Welcome

Office for State, Tribal, Local and Territorial Support
presents

CDC Vital Signs Town Hall
Health Care-Associated Legionnaires’ Disease: Protect Patients with Prevention and Early Recognition

June 13, 2017
2:00–3:00 PM (ET)
# Agenda

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<th>Time</th>
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| 2:00 pm | Welcome & Introduction      | **José T. Montero, MD, MHCDS**  
Director, Office for State, Tribal, Local and Territorial Support |
| 2:05 pm | Vital Signs Overview        | **Elizabeth A. Soda, MD**  
Epidemic Intelligence Service Officer, Respiratory Diseases Branch, Division of  
Bacterial Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention |
| 2:10 pm | Presentations               | **Jeffrey S. Duchin, MD**  
Health Officer and Chief of the Communicable Disease Epidemiology & Immunization Section for Public Health—Seattle and King County |
|         |                             | **John T. Letson, MBA**  
Vice President of Plant Operations at the Memorial Sloan Kettering Cancer Center in New York City |
| 2:30 pm | Q&A and Discussion          | **José T. Montero, MD, MHCDS** |
| 2:55 pm | Wrap-up                     |                                                                          |
| 3:00 pm | End of Call                 |                                                                          |
to support STLT efforts and build momentum around the monthly release of CDC Vital Signs
Legionnaires’ Disease: A Problem for Health Care Facilities

Elizabeth A. Soda, MD
Epidemic Intelligence Service Officer, Respiratory Diseases Branch, Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention

CDC Vital Signs Town Hall Teleconference on June 13, 2017
How Legionnaires’ Disease Occurs

**Legionella** grows well in large water systems
- Certain conditions promote growth (e.g., warm temperatures, lack of disinfectant, poor water flow)

**People inhale contaminated water**
- People may also get it if water containing the bacteria goes into the lungs while drinking

**Legionnaires’ disease affects vulnerable groups**
- Adults 50+ years
- Current or former smokers
- People with weakened immune systems or chronic diseases

People can get Legionnaires’ disease from health care facilities, which often have large water systems and serve vulnerable patients.
Health Care-Associated Legionnaires’ Disease

- Deadly for 1-in-4 people who are diagnosed with it
- Most problems leading to these outbreaks could be prevented with effective water management
- Early recognition another key to protecting patients

Health care facilities include—
- Long-term care facilities
- Hospitals
- Clinics
16 of 21 Jurisdictions Reported Definite Cases of Health Care-Associated Legionnaires’ Disease (LD) in 2015

Reported definite cases of health care-associated LD
Did not report a definite case of health care-associated LD
Not included in the analysis: Jurisdictions reporting less than 90% of Legionella infections to SLDSS, which contains information such as health care facility exposures

* Alaska had no cases to report

Source: Supplemental Legionnaires’ Disease Surveillance System (SLDSS), CDC, 2015.
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

Partners in *Legionella* Prevention and Response

- Health Care providers
- Health Care facility leaders
  - Hospital administrators
  - Infection control practitioners
  - Facility managers
  - Quality assurance staff
- State and local public health officials
- Others may include environmental health and water management experts
Health Care Providers Can

- **Recognize cases early**
  - Have a high index of suspicion
  - Test patients with health care-associated pneumonia at risk for Legionnaires’ disease
  - Order tests specific for *Legionella*
    - Culture from a lower respiratory specimen, preferably before giving antibiotics
    - Urinary antigen test

- **Talk to their laboratories about *Legionella* testing capabilities and resources**
Health Care Facility Leaders Can

• Build a water management team
• Create and use a *Legionella* water management program
• Track and report cases to public health
• Work with public health to investigate, prevent further infections
  • Implement water restrictions as needed
  • Conduct an environmental assessment and collect water samples

