TENNESSEE HOSPITAL ASSOCIATION

Tennessee Healthcare Engineering Association

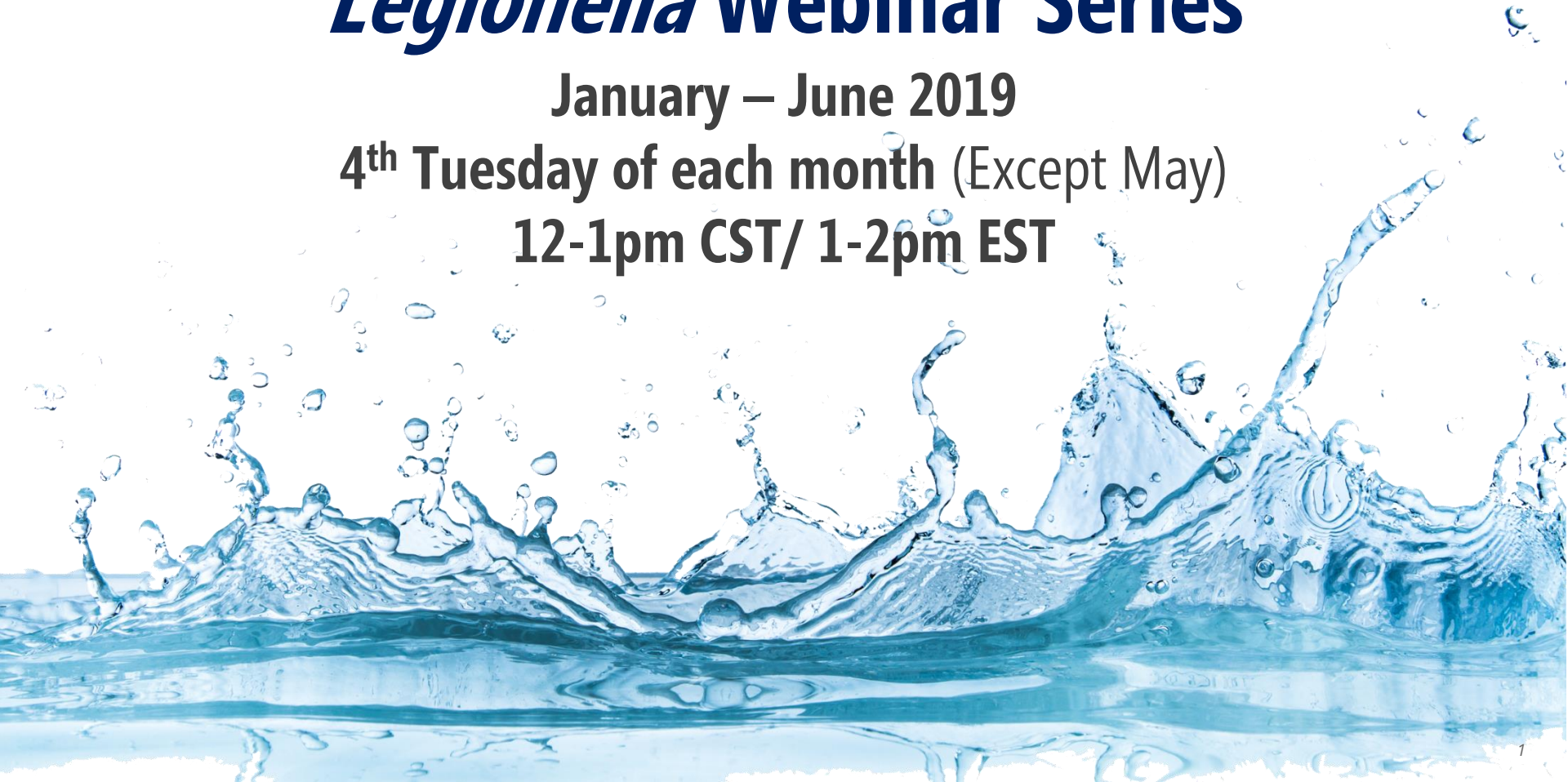
TN Department of Health

Legionella Webinar Series

January – June 2019

4th Tuesday of each month (Except May)

