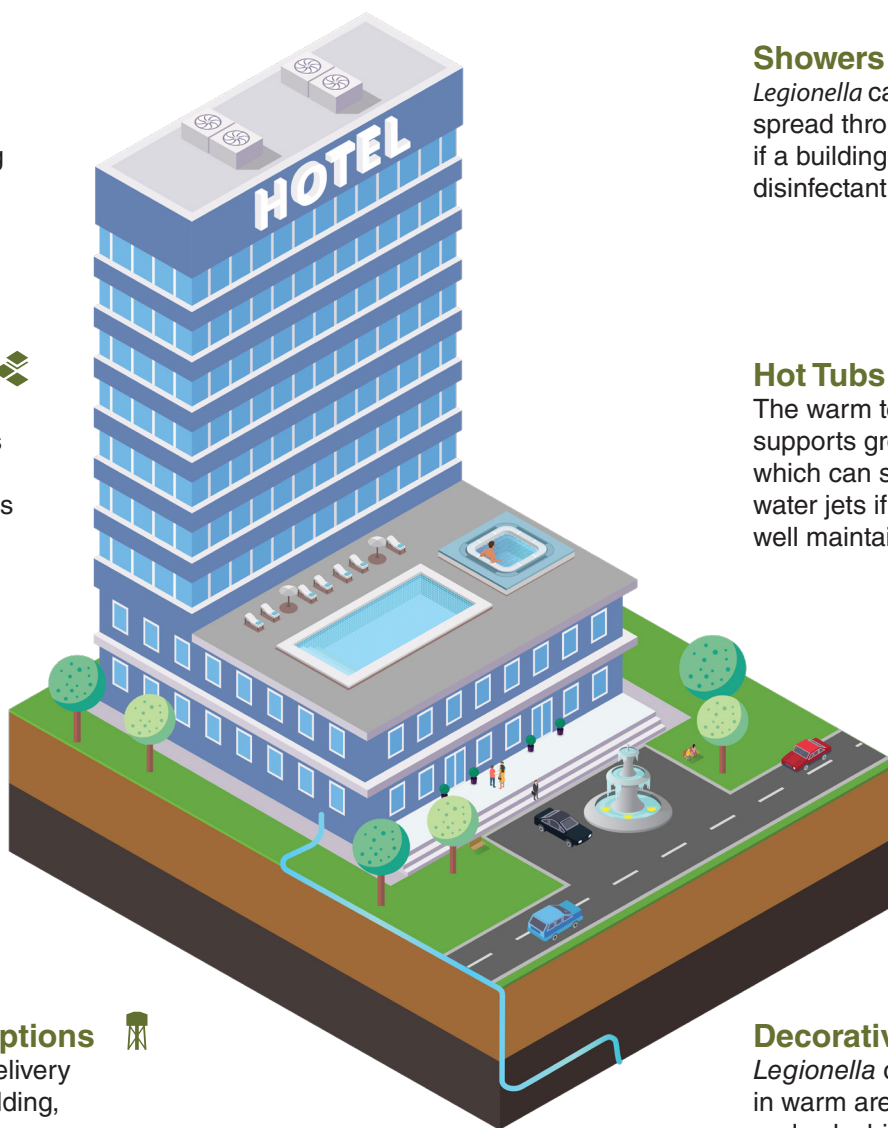
The warm temperature supports growth of *Legionella*, which can spread through water jets if hot tubs are not well maintained.

Water Supply Interruptions

Events that interrupt the delivery of municipal water to a building, such as nearby construction, can allow dirt to enter the system and use up disinfectant.

Decorative Fountains

Legionella can grow in warm areas of a fountain and splashing can spread water containing *Legionella*.



Steps you can take

1

**Learn more
about the problem**

www.cdc.gov/vitalsigns/legionnaires/

2

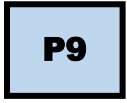
**Learn more
about prevention**

www.cdc.gov/legionella/WMPtoolkit

3

**Get assistance
locally**

<https://go.usa.gov/xmdTn>



Message map: Message map for *Legionella* investigation
(Wisconsin)

Key Messages:	Supporting Information:
Message 1: People can become sick when they breathe in mist from a water system that has <i>Legionella</i>.	<i>Legionella</i> is a bacterium that is found naturally in freshwater environments (like lakes and streams), but it can cause human illness when it grows and spreads in human-made water systems (for example, large plumbing systems, cooling towers, hot tubs, decorative fountains).
	People may become infected when they breathe in a mist or vapor from a water source containing <i>Legionella</i> . It can cause Legionnaires' disease, a serious type of pneumonia (lung infection), or Pontiac fever, a mild respiratory illness.
	Most of the time you can't catch Legionnaires' disease from someone else, and you can't get someone else sick if you have it.
Message 2: Most healthy people don't get sick from <i>Legionella</i>.	Most healthy people don't get Legionnaires' disease after being exposed to <i>Legionella</i> . Being 50 years or older or having certain risk factors, like being a current/former smoker, having chronic lung disease or a weakened immune system, can increase the chances of getting sick.
	Symptoms of Legionnaires' disease can include cough, shortness of breath, muscle aches, headache and fever. Symptoms usually begin 2-10 days after being exposed to <i>Legionella</i> bacteria.
	Legionnaires' disease can be treated with antibiotics, and people with this disease may need to be hospitalized. Contact your healthcare provider right away if you become ill with symptoms of Legionnaires' disease.
Message 3: The [LHD], DPH, and other public health partners are working closely with the [facility] on this investigation.	[Insert number of cases] individuals became ill with Legionnaires' disease within two weeks following their stay at the [facility] during the past [xx] months.
	Legionnaires' disease is a reportable condition in Wisconsin and the U.S., and DPH and [LHD] were notified about these persons' illnesses.
	Working with the [facility], DPH, and the WI Department of Agriculture, Trade, and Consumer Protection (DATCP), the [LHD], and the WI Department of Safety and Professional Services (DSPA) conducted an environmental assessment and collected water samples for testing. [Additional water samples were collected by a consulting company hired by the [facility].] Tests of water samples taken at the [facility] were

	positive for <i>Legionella</i> bacteria.
	The [facility] must take the required steps to eliminate <i>Legionella</i> bacteria from their water system (remediation). The [facility] must also develop a water management plan as a long-term solution to prevent <i>Legionella</i> from growing in their system.
	Once initial remediation steps are taken, samples will be collected for follow-up testing to ensure <i>Legionella</i> is eliminated from the [facility's] water system.
	While remediation activities are in progress, the [facility] is providing detailed information to [residents/guests] and staff on temporary measures they can take to prevent exposure to <i>Legionella</i> within the facility (for example, using bottled water for drinking and brushing teeth, taking baths instead of showering). These measures will be in place until the bacteria are eliminated from the system.
	[Additional language/measures may be: • While remediation activities are in progress, the [facility] is installing point-of-use filters [on faucets and/or showers] to minimize the risk of exposure to <i>Legionella</i>. • While remediation activities are in progress, the [facility] is closed until tests show that the bacteria are eliminated from the water system.]

Additional resources

WI DHS legionellosis webpage: <https://www.dhs.wisconsin.gov/disease/legionellosis.htm>

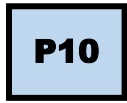
Legionnaires' disease fact sheets from WI DHS:

- English: <https://www.dhs.wisconsin.gov/library/p-42066.htm>
- Spanish: <https://www.dhs.wisconsin.gov/publications/p4/p42066s.pdf>
- Hmong: <https://www.dhs.wisconsin.gov/publications/p4/p42066h.pdf>

CDC *Legionella* webpage: <https://www.cdc.gov/legionella/index.html>

CDC communication resources and templates:

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



Factsheet: Diagnosing Legionnaires' Disease: Best Practices
(Wisconsin)

DIAGNOSING LEGIONNAIRES' DISEASE: BEST PRACTICES



Public health needs your assistance with diagnosing and reporting cases of [Legionnaires' disease](#) to help determine possible sources of exposure to [Legionella](#).

Diagnostic testing

The only way to determine if a patient with pneumonia has Legionnaires' disease is by collecting appropriate specimens and ordering specific [diagnostic tests](#). As a best practice, **order both of the following**:

1. *Legionella* urinary antigen test



2. *Legionella* culture of sputum or other lower-respiratory specimen

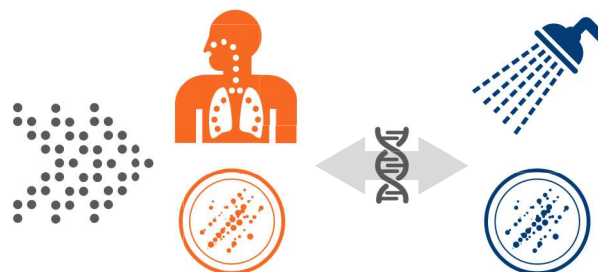
Legionella will not grow on standard media used for routine sputum cultures.

A *Legionella* culture must be specifically ordered.

Why is *Legionella* culture important?

Culture can identify all species and serogroups of *Legionella* that can cause disease, unlike the urinary antigen test, which only detects *Legionella pneumophila* serogroup 1.

Having clinical isolates of *Legionella* is essential to determine links among clinical cases and with environmental sources.