Get public health involved promptly.
State and Local Officials Can

- Improve monitoring for Legionnaires’ disease in health care facilities
  - Review previous cases to look for patterns
  - Respond promptly to reports of cases
- Understand laboratory capacity to process *Legionella* specimens
- Encourage laboratories to save patient isolates for public health investigations
State and Local Officials Can (2)

- Report details for all cases to CDC
  - Include visits to health care facilities
- Report outbreak details to CDC’s National Outbreak Reporting System
- Provide tools and information to help healthcare facility leaders create and use *Legionella* water management programs
The Federal Government Is

• Promoting Legionnaires’ disease prevention practices and providing tools for water management programs
• Tracking Legionnaires’ disease on a national scale to aid in outbreak identification and response
• Providing information on technologies for *Legionella* control in plumbing systems
• Requiring Legionnaires’ disease prevention activities in health care facilities
Developing a Water Management Program to Reduce *Legionella* Growth & Spread in Buildings

A PRACTICAL GUIDE TO IMPLEMENTING INDUSTRY STANDARDS

www.cdc.gov/legionella/WMPtoolkit
Health Care-Associated *Legionella* Outbreak Investigation – A Local Perspective

Jeff Duchin, MD

Health Officer and Chief, Communicable Disease Epidemiology & Immunization Section, Public Health – Seattle & King County

Division of Allergy & Infectious Diseases, University of Washington, Seattle
Health Care-Associated *Legionella*: Reports

- *Legionella* case reported by hospital A on 8/26/16
  - Onset: Day 9 hospitalization; patient discharged

- Second case reported 9/6/16; hospitalized during entire exposure period; patient expired
  - Both cases had cardiac surgery; concern about heater-cooler units

- Outbreak or one community-acquired and one health care-acquired case?

- Subsequently 2 additional cases diagnosed
  - One case diagnosed post-mortem by PCR* of lung tissue

*Polymerase chain reaction*
Health Care-Associated *Legionella*: Initial Recommendations

- **Retrospective & enhanced prospective surveillance**
  - Provide testing guidance to clinicians, including importance of culture; enhanced community surveillance

- **Epi investigation**

- **Engage multidisciplinary HCF* incident mgmt. team**

- **Environmental investigation**
  - Identify staff at HCF (e.g., engineering, facilities management) and/or consultant to assess water system(s) and *Legionella* risk factors

- **Communications plan**

*Healthcare facility*
Health Care-Associated *Legionella*: Initial Response

• **Key guidelines**
  - CDC *Legionella* toolkit: Developing a water management program to reduce *Legionella* growth & spread in buildings

1 [http://www.qualityforum.org/topics/sres/serious_reportable_events.aspx](http://www.qualityforum.org/topics/sres/serious_reportable_events.aspx)

*Healthcare Infection Control Practices Advisory Committee*
Health Care-Associated *Legionella*:
Key Issues

- **What steps can be taken once health care-associated transmission from potable water source is suspected/confirmed?**
  - Minimize exposure to potable water (water restrictions)
  - Restrict showers, sink use
  - Use bottled water
  - Stop use of ice machines
  - Point of use filters; ice machine filters
Communication Planning

• Reporting to public health
• Outbreak management conference calls
• Notification to patients (>600 by phone, cardiac surgery patients also received letters) and staff
  • Collaborate with public health on content
• Public notification and media plan
  • Public health blog post on 9/8/16 (second case reported 9/6/16); seven subsequent updates
• Notification to licensing authority and accreditation agency
Environmental Investigation and Water System Management

- Multiple environmental samples positive for Lp1*
- Remediation plan
  - Hyperchlorination
  - Superheating
- Water management plan

*Legionella pneumophila serogroup 1
Environmental Investigation and Water System Management

• **Questions**
  • Volume of sample for testing?
  • Timing of remediation?
  • Personal protective equipment for staff performing flushing?
  • Significance of non-*pneumophila* species?
  • Is an environmental investigation needed with only one case?
  • Role of PCR, molecular typing/sequencing methods?
  • Follow-up testing plan—What if there are positives?
  • When to relax restrictions?
  • Is routine environmental testing recommended?
Thank you!
Ensuring a Safe Environment for Health Care Patients