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**

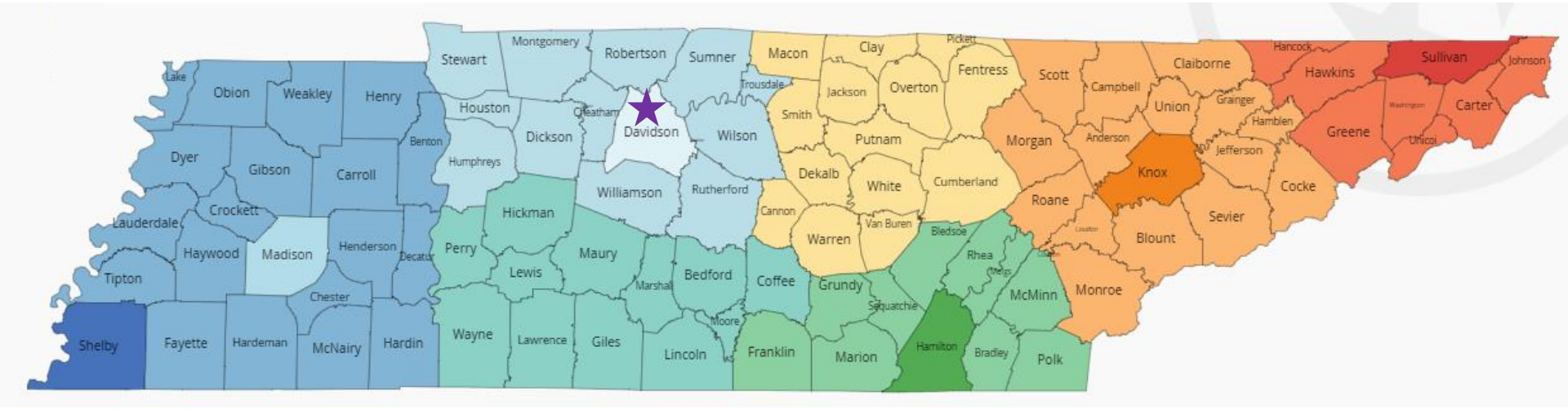
May 21: **What to Expect in an Outbreak**

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

Public Health in Tennessee



Regional Health Departments	Metro Health Departments
West Tennessee Region	Memphis–Shelby County
Mid-Cumberland Region	Jackson–Madison County
South Central Region	Nashville–Davidson County
Upper Cumberland Region	Chattanooga–Hamilton County
Southeast Region	Knoxville–Knox County
East Tennessee Region	Sullivan County
Northeast Region	

★ Tennessee Department of Health: Central Office

TDH Central Office: Waterborne Program

Mary-Margaret Fill, MD
Medical Epidemiologist

Jane Yackley, MPH
Epidemiologist

Judy Manners, MSc, REHS/RS
Environmental Health Specialist

Dilani Goonewardene, MPH
CDC PHAP Fellow

TDH Environmental Health

- **Environmental Health Specialists**
  - **95 state environmental health specialists**
  - **80 contract county environmental health specialists**
- **Conduct hotel inspections (≥ 2x per year), pool inspections (monthly while open), restaurant inspections (≥ 2x per year)**
- **Varying expertise with building water systems**

TDH Division of Laboratory Services (State Lab)

- **Environmental Samples**
  - ELITE-Certified Laboratory (Environmental *Legionella* Isolation Techniques Evaluation)
  - Annual evaluation / certification process through CDC / Wisconsin State Lab
  - Capable of testing for *Legionella* in a variety of environmental water samples
  - Techniques
    - PCR
    - Culture

- **Clinical Samples**
  - Respiratory specimens
  - Techniques
    - CDC-developed PCR assay
    - Culture
    - MALDI-TOF

Centers for Disease Control and Prevention

- *Legionella* subject matter experts (SMEs)
  - Medical
  - Epidemiologic
  - Environmental Health
- Tools and resources
  - Interview tools
  - Environmental assessment form
  - Sampling procedures
  - Water Management Program toolkit
- Outbreak support
  - Remote
  - On-site

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

TN

Healthcare Investigation Definitions

- **Possible Healthcare-Associated Case:** Patient spent part of their 10 day incubation period in the facility

- **Definite Healthcare-Associated Case:** Patient spent their entire 10 day incubation period in the facility (did not leave the facility at any point)

- **Cluster:** Two or more people with Legionnaires' disease exposed to *Legionella* at the same place at about the same time (as defined by the investigators)

- **Outbreak:** Two or more people with Legionnaires' disease exposed to *Legionella* at the same place at about the same time (as defined by the investigators)

CDC Investigation Recommendations

Things to Consider: Healthcare-associated Cases and Outbreaks

How health department investigators respond to healthcare-associated cases and outbreaks of Legionnaires' disease depends on the type and size of the healthcare facility, existing capacity of the facility and health department, and the number of cases. Public health officials should work closely with healthcare facility staff at each step in the process. The appropriate healthcare facility point of contact (e.g., administrator, infection preventionist, clinician, quality assurance representative, facility manager or engineer) may vary, depending upon the step.