Who should be tested for Legionnaires' disease?

Patients with pneumonia who:

- Have failed outpatient antibiotic therapy for community-acquired pneumonia.
- Have severe illness, such as those requiring admission to the intensive care unit.
- Are immunocompromised.
- Have traveled away from their home within 14 days before illness onset.
- Have a known or possible exposure to *Legionella* (for example, during an outbreak).
- May have healthcare-associated pneumonia (onset 48 hours or more after admission).

Consider testing patients with pneumonia who:

- Are age 50 years or older.
- Are current or former smokers.
- Have chronic lung disease, such as emphysema or COPD.
- Have cancer or other underlying illness, such as diabetes, renal failure, or hepatic failure.





Factsheet: Disinfection of Hot Tubs that Contain *Legionella*
(CDC)

Disinfection of Hot Tubs that Contain *Legionella*

Accessible version: <https://www.cdc.gov/legionella/wmp/hotTub-operators.html>

Hot tubs* that contain *Legionella* bacteria can cause outbreaks of disease. *Legionella* can cause [Legionnaires' disease](#), a serious type of lung infection, and a milder infection called Pontiac fever. It is critical to collect water samples, **then** disinfect hot tubs linked to cases of Legionnaires' disease or Pontiac fever.



This photograph shows *Legionella* spp. colonies grown in culture and illuminated using ultraviolet light.

CDC-recommended best practices

No scientific studies have determined the best way to disinfect a hot tub that contains *Legionella*. **CDC recommends following these steps** based on currently available scientific information:

- 1. Close the hot tub immediately.**
 - Shut down the hydrotherapy jets and circulation pumps, but **do not** drain the water.
- 2. Contact your state or local public health agency.**
 - The health department will determine if you need to conduct laboratory testing.
- 3. Collect water samples if directed by the health department.**
 - If so, always collaborate with your state or local public health agency and a laboratory with *Legionella* testing expertise. View a [CDC list of laboratories that test for Legionella](#).
 - Have samples taken from the tub, hydrotherapy jets, drain, and filters or filter media before proceeding to step 4. Find [additional information and tools from CDC on water sampling](#).
 - You do not have to wait for laboratory results before disinfecting the hot tub. However, do not re-open the hot tub for use until all test results are negative for *Legionella*.
- 4. Drain all water from the hot tub.**
 - Dispose of the water to waste or as directed by the local regulatory authority.
- 5. Vigorously scrub all hot tub surfaces, skimming devices, and circulation components.**
 - Use water with free chlorine at a minimum concentration of 5 parts per million (ppm) to remove any biofilm (slime). After scrubbing, rinse the tub with clean water and flush to waste.
- 6. Replace filters (for cartridge or diatomaceous earth filters) or filter media (for sand filters).**
 - Bag these and dispose as normal solid waste.
- 7. Make any needed repairs.**
 - Inspect the hot tub thoroughly for any broken or poorly functioning components such as valves, sensors, tubing, or disinfectant feeders.
- 8. Refill and hyperchlorinate using 20 ppm free chlorine.**
 - Keep the hydrotherapy jets off and let the hyperchlorinated water circulate for 1 hour in all of the components of the hot tub including the compensation/surge tank, filter housing, and piping.
 - Turn on the hydrotherapy jets to circulate the hyperchlorinated water for 9 additional hours. Maintain 20 ppm of free chlorine in the system for the **entire 10 hours**.



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Control and Prevention

cdc.gov/legionella

9. **Flush the entire system.**
 - This removes the hyperchlorinated water from all equipment.
10. **Take new samples to confirm the elimination of *Legionella*.**
 - At least 48 hours after the device has been restored to normal operating conditions, have samples taken from:
 - » Tub
 - » Hydrotherapy jets
 - » Drain
 - » Filters or filter media
 - » Any part of the hot tub that originally tested positive for *Legionella*
11. **Keep the hot tub closed until testing confirms the elimination of *Legionella*.**
 - If laboratory testing is positive for *Legionella*, repeat steps 4 through 10 until all testing is negative.
 - If laboratory testing is negative for *Legionella*, proceed to step 12.
12. **Ensure water quality prior to reopening the hot tub for use.**
 - Ensure that halogen (chlorine or bromine) and pH levels meet local and state standards.
13. **Maintain water quality according to local and state standards.**
 - See “Prevention through regular operation and maintenance” section below for additional information.
 - Continued *Legionella* testing may be considered on a case-by-case basis.
 - If the hot tub is associated with an outbreak, the following continued laboratory testing schedule may be considered:
 - » Conduct culture-based testing every 2 weeks for 3 months, then every month for 3 months.
 - » If testing finds *Legionella* at any time during this 6-month period, disinfect again and start the testing schedule over.
 - » For hot tubs that continue to grow *Legionella*, consider hiring a consultant with expertise in *Legionella* remediation.

Note: There are no data to suggest that personal protective equipment is required for disinfecting a hot tub, but N95 respirator masks may be worn during the disinfection process. Respirators must be used in accordance with a comprehensive respiratory protection program, which includes fit testing, training, and medical clearance (see [Occupational Safety and Health Administration standard 29 CFR 1910.134](#)). Visit the [National Institute for Occupational Safety and Health N95 respirator web page](#).

Prevention through regular operation and maintenance

[Proper operation and maintenance of hot tubs](#) can help prevent the growth of *Legionella* and protect people’s health. View [CDC’s Model Aquatic Health Code](#) for guidance on making water activities healthier and safer. Water management programs take a preventive approach by reducing the risk of *Legionella* growing and spreading in building water systems. See CDC’s toolkit on [how to develop a Legionella water management program](#).

References:

1. ANSI/ASHRAE. [Legionellosis: Risk management for building water systems](#). Atlanta, GA: ASHRAE; 2015.
2. ASHRAE. [Minimizing the risk of legionellosis associated with building water systems](#). Atlanta, GA: ASHRAE; 2000.
3. CDC. [Developing a water management program to reduce Legionella growth and spread in buildings: A practical guide to implementing industry standards](#). Atlanta, GA: 2017.

* The phrase “hot tubs” in this document includes hot tubs, whirlpool spas, and hydrotherapy spas.

Legionellosis rev Jan 2021

BASIC EPIDEMIOLOGY

Infectious Agent

Legionella species are Gram-negative bacilli commonly found in water. There are over 50 species and approximately 70 serogroups currently recognized. *L. pneumophila* serogroup 1 is primarily responsible for human disease followed by *L. micdadei*, *L. bozemanii*, *L. dumoffi*, and *L. longbeachae*.

Transmission

Transmission occurs by inhaling aerosols from a water source contaminated with the *Legionella* bacteria. An example is breathing in steam or mist from a contaminated hot tub. Transmission may also occur by aspirating contaminated water. (See [Legionella Ecology and an Introduction to Environmental Health and Engineering](#) video for more information.)

Incubation Period

The incubation period for Legionnaires' disease is 2–10 days with most infections occurring 5–6 days after exposure. Pontiac Fever can occur in 5–72 hours after exposure, but most often occurs 24–48 hours after exposure.

(Note: The incubation period for Legionnaires' disease is most commonly 2–10 days, with an average of 5–6 days, but has been reported to be up to 19 days in rare cases. For routine surveillance purposes, exposure histories are collected for the 10 days prior to onset. However, in outbreak settings where it is important to consider a wide range of possible sources, use of a 14-day incubation period is often desirable.)

Communicability

No human-to-human transmission occurs.

Clinical Illness

- **Legionnaires' disease** is a common cause of pneumonia. Symptoms may include a high fever, shortness of breath, chills, non-productive cough, muscle aches and headache. Chest pain, altered mental status, abdominal pain, nausea, vomiting and diarrhea are also common.
- **Pontiac Fever** presents as a self-limited febrile illness that does not result in pneumonia. Symptoms may include fever, cough, headaches and muscle aches. Complete recovery usually occurs within a week without antibiotics.

Severity

Almost all patients with Legionnaires' disease require hospitalization, and the case fatality rate of Legionnaires' disease is 5% to 30%. The case fatality rate is often higher in nosocomial cases. Pontiac fever does not result in death and hospitalization is rarely required.

DEFINITIONS

Clinical Case Definition

Legionellosis is associated with two clinically and epidemiologically distinct illnesses: Legionnaires' disease, which is characterized by fever, myalgia, cough and clinical or radiological pneumonia; and Pontiac Fever, a milder illness without pneumonia.

Laboratory Confirmation

A clinically compatible case that meets at least one of the confirmatory laboratory criteria:

- Isolation (culture) of any *Legionella* organism from respiratory secretions, lung tissue, pleural fluid or other normally sterile fluid
- Detection of any *Legionella* species from lower respiratory secretions, lung tissue, or pleural fluid by a validated nucleic acid amplification test (e.g. PCR)
- Detection of *Legionella pneumophila* serogroup 1 antigen in urinary using validated reagents
- Demonstration of seroconversion by a fourfold or greater rise in specific serum antibody titer between paired acute and convalescent phase serum specimens to *Legionella pneumophila* serogroup 1 using validated reagents

Note: DFA tests for *Legionella* are not considered confirmatory for determining the case classification of Legionellosis cases.

