

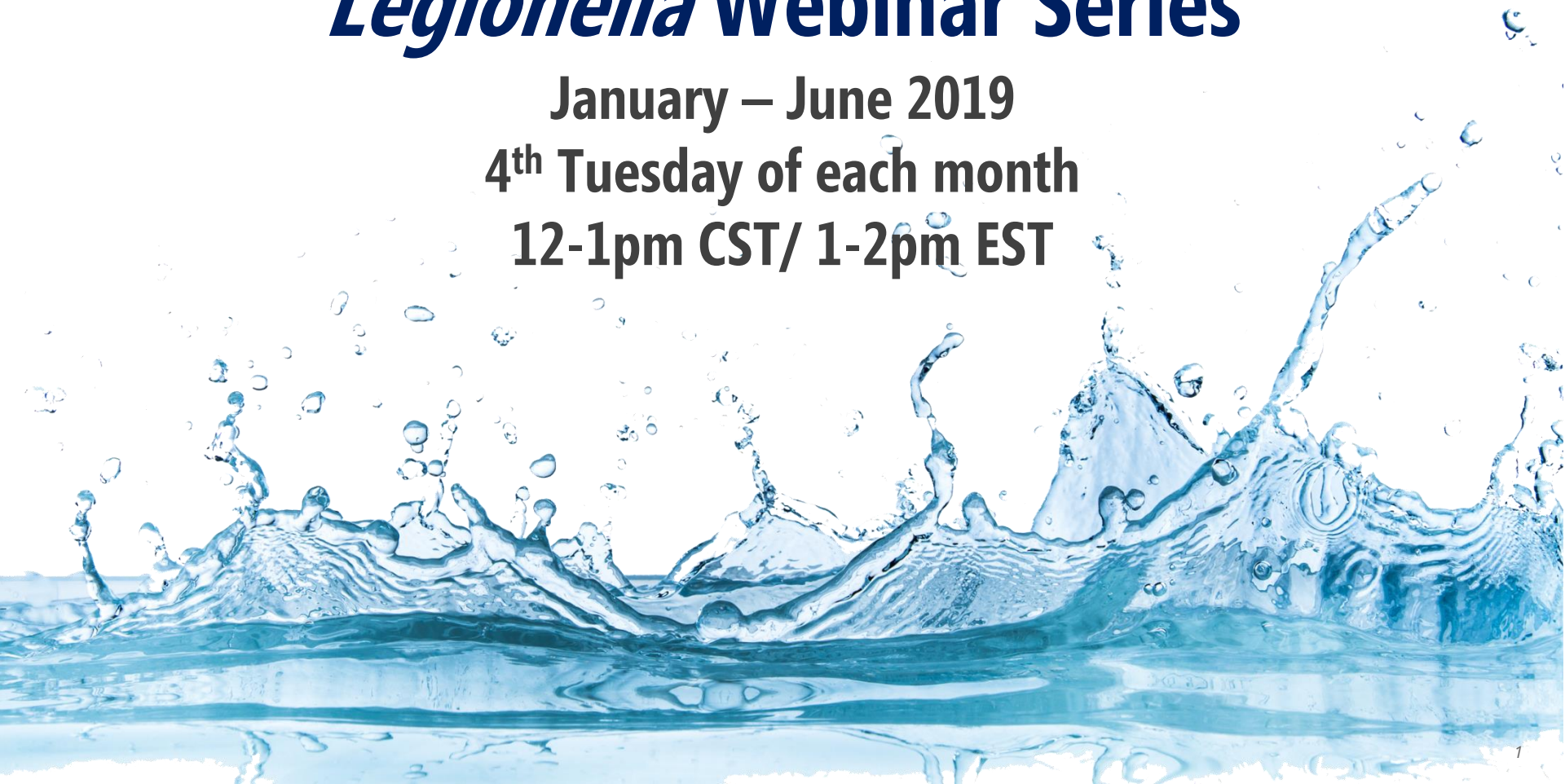


Legionella Webinar Series

January – June 2019

4th Tuesday of each month

12-1pm CST/ 1-2pm EST



Raise awareness of **legionellosis** and prevention through **water management programs**.

Provide Tennessee healthcare facilities with information and resources to develop and implement water management programs.

Jan 22: **Introduction to Healthcare - Associated Legionellosis**

Feb 26: **Water Management Programs**

Mar 26: **Developing a Water Management Program**

Apr 23: **Healthcare Experiences with Water Management Programs**

May 21: **What to Expect in an Outbreak**

Jun 25: **Review Resources and Healthcare Implications**

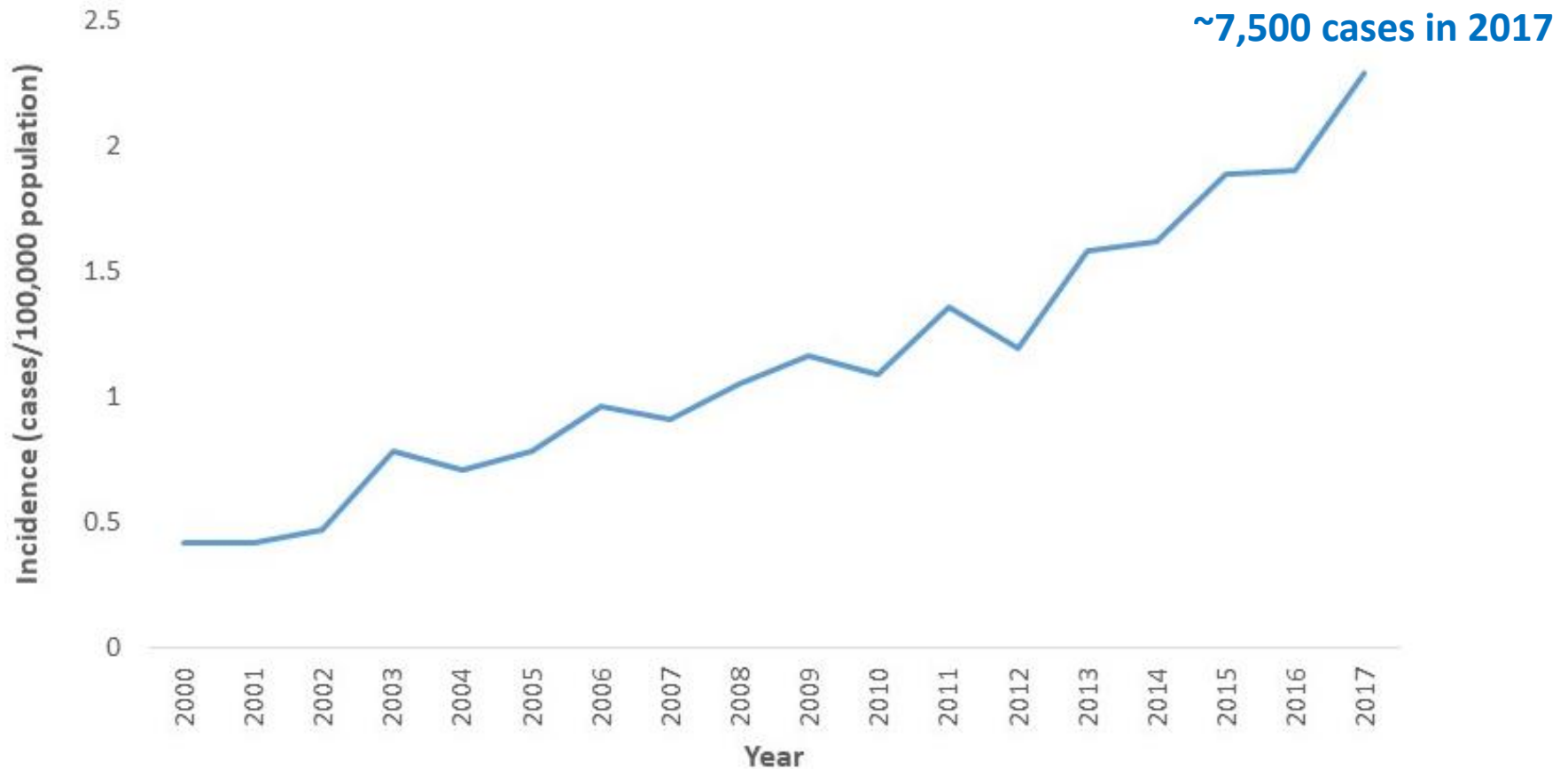
Reminders

- **Webinars recorded, available online**
 - **Previous webinar recording, slides, resources**
 - **<https://tha.com/events-education/legionella-webinar-series/>**
- **Phone lines muted during webinar**
- **Questions taken at end**
 - **Type in chat box**