CDC recommends a full investigation upon identification of:

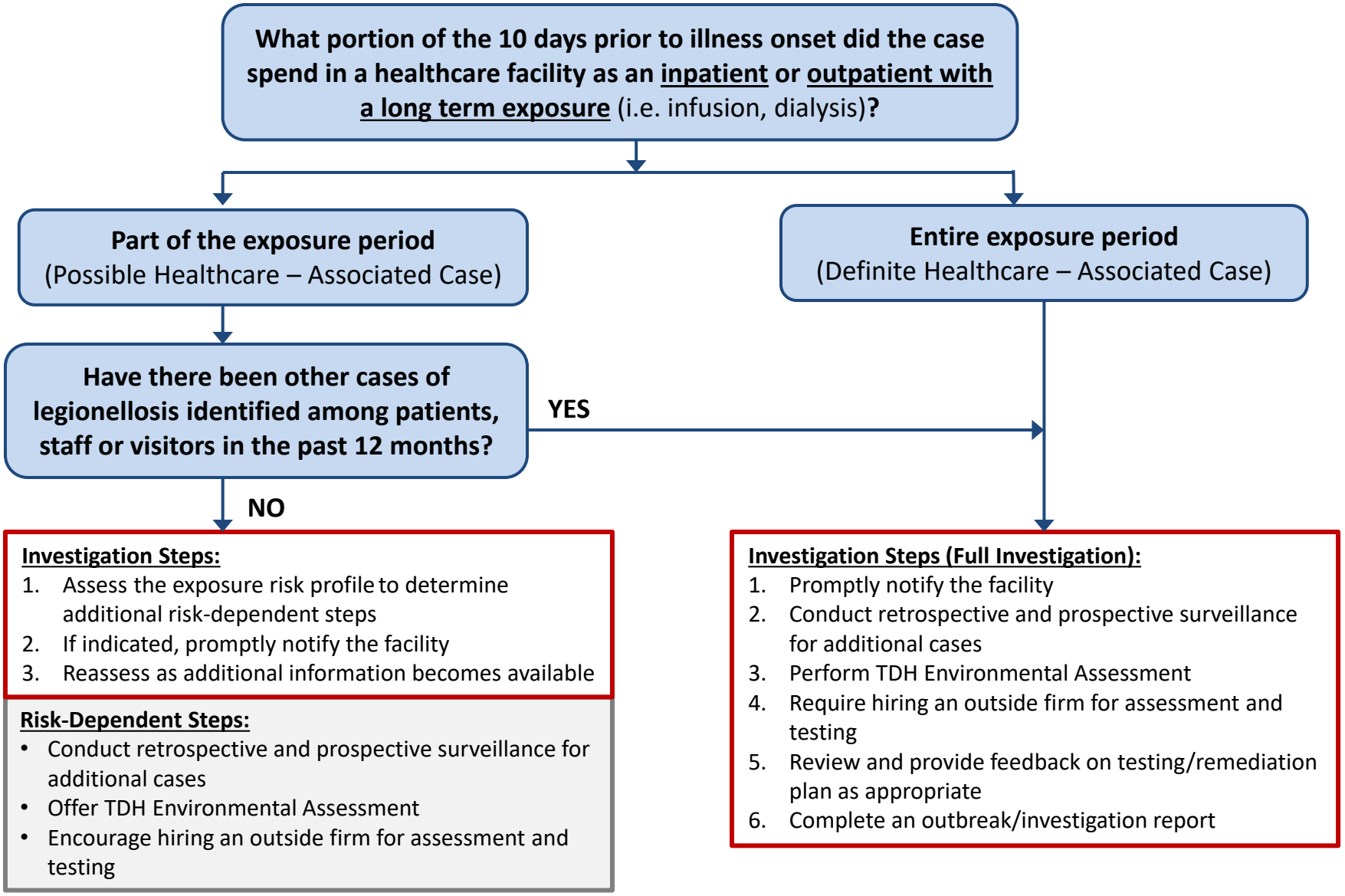
- ≥1 case of definite healthcare-associated case
- ≥2 cases of possible healthcare-associated cases within 12 months

https://www.cdc.gov/legionella/health-depts/healthcare-resources/cases-outbreaks.html