Case Classifications

- **Confirmed:** A clinically compatible case that meets at least one of the confirmatory laboratory criteria
- **Probable:** A clinically compatible case with an epidemiologic linkage* during the incubation period

**Epidemiologic linkage criteria:*

1) Linkage to a setting with a confirmed source of *Legionella*

OR

2) Linkage to a setting with a suspected source of *Legionella* that is associated with at least one confirmed case

Case Categories (Confirmed cases of Legionellosis may be further categorized to describe type of exposure.)

- Travel-associated case
 - A case that has a history of spending at least one night away from home, either in the same country of residence or abroad, in the 10-day incubation period
- Healthcare-associated (nosocomial) case
 - Definitely: A case that has a history of spending the entire 10-day incubation period in a hospital or a long-term care facility
 - Possibly: A case that had exposure to a healthcare facility for any portion of the 10-day incubation period

Cluster and Outbreak Definitions

- Cluster:
 - Two or more cases linked by areas of residence (building, street block, neighborhood, etc.), work or places visited, with sufficient closeness in dates of onset of illness to warrant further investigation

- Outbreak:
 - Two or more cases associated with the same facility (e.g., hotel, gym, etc.) or other common location (e.g., amusement park) within 1 year, OR
 - One definitely healthcare-associated case or two or more possibly healthcare-associated cases within 1 year associated with the same healthcare facility

SURVEILLANCE AND CASE INVESTIGATION

Case Investigation

Local and regional health departments should investigate all reports of clinically suspected Legionellosis. Investigations should **always** include an interview of the case-patient or a surrogate to obtain a detailed exposure history. Please use the Legionellosis Investigation Report Form available on the DSHS website: <http://www.dshs.texas.gov/idcu/investigation/>.

Case Investigation Checklist

- ☐ Confirm that the laboratory results meet the case definition.
 - Urinary antigen and respiratory culture are preferred testing methods for clinical *Legionella* confirmation.
 - If only one antibody test was performed and symptoms are consistent with Legionellosis, consider requesting that the attending physician order a convalescent antibody test or a urinary antigen test, especially in an outbreak setting.
- ☐ Review medical records or speak to an infection preventionist or physician to verify demographics, symptoms, underlying health conditions and course of illness.
- ☐ Interview the case-patient (or surrogate).
 - Use the Legionellosis Investigation Report Form available on the DSHS website: <http://www.dshs.texas.gov/idcu/investigation/>.
 - If cruise ship exposure is reported during the incubation period, interview the patient with the DSHS Legionellosis Investigation Report Form AND the Legionellosis Cruise Ship Questionnaire at <http://www.cdc.gov/legionella/health-depts/inv-tools-single/index.html>.
 - Jurisdictions that are experiencing a significant increase in Legionellosis cases should interview patients with the DSHS Legionellosis Investigation Report Form AND also consider completing the Legionellosis Hypothesis-Generating Questionnaire (<http://www.cdc.gov/legionella/health-depts/inv-tools-single/index.html>)
 - Determine the patient's onset date. This may be difficult for patients with complex medical histories or those with atypical symptoms. When onset date is uncertain for these reasons, consult all of the following sources:
 - Patient or surrogate interview
 - Medical summaries and progress reports, consultations, radiology (chest x-ray) reports, and medication records (specifically antibiotics) for all medical facilities visited in the 2-4 weeks prior to suspected symptom onset
 - For the 10 days prior to illness onset, identify risk factors, travel history and other potential exposures such as hospital, dental and long-term care facility visits/stays or visits to any other location where aerosolization of water may have occurred (e.g., gyms, saunas, restaurants with outdoor misters or fountains, truck stops with showers, etc.).
 - Obtain detailed information on travel or facility exposures including exact dates, room numbers, the name of the facility, and the facility's complete physical address (since facilities may have similar names and multiple locations).
 - If at least three, unsuccessful attempts were made to contact the case-patient or surrogate, please complete the case investigation form with available information and indicate the reason for missing information (e.g., lost to follow-up – patient did not return call; multiple messages left).
 - If initially the patient is unable to communicate for interview due to severity of illness, conduct the initial interview with the patient's surrogate and interview the patient when the patient is able to communicate.
- ☐ Implement control measures for cases, contacts and/or facilities in the assigned jurisdiction (see list of control measures below).

- If suspected healthcare-associated, travel-related or other exposures are identified, notify DSHS and other jurisdictions, if necessary, in which the possible exposure occurred, using appropriate notification channels.
 - **Notify DSHS within 1 business day of when a healthcare-associated or travel-related exposure is identified.**
 - DSHS tracks potential Legionellosis exposures in Texas.
 - DSHS will share all out-of-state exposures and in-state exposures that may affect out-of-state residents with the Centers for Disease Control and Prevention (CDC) who will notify other states/jurisdictions as needed.
- When cases report travel or exposure to healthcare facilities or other institutions during their incubation periods, or in the event of a cluster or outbreak, complete the applicable steps in the Managing Special Situations section.
- In the event of a death, a copy of the discharge summary, death certificate, or autopsy report should be obtained.
- Complete the investigation form(s) and fax or send a secure email to DSHS.
- Copies of the medical records (admission report, history and physical, progress notes, laboratory results, radiology reports, discharge summary, etc.) accompanying completed case investigation form(s) is strongly recommended.
- Enter all confirmed Legionellosis case investigations and submit a notification in the NEDSS Base System (NBS).
 - Please refer to the *NBS Data Entry Guidelines* for disease-specific entry rules.

Prevention and Control Measures

Cases, contacts and the general public

- Provide education on Legionellosis as needed. Emphasize the following:
 - Low risk of Legionnaires' disease for most healthy individuals
 - No human-to-human transmission
 - Close contacts of the case at risk only if exposed to the same source as the case
 - Increased risk of infection for individuals who are immunosuppressed, have chronic obstructive pulmonary disease (COPD) or have other risk factors such as diabetes or history of smoking
- Recommend using sterile water for respiratory therapy devices. Do not use tap water.
- Recommend that high risk sources such as hot tubs are maintained properly including:
 - Maintenance of appropriate pH (7.2–7.8) and disinfectant levels
 - Removal of slime or biofilm
 - Replacement of filters as recommended by the manufacturer
 - For more information, see <http://www.cdc.gov/legionella/about/prevention.html> and www.cdc.gov/healthywater/swimming/rwi/illnesses/legionella.html.
- Recommend that anyone experiencing symptoms be evaluated by a medical provider.
 - Collect demographic information and symptom history on ill contacts.
- No environmental testing of water is recommended for a single case that is only possibly associated with a facility/exposure.
- General prevention messages include:
 - Don't smoke.
 - Don't use hot tubs or whirlpools that are not well maintained.
 - Don't use tap water in humidifiers or respiratory therapy devices.
 - Thoroughly clean and maintain any humidifiers, respiratory therapy devices, hot tubs, fountains or other devices or equipment that can aerosolize water per the manufacturer's directions.

- Women planning a water birth
 - Women who are planning a water birth should educate themselves on the process, carefully considering the documented benefits and risks of water birth at different stages of labor.
 - Research birth providers and facilities to ensure that infection prevention plans are in place for water births and are actively in use to protect patients.
 - Read the DSHS Midwifery Board's Waterbirth Guidelines: "Information for Client Discussion Regarding the use of Water during Labor and Birth", "Guidelines for Water Immersion and Waterbirth", and "Pool Setup and Cleaning Recommendations" (combined document) at <http://www.dshs.texas.gov/idcu/disease/legionnaires/links/>.

Healthcare providers and facilities (healthcare and non-healthcare)

- Remind local healthcare providers to consider Legionellosis as a cause of pneumonia and report confirmed or clinically suspected cases.
 - Indications for *Legionella* testing (<http://www.cdc.gov/legionella/clinicians/clinical-features.html>):
 - Patients who have failed outpatient antibiotic therapy for community-acquired pneumonia
 - Patients with severe pneumonia, in particular those requiring intensive care
 - Immunocompromised patients with pneumonia
 - Patients with pneumonia in the setting of a Legionellosis outbreak
 - Patients with a travel history in the two weeks prior to illness onset
 - Patients suspected of healthcare-associated pneumonia
- Notify the director of any facility that the case-patient stayed at or visited during the incubation period.
- Request that the facility notify the health department if any guest/customer/resident/patient complains of respiratory illness or pneumonia after staying/visiting there.
 - If there were additional complaints of illness, collect suspected case-patient names, room numbers and contact information.
- Remind the facility of the importance of proper maintenance.
 - See CDC's Water Systems Maintenance website: <http://www.cdc.gov/legionella/water-system-maintenance.html>
 - Facilities should take steps to minimize the risk of Legionellosis associated with building water systems. Refer to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) current guidance (ASHRAE Guideline 12-2020 and ANSI/ASHRAE Standard 188-2018) and the CDC toolkit "Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards" for more information.
 - Recommend review of maintenance procedures of hot tubs, pools, whirlpools, birthing tubs, cooling towers, decorative fountains or any other sources of possible aerosolization of water. Important features in maintenance plans include procedures for:
 - Maintaining appropriate hot and cold water temperatures
 - Maintaining and monitoring pH and disinfectant levels including residual free chlorine
 - Replacing filters per manufacturer's recommendations
 - Performing emergency disinfection/remediation as needed
 - For more information, see www.cdc.gov/legionella/about/prevention.html.
 - Encourage the facility to hire a professional maintenance company for their equipment (e.g., hot tubs, pools) if the facility employees are unfamiliar with proper maintenance procedures.