Outline

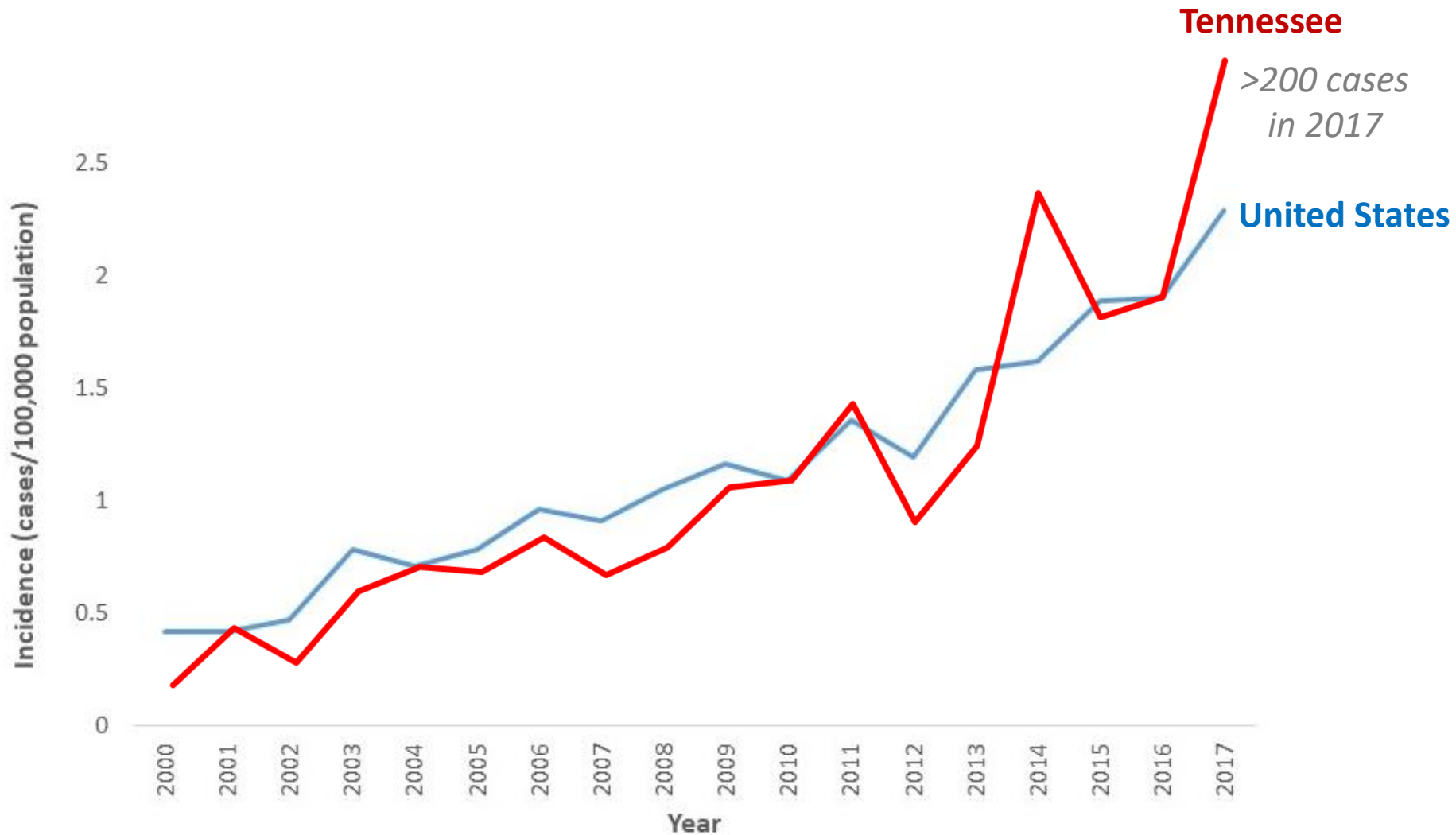
- **Review Main Concepts**
 - **Healthcare-Associated Legionellosis**
 - **Water Management Programs**
 - **Requirements and Industry Standards**
- **Discuss the Tennessee Office of Healthcare Facilities and Surveyors**
- **Consider Implications for Clinics and Outpatient Facilities**
- **Review Resources**

Legionnaire's disease is on the rise in the US



Rate of reported cases increased 5.5 times (2000–2017)

Legionnaire's disease is on the rise in TN



N.Y. / REGION

Legionnaires' Outbreak on Upper East Side Kills One and Sickens Six

MPRnews Sections Members More

Legionnaires' disease cluster in Hopkins increases to 20 cases

CNN Health » Diet + Fitness | Living Well | Parenting + Family

Flint water crisis likely the cause of deadly Legionnaires outbreak



2 Legionnaires' disease cases reported at Seattle hospital, 1 resulting in death

ne and Sickness Six

ALLEGHENY

MPRnew: Legionella found in multiple areas at Pittsburgh VA hospital

Legionnaires' disease cluster in Hopkins increases

To Your Health

Infants born in water births at risk of Legionnaires' disease, CDC says



HERE FOR YOU

TOP STORY

PATIENT DIES AFTER LEGIONNAIRE'S DIAGNOSIS

48° 6 11.01

Flint water crisis likely the cause of deadly Legionnaires outbreak

Healthcare-Associated Legionellosis

Definition:

A person with legionellosis who reports exposure to a healthcare facility during the 10 days* before their illness onset

*Beginning in 2019, the incubation period will be extended to 14 days and definition terms will be updated.

Healthcare-Associated Legionellosis

Definition:

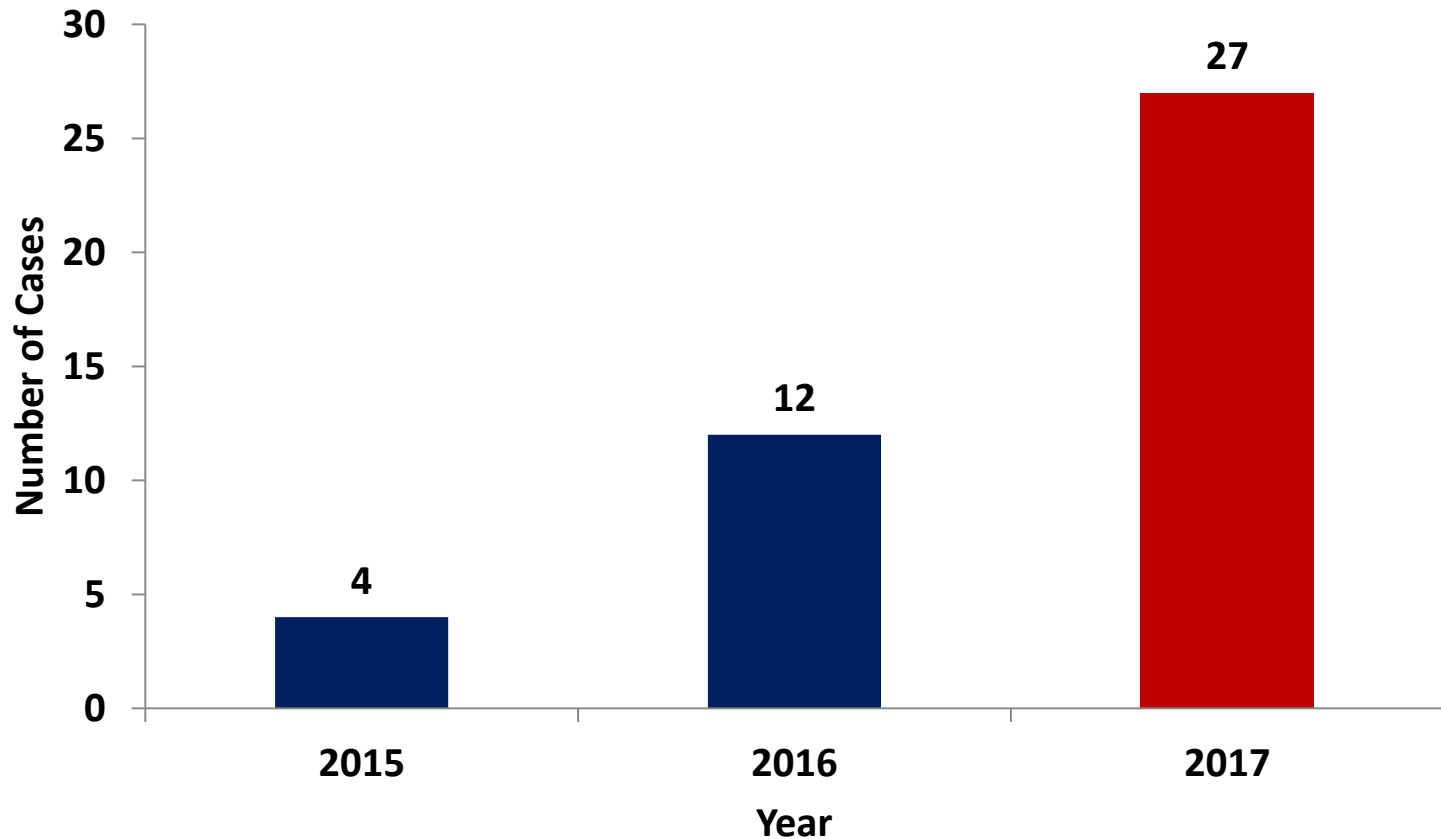
A person with legionellosis who reports exposure to a healthcare facility during the 10 days* before their illness onset

- **Possible healthcare-associated case:** Patient spent part of their incubation period in the facility
- **Definite healthcare-associated case*:** Patient spent their entire incubation period in the facility (did not leave the facility at any point)
- **Case Fatality Rate is ~25%**

*Beginning in 2019, the definition incubation period will be extended to 14 days and definition terms will be updated.