CDC Full Investigation

- Review health department **surveillance for additional cases** associated with the facility and develop a list of all cases
- Work with facility to identify new and recent patients with healthcare-associated pneumonia and **test them for *Legionella*** using both UAT and culture of lower respiratory secretions
- Consider **immediate control measures** (i.e. water restriction)
- Facilitate an **environmental assessment** and environmental **sampling** (as indicated)
- Recommend **remediation** of possible environmental source(s)
- Develop a **risk communications** plan
- Determine the **timeline** of heightened surveillance and environmental sampling
- Work with healthcare facility to develop or review the **water management program**
- Compare **clinical and environmental** isolates
- **Assess the effectiveness** of control measures

TDH Investigation Algorithm



Notification

- **TDH (Metro/Regional Office +/- Central Office) will notify healthcare facilities of possible or definite healthcare-associated legionellosis cases.**
  - **Point-of-contact at facilities may be variable**
  - **Will attempt to notify as soon as possible**

- **Notification within facility:**
  - **Infection prevention / control**
  - **Facilities management**
  - **Patient care staff**
  - **Management / Executive Leadership / C-Suite**
  - **Others?**

Surveillance

- **Retrospective Surveillance**
  - **Does the facility conduct surveillance for healthcare-associated pneumonia? Does this routinely include testing for *Legionella*?**
  - **Examine medical records to identify pneumonia cases that could have been healthcare-associated (pneumonia with onset ≥48 hours after admission), and if so, determine if patients were tested for *Legionella*.**
  - **Review all cases of legionellosis within the past 12 months.**

Surveillance

- Retrospective Surveillance
  - Does the facility conduct surveillance for healthcare-associated pneumonia? Does this routinely include testing for *Legionella*?
  - Examine medical records to identify pneumonia cases that could have been healthcare-associated (pneumonia with onset ≥48 hours after admission), and if so, determine if patients were tested for *Legionella*.
  - Review all cases of legionellosis within the past 12 months.

- **Prospective Surveillance**
  - **Systematically identify patients with healthcare-associated pneumonia (pneumonia with onset ≥48 hours after admission), and ensure all patients undergo *Legionella*-specific testing.**
  - **Conduct enhanced surveillance for at least 2 months (HICPAC guidance) and up to 6 months.**

TN

Communication: Investigation Team

- **Ongoing communication with Public Health throughout investigation is expected:**
  - **Metro/Regional Office**
  - **Central Office (Waterborne Team +/- HAI Team +/- Environmental Health)**
  - **Laboratory**
  - **+/- CDC**

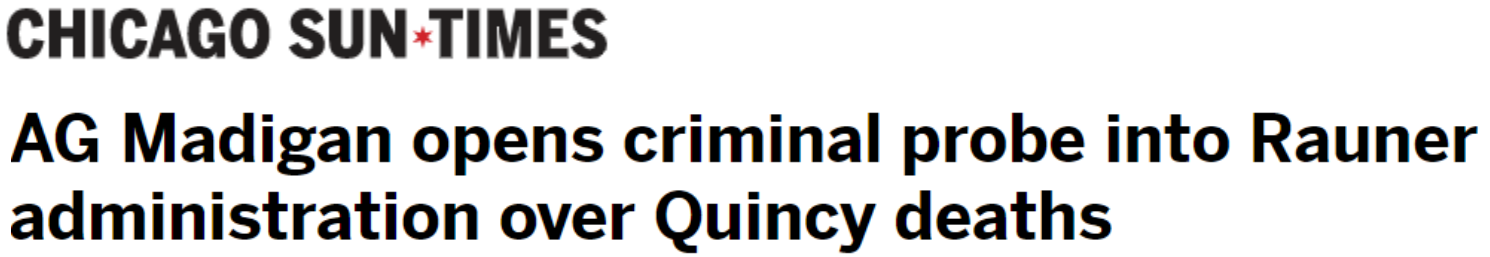
- **Set clear expectations at the beginning:**
  - **Frequency**
  - **Method (phone / email / in-person)**
  - **Closed-loop**