- Remind the facility to enforce the maximum bather load for pools and hot tubs/spas.
- Encourage facilities to educate physicians to heighten their suspicion for cases of healthcare-associated Legionellosis and to use appropriate methods for its diagnosis. Facilities should also educate patient-care, infection-control and engineering personnel about measures to control healthcare-associated Legionellosis.
- Facilities should ensure that nebulizers and other semicritical respiratory care equipment are cleaned with sterile water. Enteral tubes should be flushed with sterile water and enteral feedings should be diluted with sterile water.
 - Providers should make sure that patients who use these devices are aware of these recommendations.
- Each hospital and long-term care facility should form a team of representatives from various departments to develop and write a Legionellosis control plan. The team should be led by a hospital epidemiologist or an infection control professional.
 - This operational plan should encompass several components including:
 - Surveillance strategies
 - Whether environmental culturing is recommended
 - Remediation strategies (if and when necessary)
 - Reporting procedures
 - Hospitals and long-term care facilities should regularly review and update their Legionellosis control plans.
 - For more information, see the Report of the Texas Legionnaires' Disease Task Force.
- Point-of-use filtration (0.2 micrometer) may be used at specific faucets, showerheads and other outlets as an added control measure. (This is more commonly recommended in an outbreak setting.)
- Water testing is generally not recommended in response to single cases that are only possibly associated with a facility.
- For additional information specific to facilities review the Managing Special Situations section.

Providers and facilities that offer water birthing

- For a complete list of recommendations see the DSHS Midwifery Board's Waterbirth Guidelines at <http://www.dshs.texas.gov/idcu/disease/legionnaires/links/>
- Be aware of the potential risks of water birth-associated infections and educate expectant parents on these risks.
- Provide written procedures and guidelines to expectant parents regarding water birth, and document acknowledgment of procedures.
- Ensure the use of proper equipment for water birthing.
- Create written procedures for cleaning and maintaining birthing tubs and associated components.
- Maintain, disinfect, and properly store equipment used for water birthing.
- Maintain recommended water quality of tubs utilized by the facility during water birthing. Water quality measures should be guided by the instructions provided by the manufacturer.
- Document equipment maintenance, chemical additives used to maintain water quality, and preparation and use of equipment for each birth.
- Train all staff midwives and anyone involved in the use of water during labor and/or birth on all facility specific procedures developed for waterbirth and retain records of employee training.

School/Daycare Exclusion Criteria

No exclusion from work, school or daycare is required for disease control purposes.

MANAGING SPECIAL SITUATIONS

TRAVEL-ASSOCIATED CASES

One travel-associated case

If a **single** confirmed case of Legionellosis reported staying at a hotel for at least one day/night during the incubation period, the hotel should be notified. Do not share the patient's name or exact date of stay. With only one confirmed case, the exposure may or may not have occurred at the hotel.

For a **single** confirmed case, the local/regional health department should:

- Notify the hotel in writing of the case and
 - Request that the hotel notify the health department if any guest complains of respiratory illness or pneumonia after staying there.
 - Recommend that the hotel review their maintenance procedures for their cooling system, decorative fountains, pools and any hot tubs/whirlpools.
 - Recommend review of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Guideline 12-2020, ANSI/ASHRAE Standard 188-2018, the Model Aquatic Health Code, and other resources at <http://www.cdc.gov/legionella/water-system-maintenance.html>
 - A sample letter is available from EAIDU upon request.
 - Note: Do not share enough details for the hotel to identify the case.
- Environmental (water) sampling and testing is not recommended for a single case staying at a hotel.

Multiple travel-associated cases

If **two or more** unrelated, confirmed cases of Legionellosis reported staying at least one night/day at the same hotel within a one-year period, notify EAIDU at (800) 252-8239 or (512) 776-7676. (Cases are considered related if they are members of the same household, traveling together, staying in the same room and otherwise spending significant amounts of time together outside of suspected travel exposure. For example, a husband and wife staying in the same room and traveling together would count as related but members of the same sports team staying in different rooms would not be related.)

For **two or more** unrelated confirmed cases, the local/regional health department should:

- Notify the hotel in writing of the cases and
 - Request that the hotel notify the health department if any guest complains of respiratory illness or pneumonia after staying there.
 - Recommend that the hotel review their maintenance procedures for their cooling system, decorative fountains, pools and any hot tubs/whirlpools.
 - Recommend review of ASHRAE Guideline 12-2020, ANSI/ASHRAE Standard 188-2018, the Model Aquatic Health Code, and other resources at <http://www.cdc.gov/legionella/water-system-maintenance.html>
 - A sample letter is available from EAIDU upon request.
 - Note: Do not share enough details for the hotel to identify the cases.
- Consider posting an Epi-X call for cases to notify other state and local health departments of the cluster and to encourage reporting of additional cases.

- Work with the hotel to conduct an environmental assessment to determine possible sources of exposure and to verify maintenance procedures are being followed. The environmental assessment should be completed by the health department or by an independent contractor familiar with water systems and with documented *Legionella* remediation experience.
 - Note: the environmental assessment is a way to gain a thorough understanding of a facility's water systems and assist facility management with minimizing the risk of Legionellosis. It is not the same as environmental sampling.
 - Use the CDC's *Legionella* Environmental Assessment Form (<http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>) to conduct the assessment. The form should be completely filled out. (Videos providing information and instruction on environmental assessment and sampling are available at <http://www.cdc.gov/legionella/videos.html>).
 - Ask the facility to provide maps of the hotel and water system in order to identify exposure locations and to select sites for environmental sampling (if planned).
- Recommend that the hotel take measures to reduce/eliminate *Legionella* from its water system.
 - The hotel should follow ASHRAE Guideline 12-2020 and ANSI/ASHRAE Standard 188-2018 for controlling and preventing Legionellosis associated with building water systems. The CDC developed a toolkit aimed to provide an easy-to-understand interpretation of ASHRAE Standard 188 (<https://www.cdc.gov/legionella/maintenance/wmp-toolkit.html>).
 - Recommend that the hotel hire an environmental consultant familiar with water system assessment and with documented *Legionella* remediation experience.
 - The hotel owner should work with the consultant to minimize any risks of *Legionella* colonization and transmission associated with the facility, including addressing any modifiable issues identified by public health or the consultant.
 - CDC's instructions on "Disinfection of Hot Tubs Contaminated with *Legionella*" may be found at <http://www.cdc.gov/legionella/downloads/hot-tub-disinfection.pdf>.
- Recommend environmental sampling (i.e., collection of water and biofilm swab samples to test for *Legionella*), if warranted.
 - Environmental sampling should be considered when more than one case of Legionellosis is associated with a hotel within a one-year period and the epidemiological investigation or environmental assessment identifies potential exposures or sources of infection.
 - Environmental sampling should be done if remediation efforts were implemented and a new case is identified with exposure occurring after remediation was done.
 - Please see the Environmental Sampling and Testing section near the end of this chapter for sample sites, collection protocols, and testing instructions.
 - Do not delay interventions necessary to prevent additional cases of Legionellosis (e.g., closing a hot tub to bathers) pending the results of environmental sampling.
 - If environmental sampling is done, the hotel should provide a copy of the testing results to the health department.

HEALTHCARE-ASSOCIATED CASES

One possibly healthcare-associated case

If **one confirmed, possibly healthcare-associated case** of Legionellosis reported exposure to a healthcare facility during his/her incubation period, the healthcare facility should be notified. With only one possibly healthcare-associated case, the exposure may or may not have occurred at the facility. Consult with EAIDU if it is an outpatient exposure at (800) 252-8239 or (512) 776-7676.

Note: The healthcare-associated Legionellosis recommendations may be used for cases associated with closed, non-healthcare institutions (e.g., correctional facilities). Recommendations may need to be modified slightly to reflect differences in healthcare facilities and non-healthcare facilities.

For **one possibly healthcare-associated case**, the local/regional health department should:

- Notify (in writing) the infection preventionist or medical director of the healthcare facility at which the case-patient stayed to verify that the facility is aware of the case and
 - Request that the facility notify the health department if additional nosocomial Legionellosis cases are suspected or identified.
 - Recommend that the facility implement active surveillance to identify new cases if the confirmed case reported an inpatient/resident stay at the facility (during the incubation period).
 - At minimum, active surveillance should include daily review of chest x-rays, sputum cultures and new diagnoses of pneumonia.
 - All patients who develop pneumonia two or more days after admission over the next 60 days should be tested by urinary antigen test; culture testing is also recommended in addition to urinary antigen testing.
 - Once implemented in response to a possible or definite case, active surveillance should continue for at least six months.
 - Recommend that the facility review their maintenance procedures for any possible sources of aerosolized water (including cooling towers, evaporative condensers, water heaters, pools/hot tubs/whirlpools, decorative fountains, respiratory therapy equipment, etc.).
 - Review of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Guideline 12-2020 ANSI/ASHRAE Standard 188-2018, and the CDC toolkit “Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards,” is also recommended (see <http://www.cdc.gov/legionella/water-system-maintenance.html>).
 - Recommend that the facility review and update (if necessary) the facility’s Legionellosis control plan (see Report of the Texas Legionnaires’ Disease Task Force for more information).
- Environmental (water) testing is not recommended when a facility has only one possibly healthcare-associated case.