Healthcare-Associated Legionellosis in TN

The number of possible or definite healthcare-associated legionellosis cases increased > 6-fold from 2015 - 2017



Steps Leading to Legionnaires' Disease

Legionella lives in fresh water



- Natural reservoir for *Legionella*
- Insufficient quantities to cause disease

Certain conditions in large, complex water systems can lead to *Legionella* growth



- Temperature
- Stagnation
- Scale and sediment
- Biofilm
- Protozoa
- Absence of disinfectant

Certain devices can lead to the spread of water droplets containing *Legionella*



- Showers and faucets
- Cooling towers
- Hot tubs
- Decorative fountains

Legionella can be transmitted to susceptible hosts and cause disease



- Age > 50 years
- Smoking
- Weakened immune system
- Chronic disease

Infection with *Legionella* is called legionellosis

Pontiac
fever

Legionnaires'
disease

Extrapulmonary
disease

Infection with *Legionella* is called legionellosis



Fever/Chills



Headache



Fatigue/Malaise

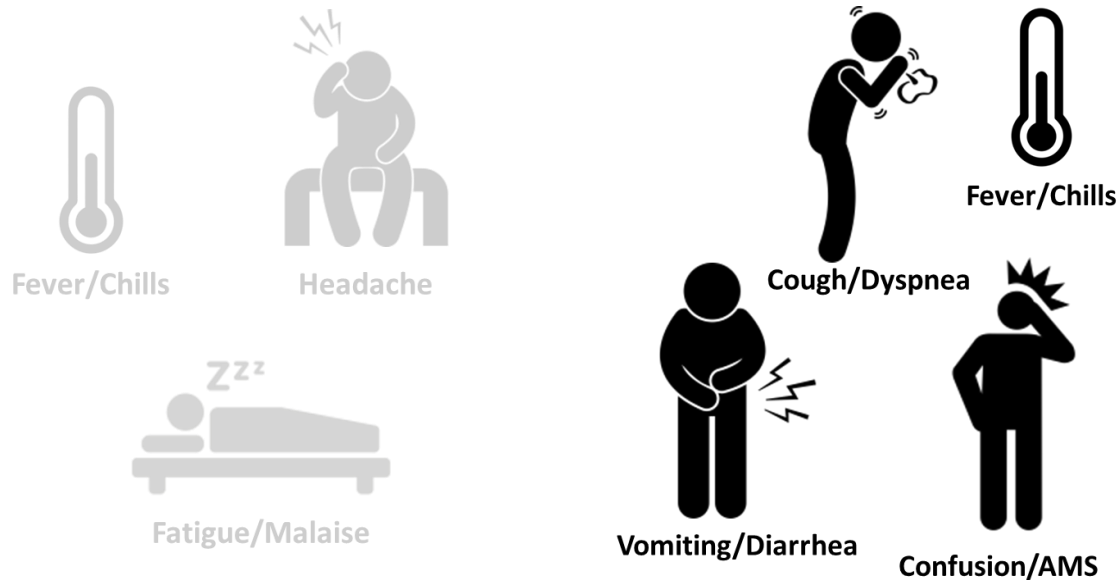
**Pontiac
fever**

**Legionnaires'
disease**

**Extrapulmonary
disease**

- **Mild, self-limited illness**
- **No respiratory symptoms**
- **Incubation period: 36h
(1-3 days)**

Infection with *Legionella* is called legionellosis



Pontiac fever

- Mild, self-limited illness
- No respiratory symptoms
- Incubation period: 36h (1-3 days)

Legionnaires' disease

- Abnormal findings on chest x-ray
- Incubation period: 2-10d
- Case Fatality Rate: ~10%

Extrapulmonary disease

Infection with *Legionella* is called legionellosis

More info in
WEBINAR 1!



Fever/Chills



Headache



Fatigue/Malaise



Cough/Dyspnea



Fever/Chills



Vomiting/Diarrhea



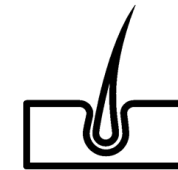
Confusion/AMS



Cardiac
(myocarditis,
pericarditis)



Septic
arthritis



Cellulitis



Sinusitis

Pontiac fever

- Mild, self-limited illness
- No respiratory symptoms
- Incubation period: 36h (1-3 days)

Legionnaires' disease

- Abnormal findings on chest x-ray
- Incubation period: 2-10d
- Case Fatality Rate: ~10%

Extrapulmonary disease

- Uncommon
- Wide spectrum of disseminated disease
- Immunocompromised persons ↑ risk

Legionella Infections Are Preventable

- **Water Management Programs** help:
 - Identify hazardous conditions
 - Take steps to minimize the growth and transmission of *Legionella* and other waterborne pathogens in building water systems

9 in 10

CDC investigations show almost all outbreaks were caused by problems preventable with more effective water management.

***Legionella* Infections Are Preventable**

- Water Management Programs help:
 - Identify hazardous conditions
 - Take steps to minimize the growth and transmission of *Legionella* and other waterborne pathogens in building water systems

9 in 10

CDC investigations show almost all outbreaks were caused by problems preventable with more effective water management.

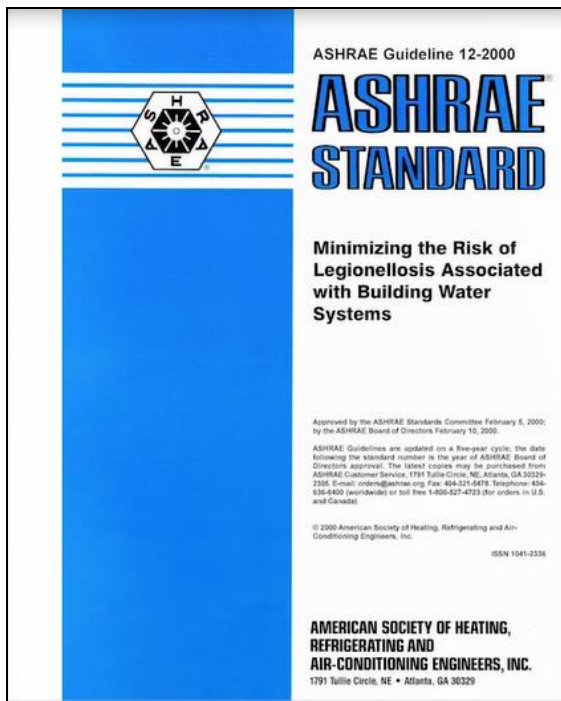
Fundamental understanding of the importance, components, industry standards and requirements of a water management program is crucial for protecting patients in your facility

Water Management Program

Risk management plan for the
prevention and control of **legionellosis**
associated with **building water systems**,
including documentation of the plan's
implementation and operation.

Industry Standards

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

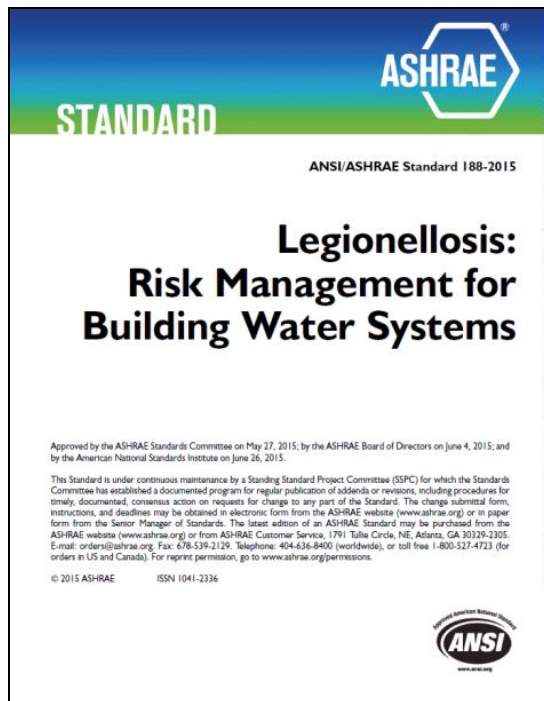


Guideline 12

- Guidance to minimize *Legionella* contamination in building water systems
- Intended for building owners and professionals in design, construction, installation, commissioning, management, operation, maintenance, and service of building water systems & equipment
- Under Review