- **We're on your side!**

Communication: Public

- **Public Health does not divulge facility-specific information unless there is ongoing risk to the public**

- **Think critically about patient or public notifications**
  - **Involve PIOs, Executive Leadership <u>early</u>**



Environmental Assessment

- **Variable capacity depending on region of the state**

- **TDH may make site visit for public health investigation purposes only (<u>not</u> to make formal remediation recommendations)**
  - **Review Water Management Program and recent testing data**
  - **Understand complexity of water system and general building structure**
  - **Assess facility for overt risks (construction, decorative water features, etc.)**

- **Water samples may be collected for public health investigation purposes only**
  - **Testing to be conducted at TDH State Laboratory**

Remediation

- **Immediate control measures may be implemented**
  - **Ex: restricting patient showers, installing 0.2µ point-of-use filters on showerheads/sinks/faucets, closing affected units**
- **Remediation may be required to minimize the risk of *Legionella* growth and transmission**
  - **Ex: superheating and flushing the potable water system, hyperchlorinating the potable water system, flushing unused plumbing outlets, draining and scrubbing devices**
- **Public Health may require the use of an outside consultant / remediation firm**
  - **Interview before hiring them!**
  - **TDH has a list of possible firms (no formal recommendations)**

Remediation: Consultant Considerations

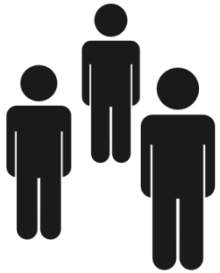
- **Level of *Legionella*-specific experience: experience with a facility of your type and size?**
- **Laboratory testing: ELITE-lab? Rapid test vs. culture?**
- **Environmental assessment expertise**
- **Remediation expertise (specific to *Legionella*)**
- **Water management expertise**
- **Knowledge of codes, standards and regulations**
- **Potential conflicts of interest**

You've been notified... Now what?

- Notify internal points of contact
- Pull water management program documentation +/- recent testing data
- Assess available resources for retrospective surveillance
  - Utilize electronic health record and laboratory information management system
- Anticipate mechanisms for prospective surveillance
  - How will patients needing testing be identified?
  - Where will testing be performed?
- Prepare for follow-up conversations with Public Health

Healthcare Investigation Examples

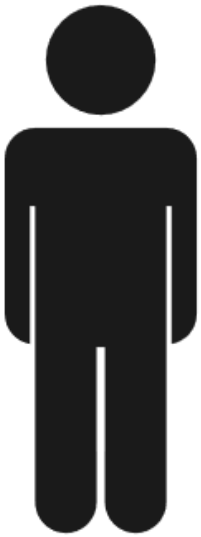
Single Possible Healthcare-Associated Case



Multiple Possible Healthcare-Associated Cases

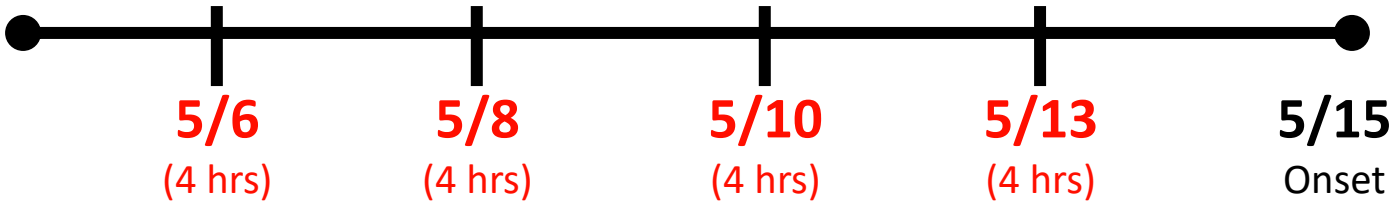
Definite Healthcare-Associated Case

Single Possible Healthcare-Associated Case



- **62 yo M**
- ***Legionella* Onset:** 5/15/2019
- **Visited Outpatient Facility** (Dialysis Center)

Incubation Period (10 days):



Investigation Algorithm

What portion of the 10 days prior to illness onset did the case spend in a healthcare facility as an <u>inpatient</u> or <u>outpatient with a long term exposure</u> (i.e. infusion, dialysis)?

Part of the exposure period
(Possible Healthcare – Associated Case)

Entire exposure period
(Definite Healthcare – Associated Case)

Have there been other cases of legionellosis identified among patients, staff or visitors in the past 12 months?