One or more definitely healthcare-associated case OR multiple possibly healthcare-associated cases

If **one or more definitely healthcare-associated or two or more possibly healthcare-associated cases** occur in patients of the same dental or healthcare provider, hospital, residential care facility or other long-term care facility AND the cases have no other identified plausible source of infection OR if other circumstances suggest the possibility of healthcare-associated infection, notify EAIDU at (800) 252-8239 or (512) 776-7676. If there are outpatient visits in the cluster, please consult with EAIDU before declaring it a cluster.

For **≥ 1 definitely healthcare-associated case or ≥ 2 possibly healthcare-associated cases**, the local/regional health department should:

- Notify the infection preventionist or medical director of the healthcare facility at which the case-patients stayed to verify that the facility is aware of the cases.
 - If any of the patients reported exposures to multiple facilities during their incubation periods, make sure that all facilities are notified.
 - Notify facilities of cases and public health recommendations, in writing.

- Work with the facility to conduct retrospective and prospective surveillance to identify potentially missed or new cases for a minimum of 6 months before the earliest onset date and after the most recent onset date, respectively.
 - Retrospective surveillance should include a review of patient medical records and laboratory results from the past 6 months to identify clinically compatible cases.
 - Active surveillance should include daily review of chest x-rays, sputum cultures and new diagnoses of pneumonia.
 - Once implemented in response to a possible or definite case, active surveillance should continue for at least 6 months following the onset date of the most recent healthcare-associated case.
 - Request that the facility notify the health department if additional healthcare-associated Legionellosis cases are suspected or identified.
- Recommend testing of patients with compatible symptoms at least 60 days before the earliest onset date of a healthcare-associated case and at least 60 days after the onset date of the most recent healthcare-associated case.
 - All patients who developed pneumonia in the last 60 days should be tested with a urinary antigen test.
 - All patients who develop pneumonia two or more days after admission over at least 60 days after the latest onset date of a health-care associated case should be tested by both culture **and** urinary antigen. This testing should be extended beyond 60 days when there is evidence of ongoing transmission or when recommended prevention and control measures have not been completed.
 - Testing may be done in-house or by a commercial laboratory.
 - Clinical *Legionella* isolates/cultures should be retained (not discarded) by the hospital/lab or sent to the state public health lab (with approval from the public health lab).
- Remind the facility to report to its regulatory authority as appropriate.
- Notify facility staff about the outbreak so that medical personnel consider Legionellosis in the differential diagnosis for patients with nosocomial and community-acquired pneumonia, and test and report suspected cases as directed.
- Consider clinically-compatible illnesses in facility staff.
- Review the facility's infection control measures to prevent Legionellosis exposures and work with the facility to identify potential gaps.
 - Review and update (if necessary) the facility's Legionellosis control plan. Refer to the Report of the 'Texas Legionnaires' Disease Task Force for detailed Legionellosis response measures in acute care hospitals and long-term care facilities.
- Recommend that the facility review their maintenance procedures for any possible sources of aerosolized water (including cooling towers, evaporative condensers, water heaters, pools/hot tubs/whirlpools, decorative fountains, respiratory therapy equipment, etc.).
- Review of the ASHRAE Guideline 12-2020 and ANSI/ASHRAE Standard 188-2018 is also recommended.

- Work with the facility to conduct an environmental assessment to determine possible sources of exposure and to verify that maintenance procedures are being followed. The environmental assessment should be completed by the health department or by an independent contractor familiar with water systems and with documented *Legionella* remediation experience.
 - Note: the environmental assessment is a way to gain a thorough understanding of a facility's water systems and assist facility management with minimizing the risk of Legionellosis. It is not the same as environmental sampling.
 - Use and complete the CDC's *Legionella* Environmental Assessment Form (<http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>) to conduct the assessment. (Videos providing information and instruction on environmental assessment and sampling are available at <http://www.cdc.gov/legionella/videos.html>).
 - Ask the facility to provide maps of the facility and water system (if available) in order to identify exposure locations and to select sites for environmental sampling (if planned).
- Consider using methods to limit exposure of high-risk patients to potentially contaminated water sources, pending successful reduction in levels of *Legionella* colonization within the facility's water system including:
 - Restrictions on showering
 - Restrictions on use of potable hot water: shift to using sterile water for bathing, drinking, oral hygiene, wound care, and dilution of drinks (bottled water may also be an option for some activities)
 - Installing point-of-use filtration at faucets and showerheads
 - Suspending water births (until water restrictions are lifted)
- Recommend that the facility take measures to reduce/eliminate *Legionella* from its water system.
 - The facility should follow ASHRAE Guideline 12-2020 and ANSI/ASHRAE Standard 188-2018 for controlling and preventing Legionellosis associated with building water systems. The CDC developed a toolkit aimed to provide an easy-to-understand interpretation of ASHRAE Standard 188 (<https://www.cdc.gov/legionella/maintenance/wmp-toolkit.html>).
 - Recommend that the facility hire an environmental consultant familiar with water system assessment and with documented *Legionella* remediation experience. The facility owner should work with the consultant to minimize any risks of *Legionella* colonization and transmission associated with the facility, including addressing any modifiable issues identified by public health or the consultant.
- Recommend environmental sampling (i.e., collection of water and biofilm swab samples to test for *Legionella*), if warranted.
 - Water testing should be considered when one definite healthcare-associated case or two or more possible healthcare-associated cases of Legionellosis are associated with a facility within a one-year period.
 - Sampling should only be performed after a thorough environmental assessment has been done and a sampling plan has been made. The sampling plan should be approved by the health department.
 - Water testing should be done if remediation efforts were implemented and a new case is identified with exposure occurring after remediation was done.
 - Please see the Environmental Sampling and Testing section near the end of this chapter for sample sites, collection protocols, and testing instructions.
 - Do not delay interventions necessary to prevent additional cases of Legionellosis (e.g., cleaning equipment, implementing water restrictions, installing point-of-use filters) pending the results of environmental sampling.
 - If environmental sampling is done, the healthcare facility should provide a copy of the testing results to the health department.
- If needed, conduct a case-control study to identify specific exposures within the facility.

CASES ASSOCIATED WITH A GYM, SPA, OR OTHER “OPEN” FACILITY

One facility-associated case

If **one confirmed case** of Legionellosis reported exposure to a source of aerosolized water (pool, whirlpool, hot tub, mister, etc.) at a public/communal facility during at least one day/night during the incubation period, the facility should be notified. Do not share the patient’s name or exact date of exposure. With only one confirmed, possibly facility-associated case, the exposure may or may not have occurred at the facility.

For a **single case**, the local/regional health department should:

- Notify the facility in writing of the case and
 - Request that the facility notify the health department if any customer complains of pneumonia after visiting the facility.
 - Recommend that the facility review their maintenance procedures for any possible sources of aerosolized water (including pools, hot tubs/whirlpools, misters, etc.).
 - Recommend review of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Guideline 12-2000, ANSI/ASHRAE Standard 188-2015, the Model Aquatic Health Code, the CDC toolkit “Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards,” and other resources at <http://www.cdc.gov/legionella/water-system-maintenance.html>
 - A sample letter for hotels is available from EAIDU upon request. This letter can be modified for any facility.
 - Note: Do not share enough details for the facility to identify the case.
- Environmental (water) sampling and testing is not recommended for a single case reporting exposure to the facility.

Multiple facility-associated cases

If **two or more confirmed cases** of Legionellosis reported exposure to a source of aerosolized water (pool, whirlpool, hot tub, mister, etc.) at a facility during at least one day/night during the incubation period* within a one-year period, notify the EAIDU at (800) 252-8239 or (512) 776-7676.

For **multiple cases**, the local/regional health department should:

- Notify the facility in writing of the cases and
 - Request that the facility notify the health department if any customer complains of pneumonia after visiting the facility.
 - Recommend that the facility review their maintenance procedures for any possible sources of aerosolized water (including pools, hot tubs/whirlpools, misters, etc.).
 - Recommend review of ASHRAE Guideline 12-2020, ANSI/ASHRAE Standard 188-2018, the Model Aquatic Health Code, the CDC toolkit “Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards,” and other resources at <http://www.cdc.gov/legionella/water-system-maintenance.html>
 - A sample letter for hotels is available from EAIDU upon request. This letter can be modified for any facility.
 - Note: Do not share enough details for the facility to identify the case.
- Contact local hospital infection control staff and emergency room staff to determine whether they have observed an increase in community-acquired pneumonia patients admitted to the facility.
 - If cultures/isolates or respiratory specimens are available on potential cases, these should be held (i.e., not discarded) in case further testing is requested.