John T. Letson, MBA
Vice President, Plant Operations
Memorial Sloan Kettering (MSK) Cancer Center
MSK Cancer Center Overview

• 50 building locations comprising 6M gross square ft.
• 470 inpatient bed hospital in Manhattan

• Multiple outpatient locations
  • Manhattan; Brooklyn; Long Island; Westchester County, New York; and New Jersey

• Multiple research facilities

• Majority of patients are immunocompromised
  • Cancer patients receiving chemotherapy
  • Bone marrow transplant patients
Our Experience Shaped Our Prevention Approach

- **Possible hospital-acquired case in 1999**
  - Bone marrow transplant patient
  - Same *Legionella* type found in patient, shower water
  - Led to adoption of a zero tolerance policy
  - Followed by regular enhancements to the program

- **Successful *Legionella* water management program**
  - This long-term strategy involves proactive monitoring, remediation when needed, and continual improvements

Positive culture rate in water samples decreased from 27% in 2000 to <1% today
# Four-Point Plan to Ensure a Safe Environment for Patients

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<th>Prevention</th>
<th>Monitoring</th>
<th>Testing</th>
<th>Remediation</th>
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<td>• Aggressive biocide program</td>
<td>• Program oversight by MSK staff</td>
<td>• Regular testing of water systems by a third party</td>
<td>• Zero tolerance for <em>Legionella</em></td>
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<td>• Copper silver ionization</td>
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<td>• Enhanced filtration</td>
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Four Areas of Risk

- Cooling towers
- Cold water tanks
- Hot water systems
- Water features

Other potential exposure sources in health care facilities—
- Hydrotherapy areas
- Misters
- Ice machines
- Humidifiers
- 42 cooling towers total; 29 on main campus
- Quarterly testing for *Legionella*
  - Modified twice, increasing frequency
- Cleaned in spring, at end of cooling season, and as required based on inspections
Cold Water Systems

• Eight cold water tanks
• Annual inspection and cleaning
• Quarterly testing for *Legionella*
  • Modified based on risk assessment to include testing 7 to 10 days after heavy rain events (2+ inches)
• Filtered before use for consumption
  • On patient floors
  • In coffee and juice machines
• In the future
  • Considering treating the water source
Hot Water Systems

• Four independent hot water systems
• Presents the greatest risk to patients
• Copper-silver ionization for long-term protection
• Quarterly testing for *Legionella*
  • Expanding testing to include cold water

• In the future
  • Considering a secondary treatment system
• Aerosolize and splash water
• NOT chemically treated
  • Due to small volumes and staining
• Now forbidden in inpatient or outpatient facilities
  • Per 2014 guidance from the Facilities Guidelines Institute
• Have been eliminated from MSK properties by risk assessment
Water Management Is Dynamic

- Evaluate each water system’s risk
- Develop proactive monitoring strategies
- Remediate when needed
- Watch for patterns
- Make improvements as needed

MSK’s plan did not come about as one singular global policy or plan. It evolved and continues to evolve.
Thank you!
CDC Vital Signs Electronic Media Resources

- Become a fan on Facebook
  www.facebook.com/cdc

- Follow us on Twitter
  www.twitter.com/CDCgov

- Syndicate Vital Signs on your website
  https://tools.cdc.gov/medialibrary/index.aspx#/media/id/305883

- Vital Signs interactive buttons and banners
  https://www.cdc.gov/socialmedia/tools/buttons/vitalsigns
Thank You

Provide feedback on this teleconference: OSTLTSFeedback@cdc.gov

Please mark your calendars for the next Vital Signs Town Hall Teleconference

July 11, 2017
2:00–3:00 PM (ET)

For more information, please contact Centers for Disease Control and Prevention.

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The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.