Industry Standards

- **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)**

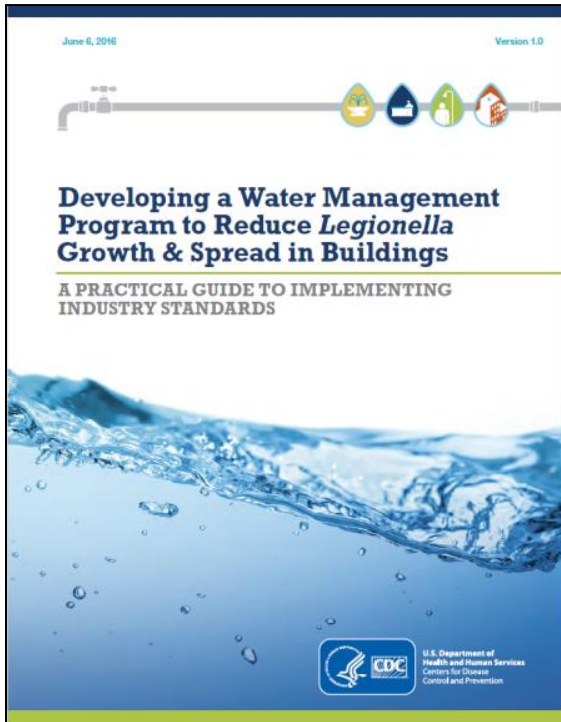


Standard 188

- **Types of buildings/devices that need a WMP**
- **Minimum components of a WMP**
- **WMP team members**
- **When and how often WMPs should be reassessed and updated**
- **Includes annex with special considerations for healthcare facilities**

CDC Toolkit

- Guide for implementing industry standards



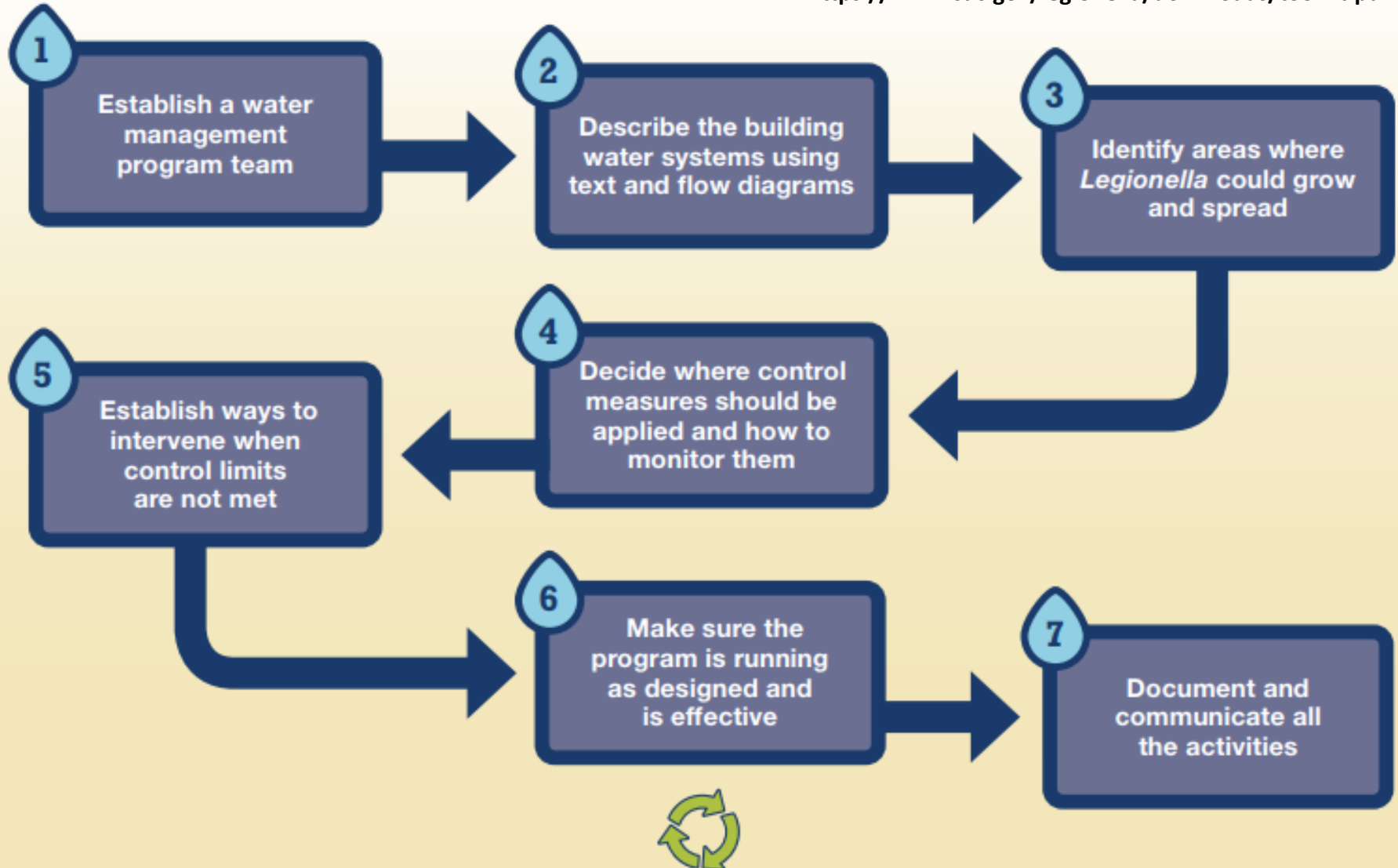
Toolkit includes:

- Worksheet to identify buildings and devices at increased risk for *Legionella* growth and spread
- Basic walkthrough of WMP elements
- Examples of common water quality problems and how to respond
- Special considerations for healthcare facilities

Elements of a Water Management Program

More info in
WEBINARS 2&3!

<https://www.cdc.gov/legionella/downloads/toolkit.pdf>



Continuous program review (see below)

CMS Requirement: June 2017

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850



Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C 17-30-Hospitals/CAHs/NHs
REVISED 06.09.2017

DATE: June 02, 2017

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD)
Revised to Clarify Provider Types Affected

Memorandum Summary

- ***Legionella* Infections:** The bacterium *Legionella* can cause a serious type of pneumonia called LD in persons at risk. Those at risk include persons who are at least 50 years old, smokers, or those with underlying medical conditions such as chronic lung disease or immunosuppression. Outbreaks have been linked to poorly maintained water systems in buildings with large or complex water systems including hospitals and long-term care facilities. Transmission can occur via aerosols from devices such as showerheads, cooling towers, hot tubs, and decorative fountains.
- **Facility Requirements to Prevent *Legionella* Infections:** 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.
- *This policy memorandum applies to Hospitals, Critical Access Hospitals (CAHs) and Long-Term Care (LTC). However, this policy memorandum is also intended to provide general awareness for all healthcare organizations.*

CMS Requirement: June 2017

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850



Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C 17-30-Hospitals/CAHs/NHs
REVISED 06.09.2017

DATE: June 02, 2017

Facility Requirements to Prevent Legionella Infections: 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.

This policy memorandum applies to Hospitals, Critical Access Hospitals (CAHs) and Long-Term Care (LTC). However, this policy memorandum is also intended to provide general awareness for all healthcare organizations.

buildings with large or complex water systems including hospitals and long-term care facilities. Transmission can occur via aerosols from devices such as showerheads, cooling towers, hot tubs, and decorative fountains.

- **Facility Requirements to Prevent Legionella Infections:** 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.
- *This policy memorandum applies to Hospitals, Critical Access Hospitals (CAHs) and Long-Term Care (LTC). However, this policy memorandum is also intended to provide general awareness for all healthcare organizations.*

CMS Requirement: July 2018

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850



Center for Clinical Standards and Quality/Quality, Safety and Oversight Group

Ref: QSO-17-30- Hospitals/CAHs/NHs
REVISED 07.06.2018

DATE: June 02, 2017

TO: State Survey Agency Directors

FROM: Director
Quality, Safety and Oversight Group (*formerly Survey & Certification Group*)

SUBJECT: Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD)

Revised to Clarify Expectations for Providers, Accrediting Organizations, and Surveyors

Memorandum Summary

- **Legionella Infections:** The bacterium *Legionella* can cause a serious type of pneumonia called LD in persons at risk. Those at risk include persons who are at least 50 years old, smokers, or those with underlying medical conditions such as chronic lung disease or immunosuppression. Outbreaks have been linked to poorly maintained water systems in buildings with large or complex water systems including hospitals and long-term care facilities. Transmission can occur via aerosols from devices such as showerheads, cooling towers, hot tubs, and decorative fountains.
- **Facility Requirements to Prevent Legionella Infections:** 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.
- This policy memorandum applies to Hospitals, Critical Access Hospitals (CAHs) and Long-Term Care (LTC). However, this policy memorandum is also intended to provide general awareness for all healthcare organizations.