- Inform primary care physicians, emergency room staff and radiologists in the potential outbreak area and any other locations necessary of the following:
 - That there is a cluster of Legionellosis cases
 - The signs and symptoms of Legionellosis
 - The recommended lab tests to confirm Legionellosis
 - Reporting requirements and contact information for the health department
- Consider clinically-compatible illnesses in staff of the affected facility.
- Work with the facility to conduct an environmental assessment to determine possible sources of exposure and to verify maintenance procedures are being followed. The environmental assessment should be completed by the health department or by an independent contractor familiar with water systems and with documented *Legionella* remediation experience.
 - Note: the environmental assessment is a way to gain a thorough understanding of a facility's water systems and assist facility management with minimizing the risk of Legionellosis. It is not the same as environmental sampling.
 - Use and complete the CDC's *Legionella* Environmental Assessment Form (<http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>) to conduct the assessment. (Videos providing information and instruction on environmental assessment and sampling are available at <http://www.cdc.gov/legionella/videos.html>).
 - Ask the facility to provide maps of the facility and water system (if available) in order to pinpoint exposure locations and to select sites for environmental sampling (if planned).
- Recommend that the facility take measures to reduce/eliminate *Legionella* from the water system.
 - The facility should follow ASHRAE Guideline 12-2020 and ANSI/ASHRAE Standard 188-2018 for controlling and preventing Legionellosis associated with building water systems.
 - CDC's toolkit "Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards" is an easy-to-understand interpretation to ASHRAE 188 (<https://www.cdc.gov/legionella/maintenance/wmp-toolkit.html>).
 - Recommend that the facility hire an environmental consultant familiar with water system assessment and with documented *Legionella* remediation experience. The facility owner should work with the consultant to minimize any risks of *Legionella* colonization and transmission associated with the facility, including addressing any modifiable issues identified by public health or the consultant.
 - CDC's instructions on "Disinfection of Hot Tubs Contaminated with *Legionella*" may be found at <http://www.cdc.gov/legionella/downloads/hot-tub-disinfection.pdf>.
- Recommend environmental sampling (i.e., collection of water and biofilm swab samples to test for *Legionella*), if warranted.
 - Environmental sampling should be considered when more than one case of Legionellosis is associated with a facility within a one-year period and the epidemiological investigation or environmental assessment identifies potential exposures or sources of infection.
 - Sampling should only be performed after a thorough environmental assessment has been done and a sampling plan has been made. The sampling plan should be approved by the health department.
 - Environmental sampling should be done if remediation efforts were implemented and a new case is identified with exposure occurring after remediation was done.
 - Please see the Environmental Sampling and Testing section near the end of this chapter for sample sites, collection protocols, and testing instructions.
 - Do not delay interventions necessary to prevent additional cases of Legionellosis (e.g., closing a hot tub to bathers) pending the results of environmental sampling.
 - If environmental sampling is done, the hotel should provide a copy of the testing results to the health department.

CASES ASSOCIATED WITH A COMMUNITY

If **multiple confirmed cases** of Legionellosis (e.g., in residents, visitors/travelers, etc.) are reported within a one-year period with exposure to the same community AND no potential common source has been identified, notify EAIDU at (800) 252-8239 or (512) 776-7676.

A cluster of Legionellosis cases with a common exposure can involve both Legionnaires' disease and Pontiac fever and health departments should be alert to this possibility. Questions regarding ill contacts of Legionnaires' disease case patients should not be limited to persons with symptoms of pneumonia.

The local/regional health department should:

- Identify the investigation team and available resources
 - Contact DSHS if assistance is needed.
- Establish the existence of an outbreak
 - Acquire and examine baseline data, if available
 - Verify that the “outbreak” is not a reporting or surveillance artifact
- Verify the diagnosis
 - Obtain clinical records and lab reports
 - Conduct additional clinical testing if needed
 - Ask facilities to retain *Legionella* isolates/cultures (if culture was performed)
- Construct a case definition (define person, place and time)
- Find cases systematically and develop a line listing
 - Promptly initiate case finding in the community.
 - Inform primary care physicians, emergency room staff and radiologists in the potential outbreak area and any other locations necessary of the following:
 - That there is a cluster of Legionellosis cases
 - The signs and symptoms of Legionellosis
 - How a case of Legionellosis is diagnosed
 - Preferred testing methods to identify Legionellosis cases
 - Recommendations for which patients to test (e.g., patients with community-acquired pneumonia)
 - Reporting requirements and contact information for the health department
 - Contact local hospital infection control staff and emergency room staff to determine whether they have observed an increase in community-acquired pneumonia patients admitted to the facility.
 - Cultures should be requested to be sent to the public health laboratory and held appropriately.
 - Consider notifying state and national partners, providers and healthcare facilities of the increase (e.g., Epi-X notification).
 - Case finding will involve passive and active surveillance.
 - All cases should be interviewed* with the Legionellosis Investigation Report Form or with a Legionellosis hypothesis-generating form.
- Perform descriptive epidemiology/develop hypotheses
 - Interview the cases with a hypothesis-generating questionnaire or other extensive, open-ended questionnaire in order to identify common exposures.
 - The CDC’s hypothesis-generating questionnaire for Legionellosis is available at <http://www.cdc.gov/legionella/health-depts/inv-tools-single/index.html>.
 - Map cases to identify commonalities in location or proximity to possible environmental sources.
 - Create an epidemic curve.

- Evaluate hypotheses/perform additional studies as necessary
 - Conduct epidemiologic studies (e.g., case-control study) necessary to identify the source(s) of the outbreak.
 - Conduct an environmental investigation
 - Assess the community to identify possible sources of exposure (e.g., cooling towers, chiller units, supermarket/restaurant misters, swamp coolers, decorative fountains, whirlpool spas, municipal water system, wells and streams)
 - Collect and test environmental samples for *Legionella* as appropriate.
 - Ask environmental testing labs to retain cultures/isolates that are outbreak-related so that these may be compared to clinical isolates.
- Implement control measures
 - General control measures should be implemented immediately.
 - Control measures for source control should be implemented as soon as a likely source is identified.
 - Do not wait for laboratory results on suspected sources before implementing control measures.

*Note: The incubation period for Legionnaires' disease is most commonly 2-10 days, with an average of 5-6 days, but has been reported to be up to 19 days in rare cases. For routine surveillance purposes, exposure histories are collected for the 10 days prior to onset. However, in outbreak settings where it is important to consider a wide range of possible sources, use of a 14-day incubation period is often desirable.

REPORTING AND DATA ENTRY REQUIREMENTS

Provider, School, Child-Care Facility, and General Public Reporting Requirements

Confirmed and clinically suspected cases of Legionellosis should be reported **within 1 week** of suspicion to the local or regional health department or to DSHS EAIDU at **(800) 252-8239 or (512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Local and regional health departments should:

- **Notify DSHS within 1 business day of when a healthcare-associated or travel-related exposure is identified.**
- Notify facilities (e.g., hotels, long-term care facilities, hospitals, etc.) within the LHD/HSR's jurisdiction when these facilities are identified by an investigation of a confirmed Legionellosis case-patient as possible sources of exposure during the case's incubation period.
- Enter the case into NBS and submit an NBS notification on all confirmed cases to DSHS within 30 days of receiving a report of confirmed Legionellosis.
 - Please refer to the *NBS Data Entry Guidelines* for disease-specific entry rules.
- Fax, securely e-mail, or mail a completed investigation form **as soon as the investigation is complete.**
 - DSHS compares reported exposure information on investigation forms to that of previously reported Legionellosis cases in order to identify clusters and outbreaks. Since exposure history is not captured in NBS, the investigation form is the only way in which this information is usually reported.
 - Investigation forms may be faxed to **512-776-7616**, securely emailed to the IRID Epidemiologist I or IRID team lead, or mailed to:

Infectious Disease Control Unit
Texas Department of State Health Services
Mail Code: 1960
PO Box 149347
Austin, TX 78714-9347

When an outbreak is investigated, local and regional health departments should:

- Report outbreaks within 24 hours of identification to the regional DSHS office or to EAIDU at **512-776-7676**.
- Submit a completed **National Outbreak Reporting System (NORS)** outbreak form at the conclusion of the outbreak investigation.
 - Enter into NORS online reporting system at <https://wwwn.cdc.gov/nors/login.aspx>
 - Forms, training materials, and other resources are available at <http://www.cdc.gov/nors/>
 - To request a NORS account, please email FoodborneTexas@dshs.state.tx.us
 - Please put in Subject Line: NORS User Account Request
 - Information needed from requestor: name, email address, and agency name
 - After an account has been created a reply email will be sent with a username, password and instructions for logging in.
- Submit a completed **Respiratory Disease Outbreak Summary Form** at the conclusion of the outbreak investigation.
 - Please include a copy of the completed environmental assessment and *Legionella* environmental testing results, if done.
 - Fax or send a secure email of a copy to the DSHS regional office and/or to EAIDU at 512-776-7676. The secure email should be sent to the IRID Epidemiologist I or IRID team lead at EAIDU.
 - The Respiratory Disease Outbreak Summary Form is available at <http://www.dshs.state.tx.us/idcu/investigation/>.

CLINICAL LABORATORY PROCEDURES

Specimens and isolates associated with Legionellosis cases are not routinely submitted to the DSHS laboratory in Austin. When multiple Legionellosis cases are associated with a single facility, DSHS will accept **isolates** from other laboratories conducting environmental testing if patient isolates (*Legionella* culture from clinical specimens) are available for comparison.