NO

<u>Investigation Steps:</u>

1. Assess the exposure risk profile to determine additional risk-dependent steps
2. If indicated, promptly notify the facility
3. Reassess as additional information becomes available

<u>Risk-Dependent Steps:</u>

- Conduct retrospective and prospective surveillance for additional cases
- Offer TDH Environmental Assessment
- Encourage hiring an outside firm for assessment and testing

Investigation Steps

1. Notify facility*
2. Assess risk profile*
   - Length of stay(s)
   - Type of visit
   - Notable water exposures
   - Patient risk factors (i.e. smoking, CPAP use)
3. Monitor for future cases
4. Consider other risk-dependent steps as indicated

*These steps may be combined

Multiple Possible Healthcare-Associated Cases

- **52 yo F**
- ***Legionella* Onset:** 1/19/2019
- **Inpatient (1 night) @ Acute Care Hospital**

Multiple Possible Healthcare-Associated Cases

- **52 yo F**
- ***Legionella* Onset:** 1/19/2019
- **Inpatient (1 night) @ Acute Care Hospital**

- **73 yo M**
- ***Legionella* Onset:** 5/12/2019
- **Inpatient (5 nights) @ Acute Care Hospital**

Multiple Possible Healthcare-Associated Cases

- **52 yo F**
- ***Legionella* Onset:** 1/19/2019
- **Inpatient (1 night) @ Acute Care Hospital**

- **73 yo M**
- ***Legionella* Onset:** 5/12/2019
- **Inpatient (5 nights) @ Acute Care Hospital**

- **46 yo M**
- ***Legionella* Onset:** 5/14/2019
- **Inpatient (2 nights) @ Acute Care Hospital**

Investigation Algorithm

What portion of the 10 days prior to illness onset did the case spend in a healthcare facility as an <u>inpatient</u> or <u>outpatient with a long term exposure</u> (i.e. infusion, dialysis)?

Part of the exposure period
(Possible Healthcare – Associated Case)

Entire exposure period
(Definite Healthcare – Associated Case)

Have there been other cases of legionellosis identified among patients, staff or visitors in the past 12 months?

YES

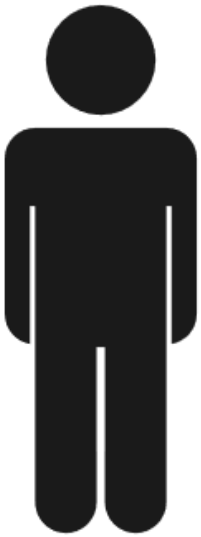
<u>Investigation Steps (Full Investigation):</u>

1. Promptly notify the facility
2. Conduct retrospective and prospective surveillance for additional cases
3. Perform TDH Environmental Assessment
4. Require hiring an outside firm for assessment and testing
5. Review and provide feedback on testing/remediation plan as appropriate
6. Complete an outbreak/investigation report

Investigation Steps

1. Notify facility
2. Conduct surveillance
   - Retrospective
   - Prospective
3. Perform TDH Environmental Assessment
4. Hire an outside firm for assessment and testing
5. Review testing/remediation plan
6. Complete an investigation report

Definite Healthcare-Associated Case



- **79 yo F**
- ***Legionella* Onset:** 4/19/2019
- **Resident @ Long Term Care Facility**
  - 12/14/2018 – 4/20/2019
  - Did not leave facility

Incubation Period (10 days):

4/19
Onset

Investigation Algorithm

What portion of the 10 days prior to illness onset did the case spend in a healthcare facility as an <u>inpatient</u> or <u>outpatient with a long term exposure</u> (i.e. infusion, dialysis)**?**

Part of the exposure period
(Possible Healthcare – Associated Case)

Entire exposure period
(Definite Healthcare – Associated Case)

<u>Investigation Steps (Full Investigation):</u>

1. Promptly notify the facility
2. Conduct retrospective and prospective surveillance for additional cases
3. Perform TDH Environmental Assessment
4. Require hiring an outside firm for assessment and testing
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Investigation Steps

1. Notify facility
2. Conduct surveillance
   - Retrospective
   - Prospective
3. Perform TDH Environmental Assessment
4. Hire an outside firm for assessment and testing
5. Review testing/remediation plan
6. Complete an investigation report

Questions

TN Department of Health

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Final Webinar

June 25, 2019
12pm CST/ 1pm EST

Review Resources and Healthcare Implications