CMS Requirement: July 2018

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850



Facilities must have water management plans and documentation that, at a minimum, ensure each facility:

- Conducts a facility risk assessment to identify where *Legionella* and other opportunistic waterborne pathogens (e.g. *Pseudomonas*, *Acinetobacter*, *Burkholderia*, *Stenotrophomonas*, nontuberculous mycobacteria, and fungi) could grow and spread in the facility water system.
- Develops and implements a water management program that considers the ASHRAE industry standard and the CDC toolkit.
- Specifies testing protocols and acceptable ranges for control measures, and document the results of testing and corrective actions taken when control limits are not maintained.
- *Maintains compliance with other applicable Federal, State and local requirements.*

Note: CMS does not require water cultures for Legionella or other opportunistic water borne pathogens. Testing protocols are at the discretion of the provider.

Healthcare facilities are expected to comply with CMS requirements and conditions of participation to protect the health and safety of its patients. Those facilities unable to demonstrate measures to minimize the risk of LD are at risk of citation for non-compliance.

TDH Office of Health Care Facilities

- **Responsible for:**
 - Ensuring quality of care in hospitals, nursing homes, ambulatory surgical treatment centers, and other health care facilities
 - Investigating all facility complaints & issuing and collecting monetary penalties
- Conducts state licensure and federal certification surveys for participation in Medicare and Medicaid programs
- Licenses and/or certifies 21 types of health care facilities, including laboratories
- Three regional offices: Jackson, Nashville, and Knoxville

OCHF Surveyors

- **Conduct facility inspections and surveys to determine compliance with state and federal health care rules and regulations**
 - Report findings and areas of non-compliance
 - Provide guidance to assist in correcting deficiencies
- **Evaluate quality of care, health care standards, and general management of health facilities operation**
- **Review and examine complaints and incidents**
- **Interpret laws, policies, and procedures as they relate to health care facilities and standards of care**



OHCF Surveyor – WMP Training

- TDH Waterborne Program provided 3 educational sessions to state healthcare facility surveyors in 2018
 - East, Middle, West TN
- Discussed the basics of healthcare-associated legionellosis and water management programs

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850



Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C 17-30-*Hospitals/CAHs/NHs*
REVISED 06.09.2017

DATE: June 02, 2017

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD)

****Revised to Clarify Provider Types Affected****

Healthcare Surveyors & WMPs

Questions surveyors will ask:

- 1. Does this facility have a water management program?**
- 2. If yes, can we see a copy?**
- 3. Has the facility done a risk assessment?**
- 4. If yes, what were the results?**

Implications for Clinics and Outpatient Facilities

- Even if not required by CMS, facilities should have a WMP
- Especially if
 - Any high risk water features or devices are used:
 - Cooling tower
 - Hot tub
 - Decorative fountain
 - Central mister, humidifier, etc.
 - Certain medical devices (CPAP, bronchoscopes, hydrotherapy equipment)
 - People with chronic or acute medical problems are treated at the facility:
 - Ex. Burns, solid organ or bone marrow transplant, kidney disease, diabetes, chronic lung disease

Pseudo-outbreak of *Legionella pneumophila* serogroup 8 infection associated with a contaminated ice machine in a bronchoscopy suite.

Schuetz AN¹, Hughes RL, Howard RM, Williams TC, Nolte FS, Jackson D, Ribner BS.

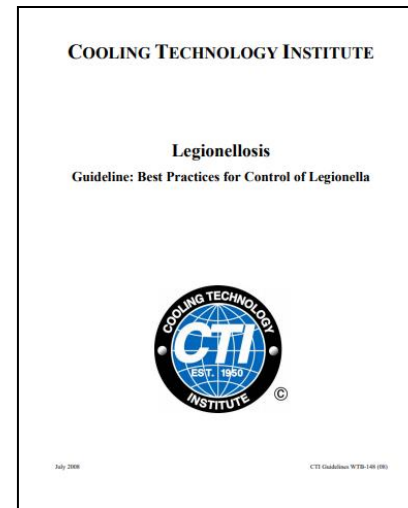
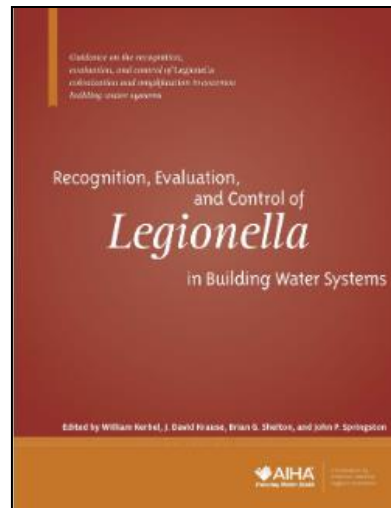
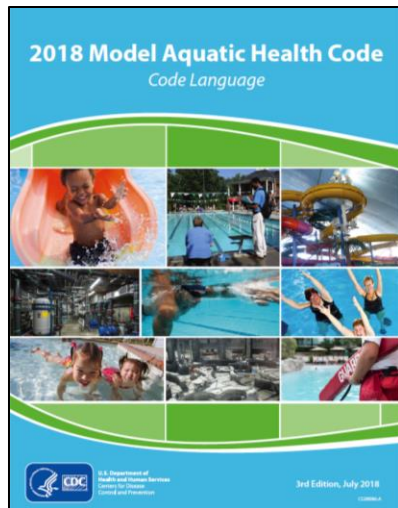
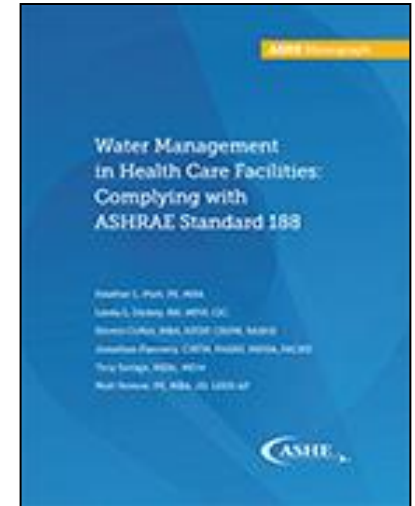
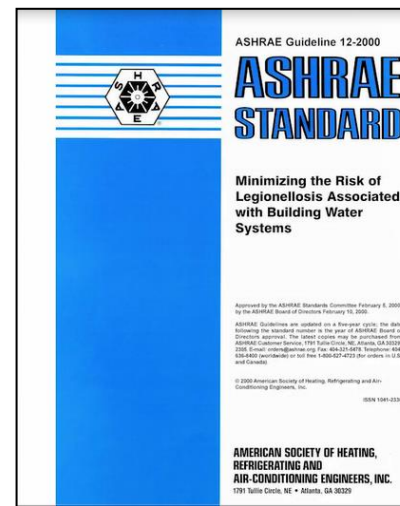
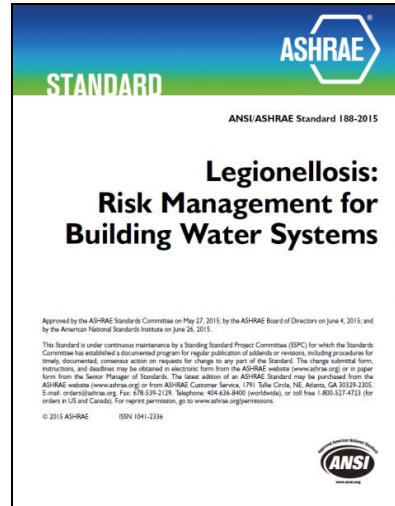
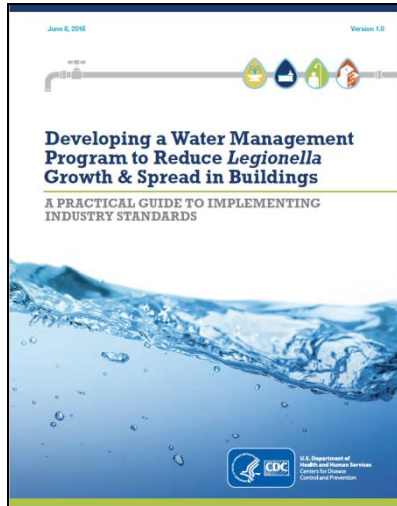
- Outpatient bronchoscopy suite with 2 million visits/year
- Increase in *Legionella pneumophila* isolates from bronchoalveolar lavage fluid specimens obtained during bronchoscopy over 8 month period
 - All patient specimens *L. pneumophila* serogroup 8
- Environmental specimens collected from suite (air & water filters, bronchoscopes, ice machine)
 - Isolated *L. pneumophila* serogroup 8 from ice machine; indistinguishable from clinical isolates
- Change in bronchoscopy procedure: Uncapped syringes of sterile saline immersed in contaminated ice bath during procedure

An outbreak of Legionnaires disease associated with a decorative water wall fountain in a hospital.