Contact EAIDU at 512-776-7676 for approval:

- When submitting clinical or environmental isolates to the DSHS Austin lab that are related to an outbreak
- To request molecular typing at CDC's lab to confirm that isolates from cases are identical (case-patients are exposed to the same source)

Specimen Collection

Clinical specimen

- Acceptable specimens: sputum, bronchial washing, tracheal aspirate, or lung biopsy
- Bronchial washing or tracheal aspirate:
 - Collect washing or aspirate using sterile water, not saline
 - 2mL minimum volume needed
 - Refrigerate at 2°–8 °C. Do not freeze.
- Sputum, expectorated:
 - Collect in a sterile container
 - Collect specimen under the direct supervision of a nurse or physician
 - Have patient rinse or gargle with water first to remove excess oral flora
 - Instruct patient to cough deeply to produce a lower respiratory specimen (not postnasal fluid)
 - For pediatric patients unable to produce a sputum specimen, a respiratory therapist should collect a specimen via suction. The best specimen should have <10 squamous cells/100X field (10X objective and 10X ocular).
 - Refrigerate at 2 °–8 °C. Do not freeze.
- Sputum, induced:
 - Collect in a sterile container
 - Have patient rinse mouth with water after brushing gums and tongue
 - With the aid of a nebulizer, have patient inhale approximately 25 ml of 3-10% sterile saline
 - Refrigerate at 2 °–8 °C. Do not freeze.
- Lung biopsy:
 - Collect during surgery or cutaneous biopsy procedure
 - Place in an anaerobic transport system or sterile, screw-cap container
 - Add several drops of sterile saline to keep small pieces of tissue moist
 - Always submit as much tissue as possible. If excess tissue is available, save a portion of surgical tissue at -70°C in case further studies are needed. Never submit a swab that has been rubbed over the surface of a tissue.
 - Refrigerate at 2°–8°C. Do not freeze.
 - Do not suspend the specimen in formalin or other preserving liquid.

Clinical isolates (pure cultures)

- Submit a pure culture on a BCYE slant
- May be kept at ambient temperature

Laboratory Submission Form

- For clinical specimens and isolates, use the DSHS Laboratory G-2B Submission Form.
 - For clinical specimens: On the form under “Section 5. BACTERIOLOGY” check the box for “Aerobic isolation” under “*Clinical Specimen*” and write “*Legionella*” in the open space.

Section 5. BACTERIOLOGY			
	<u>Clinical specimen:</u>	<u>Definitive Identification:</u>	
→ ☒	Aerobic isolation <i>Legionella</i>	☐ Bacillus	☐ Campylobacter
☐	Anaerobic isolation	☐ Enteric Bacteria	
☐	Culture, stool	☐ Gram Negative Rod	
☐	Diphtheria Screen	☐ Gram Positive Rod	
☐	GC/CT, amplified RNA probe	☐ Group B Streptococcus (Beta Strep)	
☐	Haemophilus, isolation	☐ Haemophilus	
☐	Toxic shock syndrome toxin I	☐ Legionella	
☐	<u>assay (TSST 1)</u>	☐ Neisseria	
☐	Pure culture:	☐ Pertussis / Bordetella	
☐	Anaerobic identification	☐ Staphylococcus	
☐	Organism suspected: _____	☐ Streptococcus	☐ Other

- For clinical isolates: On the form under “Section 5. BACTERIOLOGY” check the box for “*Legionella*” under “*Definitive Identification*”.

Section 5. BACTERIOLOGY			
	<u>Clinical specimen:</u>	<u>Definitive Identification:</u>	
☐	Aerobic isolation	☐ Bacillus	☐ Campylobacter
☐	Anaerobic isolation	☐ Enteric Bacteria	
☐	Culture, stool	☐ Gram Negative Rod	
☐	Diphtheria Screen	☐ Gram Positive Rod	
☐	GC/CT, amplified RNA probe	☐ Group B Streptococcus (Beta Strep)	
☐	Haemophilus, isolation	☐ Haemophilus	
☐	Toxic shock syndrome toxin I	☒ Legionella	
☐	<u>assay (TSST 1)</u>	☐ Neisseria	
☐	Pure culture:	☐ Pertussis / Bordetella	
☐	Anaerobic identification	☐ Staphylococcus	
☐	Organism suspected: _____	☐ Streptococcus	☐ Other

- For clinical specimens and isolates, make sure the patient's name and approved secondary identifier on the form exactly match what is written on the specimen tube. Make sure to fill in the date of collection, date of onset and diagnosis/symptoms.
 - An approved secondary identifier should be one of the following: date of birth, medical record number, social security number, Medicaid number, or CDC number.

Specimen Shipping

- Transport temperature for clinical specimens: Keep at 2°–8°C (refrigerated/ice packs). Do not use dry ice.
- Transport temperature for isolates (pure culture): May be shipped at ambient temperature. Do not use dry ice.
- Ship specimens via overnight delivery on cold packs or wet ice (double bagged) within 24 hours of collection if possible.
 - Note: While *Legionella* may survive extended transport, their isolation may be compromised by overgrowth of commensal bacteria in the specimens; therefore, specimens should arrive at the laboratory as soon as possible for the best results.
- DO NOT ship specimens on a Friday or the day before a state holiday unless special arrangements have been made with the DSHS Laboratory.
- Ship specimens to:

Laboratory Services Section, MC-1947
 Texas Department of State Health Services
 Attn. Walter Douglass (512) 776-7569
 1100 West 49th Street
 Austin, TX 78756-3199

Frequent Causes for Rejection:

- Sputum specimen consists of saliva only
- Insufficient quantity submitted for testing
- Discrepancy between name on specimen container and name on submission form
- Container broken in transport
- Expired media used

Results Available:

- Culture results typically available in 3–21 days (15 days of no growth = negative result)

ENVIRONMENTAL SAMPLING AND TESTING

Inhalation of aerosols containing *Legionella* is presumed to be the primary means of acquiring Legionellosis. Aerosolized waters from cooling towers, evaporative condensers, showers and humidifiers have been identified as sources of infection. *Legionella* species have been recovered from a wide variety of domestic water systems and are ubiquitous in freshwater environments. Domestic water systems are complex environments in which concentrations of legionellae can fluctuate considerably depending upon water temperature, biocide levels and presence of natural hosts (i.e., protozoa) for legionellae to parasitize.

Recommendations for Environmental Sampling

When to Sample:

- Hotels, gyms, spas and other similar facilities
 - Baseline environmental sampling (in the absence of associated cases) is not recommended.
 - Environmental testing is not recommended for a single case whose illness may be associated with a hotel or similar facility.
 - Environmental sampling should be considered when more than one case of Legionellosis is associated with a hotel or similar facility within a one-year period and the epidemiological investigation or environmental assessment identifies potential exposures or sources of infection.
 - Environmental sampling should be done if remediation efforts were implemented and a new case is identified with exposure occurring after remediation was done.

- Sampling should only be performed after a thorough environmental assessment has been done and a sampling plan has been made. The sampling plan should be approved by the health department.
- Healthcare facilities
 - Baseline environmental sampling for *Legionella* (no patient cases detected)
 - All healthcare facilities should, in implementing their Legionellosis control plan, assess their risk of *Legionella* transmission. Each facility should evaluate environmental, engineering and patient population factors to determine whether there is a reasonable potential for nosocomial transmission.
 - Baseline water distribution system cultures should be performed if the results of the risk assessment indicate the facility has a significant risk of *Legionella* transmission.
 - For more information on assessing a facility's risk of *Legionella* transmission, see the Report of the Texas Legionnaires' Disease Task Force (www.dshs.texas.gov/idcu/disease/legionnaires/taskforce/) and ANSI/ASHRAE Standard 188-2018.
 - Environmental sampling in the context of a patient case(s)
 - Water testing should be considered when one definite healthcare-associated case or two or more possible healthcare-associated cases of Legionellosis are associated with a facility within a one-year period.
 - Water testing should be done if remediation efforts were implemented and a new case is identified with exposure occurring after remediation was done.

Sampling Considerations and Procedures:

- Purpose of sampling: To determine the source of transmission and extent of colonization
- Sampling should only be performed after a thorough environmental assessment has been done and a sampling plan has been made. The sampling plan should be approved by the health department.
- If environmental sampling is pursued, the samples should be collected and processed in a way that maximizes the recovery of *Legionella*.
- Instructional/training videos: “How to Make a Sampling Plan”, “How to Sample Potable Water”, “How to Sample Cooling Towers”, and “How to Sample Spas and Fountains” at <http://www.cdc.gov/legionella/videos.html>
- **Choosing Sites for Sampling:**
 - See CDC's “Sampling Procedure and Potential Sampling Sites” document: <http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>
 - Potential sampling sites for hotels include hot tubs/whirlpools (including filters, jets, tanks, water lines, etc.); swimming pools (including skimmer baskets); showerheads and faucets in pool showering facilities, if applicable; decorative fountains; potable water supply to and within the facility (including hot water heaters, holding tanks, water returns, etc.); cooling towers; sprinkler systems; and potential sources of exposure in guest rooms (faucets, showerheads, etc.).
 - Potential sampling sites for healthcare facilities include potable water supply to and within the facility (including hot water heaters, holding tanks, water returns, etc.); potable water outlets (faucets, showers, etc.), especially those in or near patient rooms; ice machines; cooling towers and evaporative condensers; humidifiers (e.g., nebulizers) and other respiratory therapy equipment; and other potential sources of exposure (e.g., decorative fountains, whirlpools, safety showers and eyewash stations, etc.).
 - All showers and faucets in all case rooms (primary room where case stayed and other rooms where case exposures may have occurred [e.g., surgical recovery rooms]) should be sampled, along with showers and sink faucets in additional rooms.

- Choose rooms proximal and distal to risers or hot water heaters and on various floors based on the results of the environmental assessment.
- Ideally, sample at least a couple of outlets on every floor and/or wing. Some sites should also be selected at random for sampling.
- In most situations, it is appropriate to sample only the hot water. However, there are situations where taking some cold water samples is helpful.
 - For example, in hot climates (like Texas!), the cold water may be warm enough for rapid *Legionella* amplification ($>77^{\circ}\text{F}$).
 - Note: In most recent *Legionella* outbreak investigations in Texas, some cold water samples were collected in addition to hot water samples.
 - Desalination may elevate cold water temperature.
 - Cold water could be warm due to lack of insulation between hot and cold water pipes.
 - The results of the environmental assessment (if done properly/completely) can help to determine if cold water samples should be collected.
- **Number of Samples to Collect:**
 - The number of samples to be collected should be based on a plan (to limit the expense and time associated with sample collection and testing)
 - The sampling plan should be based on the findings of the environmental assessment and available epidemiologic data (i.e., water sources and locations where patients may have been exposed)
 - The number of samples to collect may depend on:
 - The size and design of the facility (e.g., number of floors, wings, rooms, buildings, etc.)
 - The design and configuration of the water system including the presence of dead legs, number and type of components, types of heating systems, etc.
 - The facility's sources of possible aerosolized or aspirated water (e.g., cooling towers, air handling systems, showers, faucets, decorative fountains, ice machines, whirlpools, etc.)
 - The number of Legionellosis cases associated with the facility and their reported exposures in/near the facility
 - The facility's patient population
 - Other factors specific to the facility
 - In the smallest facilities, at least 10 environmental samples should be collected; however, in most cases 10 samples will not be sufficient for representative sampling. In larger or more complex facilities, 100+ samples may need to be collected in order to be representative and increase the odds of detection of *Legionella* that may be in the water system.
 - See CDC's "Sampling Procedure and Potential Sampling Sites":
<http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>
 - DSHS Austin and CDC can offer assistance in determining the number of samples and locations of sample sites.

- **Collection Recommendations and Procedures:**

- Environmental sampling should be a joint effort by the facility (particularly building systems staff/facilities engineers), the facility's *Legionella* consultant, the testing laboratory and the local health department (epidemiologist and environmental health specialist).
- Environmental sampling should be well planned in advance to ensure that all required staff and supplies are present.
- For sample collection procedures, please refer to CDC's "Sampling Procedure and Potential Sampling Sites" document (<http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/environmental-inv-tools.html>). This document covers:
 - Materials (required and optional)
 - Safety precautions
 - Sampling procedures:
 - Potable water at the points of use
 - Additional note on collection of water from handheld showerheads:
 - Handheld showerheads differ from traditional fixed showerheads because water may stagnate in the tubing increasing the risk for *Legionella* growth.
 - If the facility has handheld showerheads, collect a sample from the handheld showerhead tubing before collecting the bulk water sample. Collect a swab sample (if feasible) from the tubing and collect a water sample by capturing the water from the tubing.
 - Sampling from handheld showerheads will result in additional samples (2 biofilm swabs [1-flexible tubing, 1-water pipe], 2 bulk water [1-tubing residual, 1-bulk water from pipe]).
 - Potable water at the hot water heaters
 - Whirlpool spas
 - List of potential sampling sites (from potable water, cooling towers, whirlpool spas, and other sources)
- Collection of 1 (one) liter (1 L) of water is preferred.
 - If a liter cannot be collected from a sample source, the **minimum acceptable sample size during an active investigation is 250 ml**.
 - Larger volumes of water (1 to 10 liters) are needed to detect legionellae in water that has very low concentrations of these bacteria such as municipal water supplies.
- In addition to water samples, biofilm swabs should be taken from most sites, when possible.
- The sampling team should also test the water quality (i.e., residual chlorine, temperature and pH) at sampling sites.
- All samples should be transported to the laboratory in insulated coolers as protection against extreme heat or cold.
 - Samples that will not reach the laboratory within 72 hours should be refrigerated before shipping.
 - Samples that reach the laboratory but cannot be processed within 72 hours of collection should be refrigerated.
- For more information, see <http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/lab-inv-tools/procedures-manual.html>

- Recommended minimum frequency of (environmental) retesting, in an outbreak setting:
 - Once interventions are in place, culture water to detect any legionellae:
 - Every 2 weeks for 3 months; if cultures are negative, then
 - Once per month for the next 3 months
 - If legionellae are detected the 6 month process must be restarted.

Laboratory Testing of Environmental Specimens

- Testing of environmental samples should be performed by an ELITE-certified laboratory capable of culturing *Legionella* species. A list of ELITE-certified laboratories is available at <https://wwwn.cdc.gov/elite/Public/MemberList.aspx>.
- Inform the testing laboratory that the testing is being performed as part of an outbreak investigation. (Some laboratories have different protocols for collecting and testing specimens for non-outbreak purposes.)
- The traditional ISO spread plate method should be used for testing during outbreak investigations (i.e., during initial detection and throughout remediation and repeat testing cycles).
- *Legionella* isolates from environmental testing related to clusters or outbreaks should be speciated, serotyped and retained for future studies.
 - If isolates cannot be retained by the testing laboratory, they may be forwarded to the DSHS Austin lab once approval is received from EAIDU.
- The DSHS laboratory will accept isolates (for speciation and serogrouping) from environmental sources if there is also an isolate available from a human case associated with the facility for comparison.
- Molecular typing of *Legionella* isolates is available from CDC (contact DSHS to request this testing) and can be helpful to:
 - Confirm that isolates from cases are identical (i.e., case-patients were exposed to the same source)
 - Compare clinical to environmental isolates to narrow down the list of potential environmental sources

ADDITIONAL RESOURCES

Training and Informational Videos

- CDC's *Legionella* Environmental Investigation Videos (<http://www.cdc.gov/legionella/videos.html>):
 - *Legionella* Ecology and an Introduction to Environmental Health and Engineering
 - Conducting and Interpreting the Environmental Assessment
 - How to Make a Sampling Plan
 - How to Sample Potable Water
 - How to Sample Cooling Towers
 - How to Sample Spas and Fountains
- CDC *Legionella* training videos and presentations that were part of the Water, Sanitation, and Hygiene (WASH) webinar series in 2010 are available from DSHS upon request:
 - WASH Webinar #1: Legionellosis Outbreak Investigations; Environmental Assessment
 - WASH Webinar #3: Public Health Response; Importance of Molecular Typing

National Guidance for Environmental and Laboratory Investigation

- Additional resources for environmental sampling and testing are available from CDC's Legionella Epidemiologist Investigation Tools website at <http://www.cdc.gov/legionella/health-depts/inv-tools-cluster/index.html>.
- Occupational Safety and Health Administration (OSHA) Legionnaires' disease eTool (sources identification and control procedure, and water sampling guidelines for *Legionella*—Section II): <https://www.osha.gov/dts/osta/otm/legionnaires/>

Water System Maintenance

- CDC's Water System Maintenance website: <http://www.cdc.gov/legionella/water-system-maintenance.html>
- Model Aquatic Health Code (for swimming pools, hot tubs/whirlpool spas, interactive fountains, waterparks): <https://www.cdc.gov/mahc/index.html>
- American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)-Guideline 12-2020--Minimizing the Risk of Legionellosis Associated with Building Water Systems: https://www.techstreet.com/ashrae/standards/guideline-12-2020-managing-the-risk-of-legionellosis-associated-with-building-water-systems?product_id=2111422
- ANSI/ASHRAE Standard 188-2018--Legionellosis: Risk Management for Building Water Systems: <https://www.ashrae.org/technical-resources/bookstore/ansi-ashrae-standard-188-2018-legionellosis-risk-management-for-building-water-systems> CDC's FAQ for ASHRAE 188-2015: <http://www.cdc.gov/legionella/health-depts/ashrae-faqs.html>
- CDC's toolkit -- Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings: A Practical Guide to Implementing Industry Standards: <https://www.cdc.gov/legionella/downloads/toolkit.pdf>
- Operating Public Hot Tubs: <http://www.cdc.gov/healthywater/pdf/swimming/resources/operating-public-hot-tubs-factsheet.pdf>
- Disinfection of Hot Tubs Contaminated with *Legionella*: <http://www.cdc.gov/legionella/downloads/hot-tub-disinfection.pdf>
- Other pool and hot tub operation recommendations: <http://www.cdc.gov/healthywater/swimming/pools/design-operation-pools-hot-tubs.html>
- EPA's -- Technologies for Legionella Control in Premise Plumbing Systems: Systematic Review: <https://www.epa.gov/ground-water-and-drinking-water/technologies-legionella-control-premise-plumbing-systems>

UPDATES

January 2021

- Case classification: Added Probable case classification