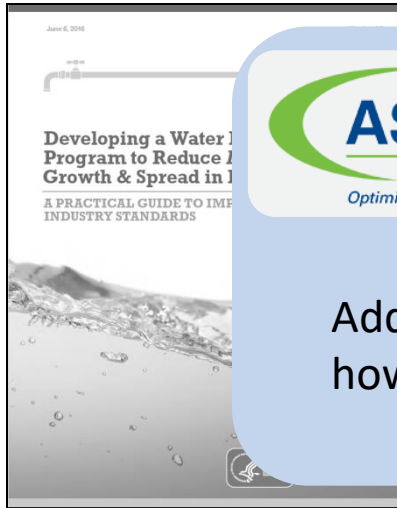
Haupt TE¹, Heffernan RT, Kazmierczak JJ, Nehls-Lowe H, Rheineck B, Powell C, Leonhardt KK, Chitnis AS, Davis JP.

- **2012; Facility in southeastern Wisconsin**
- **8 possible healthcare-associated cases identified within a 2 month period among outpatients and visitors**
 - 6 had known exposure to water wall decorative fountain near hospital main entrance
- **9/44 (20%) Environmental samples *Legionella* (+) by culture**
 - Fountain only (+) environmental sample
 - High counts of *Lp1* isolated from cultures of foam material above fountain trough
- **Water fountains installed in any area of a healthcare facility need evaluation**

Resources for Developing a WMP

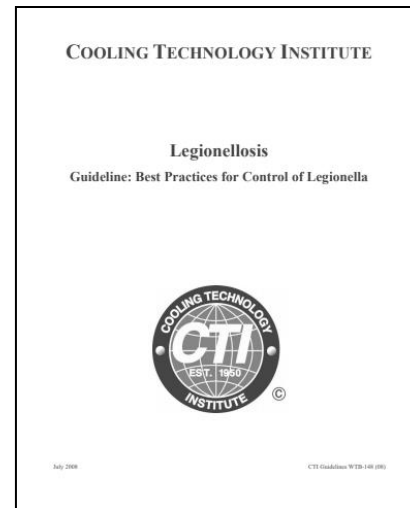
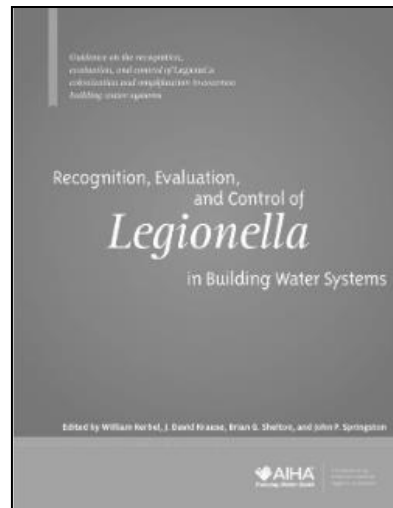
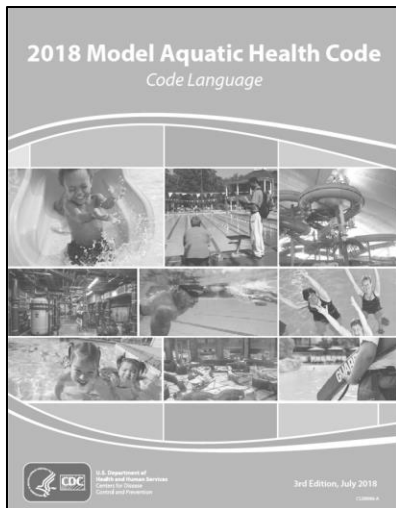
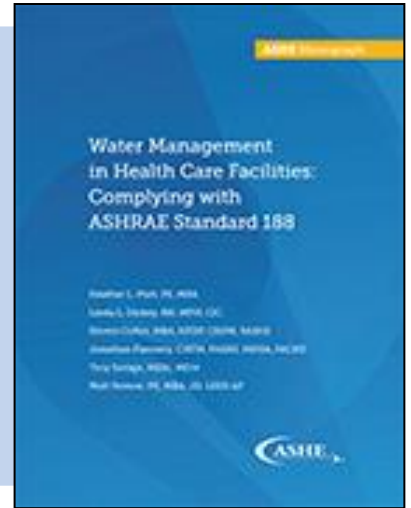


Resources for Developing a WMP

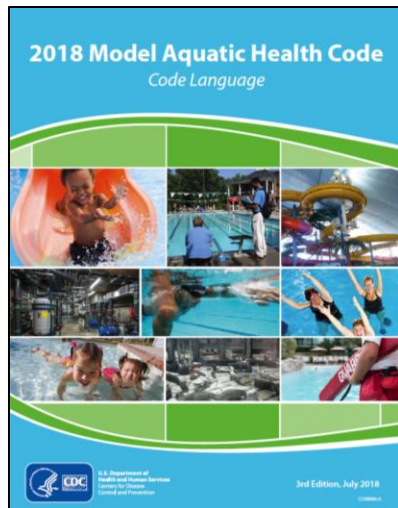
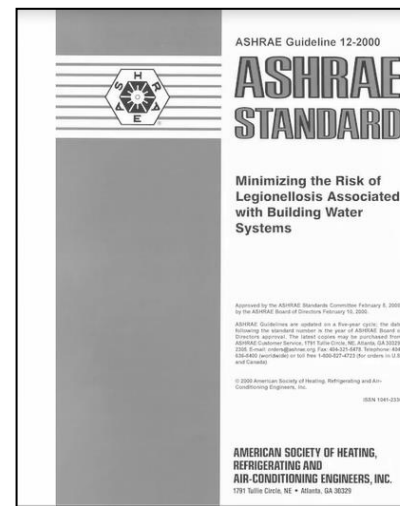
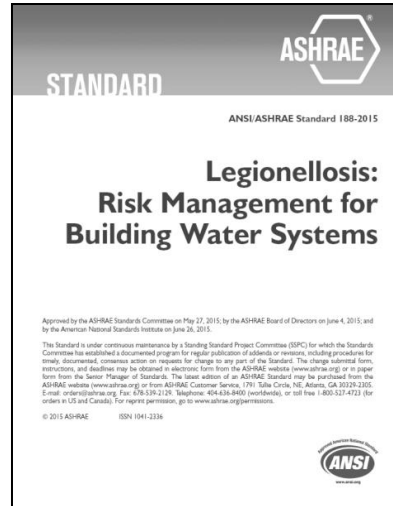
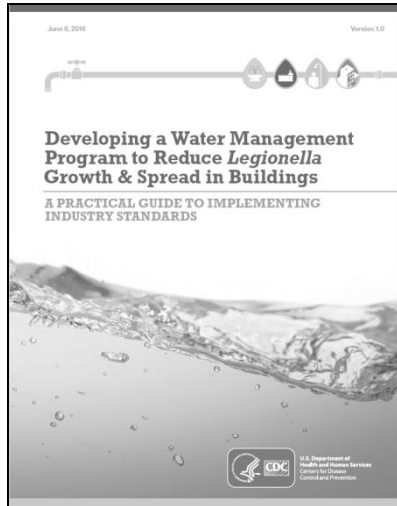


The American Society for Health Care Engineering - American Hospital Association

Additional guidance for healthcare facilities about how to comply with ASHRAE Standard 188.



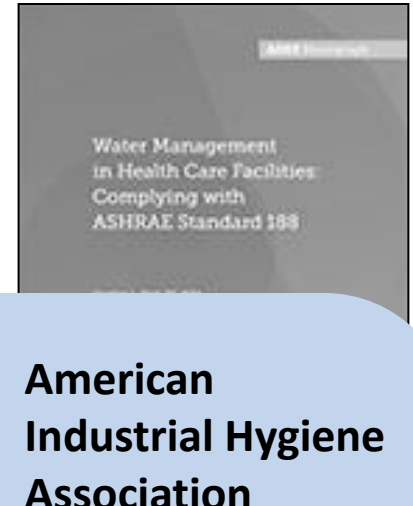
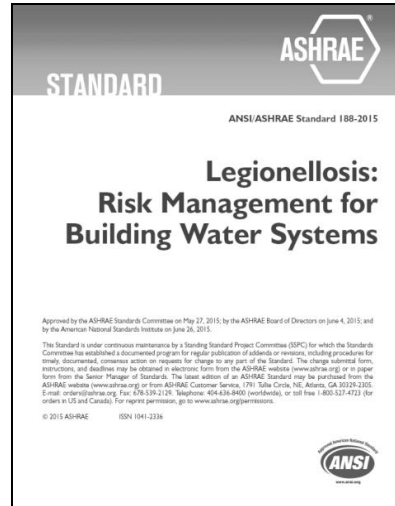
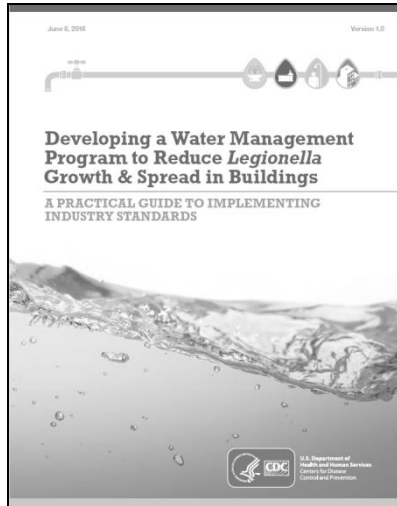
Resources for Developing a WMP



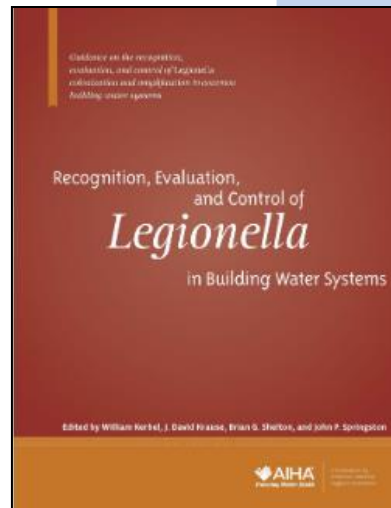
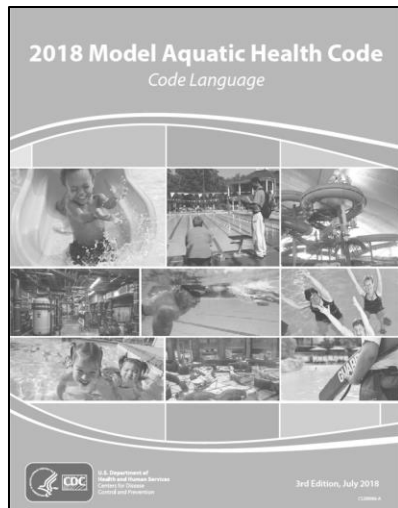
Centers for Disease Control and Prevention

Guidance document for safety at public water facilities. Includes guidelines for design, construction, operation, maintenance, policies and management.

Resources for Developing a WMP

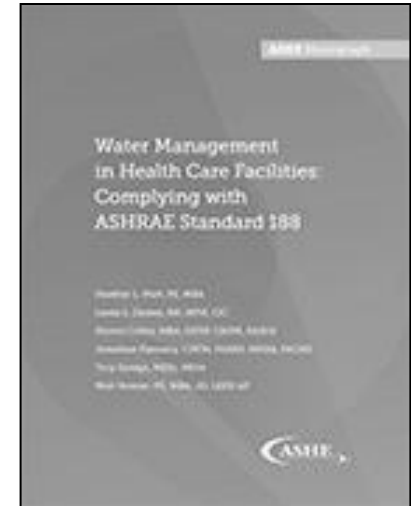
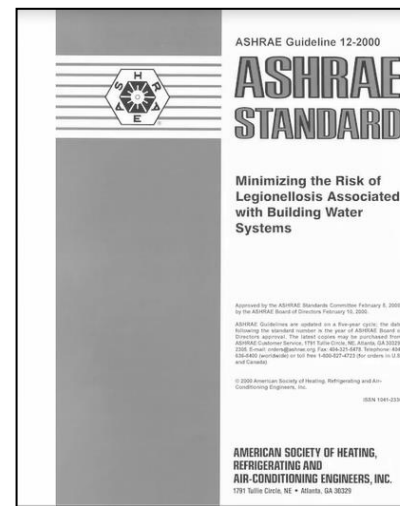
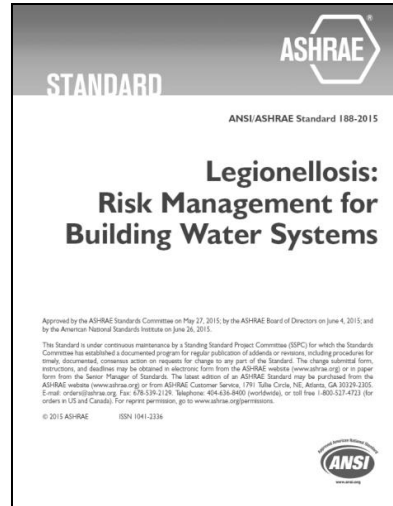
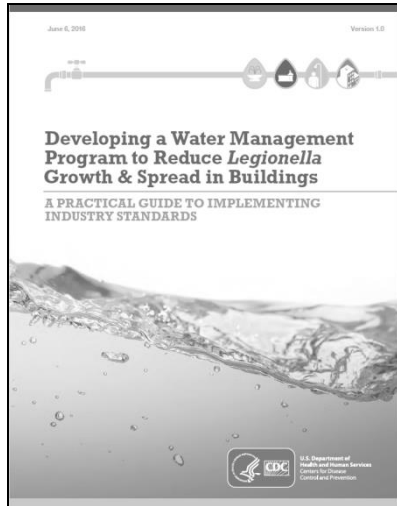


**American
Industrial Hygiene
Association**



Guidance for industrial hygienists and other occupational and environmental health and safety professionals on assessing building water systems before disease occurs.

Resources for Developing a WMP



Cooling Technology Institute

Guideline to minimize *Legionella* in evaporative cooling water systems, specifically evaporative condensers, closed-circuit fluid coolers, and cooling towers.

COOLING TECHNOLOGY INSTITUTE

Legionellosis
Guideline: Best Practices for Control of Legionella



July 2006

CTI Guideline WTS-148 (06)

Water Management Program Template



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™



- **National Working Group**
 - **Numerous health departments**
 - **Contributions / Resources from CDC, ASHRAE, Water Research Foundation, Queensland Health, Veterans Affairs**
- **Water Management Program Template**
 - **Fillable document**
 - **Any facility type**
 - **Available Now!**

Available: <https://www.tn.gov/health/cedep/reportable-diseases/legionellosis.html>

WMP Template

WATER MANAGEMENT PROGRAM TEMPLATE

Published: May 2019

Last Updated: May 2019

INTRODUCTION

What is a Water Management Program?

I Purpose and Use

Legionnaires' disease is a serious illness that often results in hospitalization, and sometimes death, of many people throughout the United States every year. In the [June 2016 Vital Signs article](#), CDC stated that 9 out of 10 Legionnaires' disease outbreaks could have been prevented with better water management programs. Over the last few years water management programs have become a prevailing industry standard, with resources like ASHRAE 188 and VA DIR 1061 making headway as reference material. Many types of facilities could benefit from the implementation of a water management program that identifies areas or devices in the building where *Legionella* might grow or spread to people. This template will help you develop and implement a water management program to reduce your facility's risk for growing and spreading *Legionella*.

I How to Use This Template

Whether you are starting from scratch or looking to improve your existing water management program, this template is designed to be a tool for you to use as it fits best to your facility. Creating a water management program is never a one-size-fits-all situation, so not all sections of the template will be relevant to your facility. The first thing to know is that if you feel like this is something you may not be able to tackle on your own, review the "Selecting a Water Management Consultant" document in Appendix E so you can know how to hire the best consultant to fit your needs. You can also go through CDC's online [Prevent Q](#) training and CDC's [Water Management Program Toolkit](#) before you get started on your own template so you have a better idea of how it works.

Throughout the template you will find tables that include examples of information. In Appendix H you will find a completely blank template. It is recommended to read through the template looking at the background information, and then use the blank template to complete for your facility. All of the tables that are included can be edited so you can add/delete rows and columns as you see fit. All of the material presented in the blue boxes is informative or background, while the fillable tables will be below that information. You may also find it beneficial to contact your local or state jurisdiction to identify specific regulations or requirements that will affect the content of your program, such as *Legionella* testing or reporting requirements, cooling tower maintenance requirements, or healthcare facility requirements.

Water Management Program

[Facility Name]

[Facility Address]

[Facility Phone Number]

Updated [Date]

PreventLD Training

- Preventing Legionnaires' Disease: A Training on *Legionella* Water Management Programs
- Free, Online Training
- Wide audience:
 - Public health, infection prevention
 - Building managers, maintenance, engineers, safety officers
 - Equipment and water treatment suppliers and consultants
- 4 Modules; ~ 3 hours to complete



Module A: Getting Started



- ***Legionella* and Water Management Program Background**
- **Step 1: Creating a water management program team**
 - **Special considerations of healthcare facilities**

Water Management Program Team

Healthcare facilities should also include:

- Someone knowledgeable about accreditation standards and licensing requirements
- Expert in infection prevention
- Expert in infectious diseases
- Risk and quality management staff



Module B: Hazard Analysis



- **Step 2: Describe the Building Water Systems Using Text & Flow Diagrams**
 - Consider unique water usage and high risk areas in healthcare facilities
- **Step 3: Identify Areas Where *Legionella* Could Grow & Spread**



Module C: Hazard Control



- **Step 4: Decide Where Control Measures Should Be Applied & How to Monitor Them**
- **Step 5: Establish Ways to Intervene When Control Limits Are Not Met**

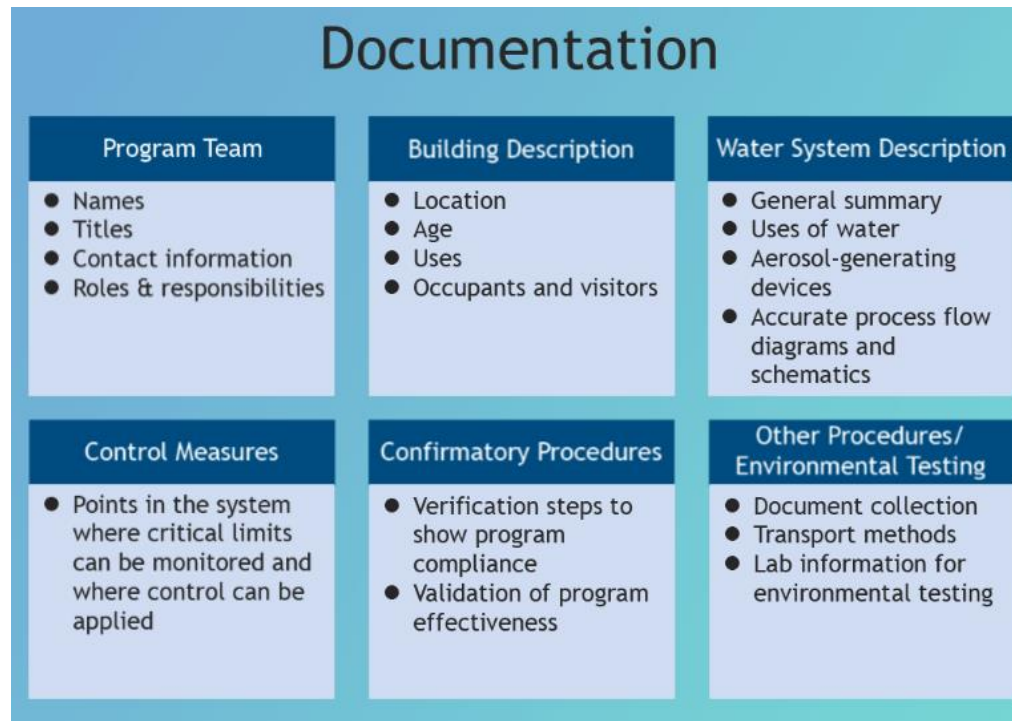
Potable/Non-potable Systematic Hazard Analysis Table Template

	Water Processing Step	Potential Hazards <ul style="list-style-type: none">• Microbial• Chemical• Physical	Risk Characterization (significant Y/N)	Basis for Risk Characterization	Hazard Control Options (at this location)	Is control at this location essential? (Y/N)
	1) Receiving					
	2) Cold Water Distribution					
	3) Heating					
	4) Hot Water Distribution					
	5) Waste Water					

Module D: Confirmation



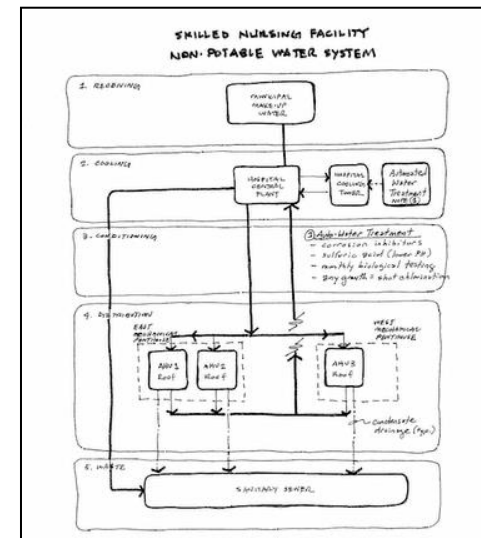
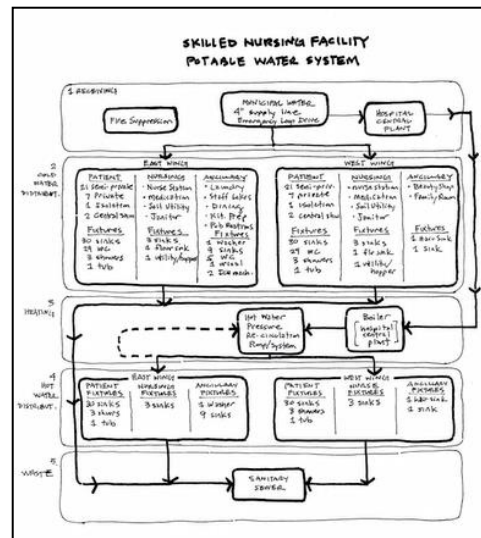
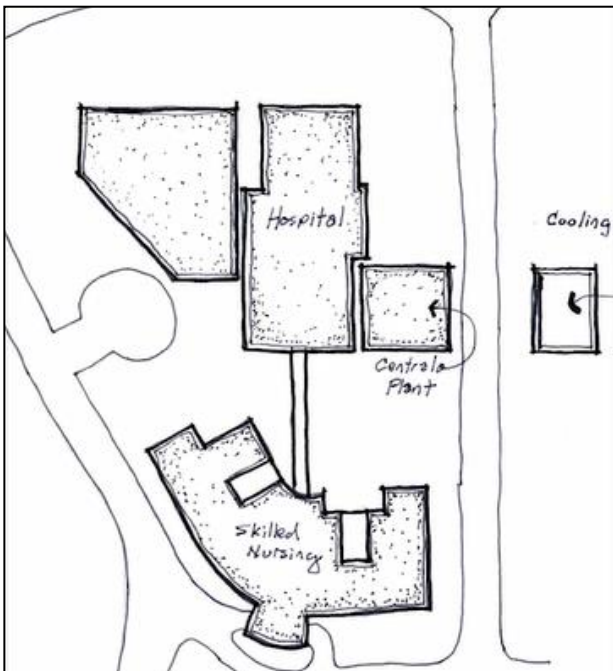
- **Step 6: Make Sure the Program is Running as Designed & Is Effective**
- **Step 7: Document and Communicate All the Activities of Your Water Management Program**



Case Study



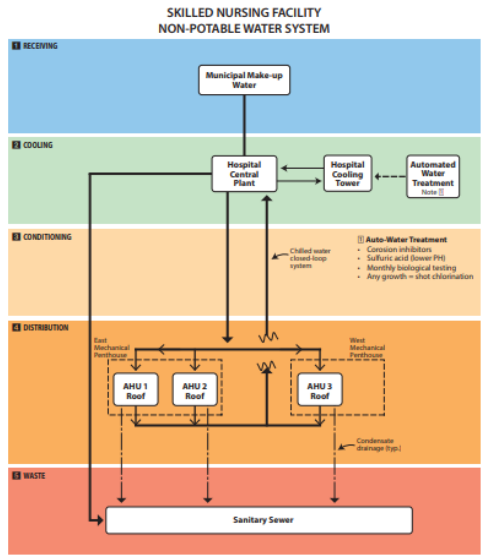
- 30 minute video
- Skilled Nursing Facility Example



Action Plan for Developing a WMP



Water Management Team Template



Potable/Non-potable Systematic Hazard Analysis Table Template

Water Processing Step	Potential Hazards <ul style="list-style-type: none">• Microbial• Chemical• Physical	Risk Characterization (significant Y/N)	Basis for Risk Characterization	Hazard Control Options (at this location)	Is control at this location essential? (Y/N)
1) Receiving					
2) Cold Water Distribution					
3) Heating					
4) Hot Water Distribution					
5) Waste Water					

Risk Characterization of Areas Template

Risk Classification	Rationale for Risk Characterization	Type of Areas #1	Type of Areas #2
High-risk			
Medium-risk			
Low-risk			

WMPs Come in All Shapes and Sizes

More info in
WEBINARS 3&4!

- **Developing and maintaining your WMP will depend on your facility type, facility size, resources and knowledge**
- **Tools/expertise to consider:**
 - **WMP Template**
 - **Software programs for WMP documentation**
 - **Third-party consultants**
 - **ELITE certified laboratories**

What if Cases of *Legionella* are identified?

- Healthcare-associated cases and outbreaks require additional investigation
- Investigation steps differ depending on the situation:



**Single Possible
Healthcare-
Associated Case**



**Multiple Possible
Healthcare-
Associated Cases**



**Definite Healthcare-
Associated Case**

Summary

- Healthcare-associated legionellosis can be prevented
- Developing and maintaining a water management program is a stepwise process
- There are many, many resources available
- We're here to help!

Fundamental understanding of the importance, components, industry standards and requirements of a water management program is crucial for protecting patients in your facility

Thank You!

Please complete the evaluation survey

Help us to help you by identifying future topics and resources needed



Adrienne Nordman
Lisa Wright
Andrew Shelton



Shay Rankhorn, SASHE, CHFM, CHC

Phone: (432) 431-1945

<https://tennashe.org/contact.php>

www.tennashe.org



Adam Thornton, EI

Phone: (601) 529-4249

Email: athornton@phigenics.com



Jane Yackley, MPH

Phone: (615) 741-3738

Mary-Margaret Fill, MD

Phone: (615) 532-6752

Email: Legionella.Health@tn.gov

On-Call Epidemiologist: (615) 741-7247

<https://tha.com/events-education/legionella-webinar-series/>