

Digging Deeper Into Legionnaires' Disease Guidance Needs for State and Territorial Health Agencies

Following up on a recent gap analysis, ASTHO conducted key informant interviews to better improve our understanding of the utility, perceived value, comprehensiveness, and reach and availability of Legionnaires' disease guidance for state and territorial health agencies, as well as their resource needs.

Methods

In an effort to dig deeper into the findings of the 2019 [Legionnaires' Disease \(LD\) Outbreak Response Gap Analysis](#), ASTHO developed a guide to conduct key informant interviews with five state health agencies (SHAs) on key topics. Questions were based off the original report findings and were intended to enhance our understanding of the utility, perceived value, comprehensiveness, and reach or availability of LD guidance for SHAs. Interview questions focused on relationships, processes and policies, usability, successes, challenges, needs, and gaps.

In 2020, ASTHO used this guide to interview LD staff in states that represent the Northeast, South, Midwest, and West regions, covering six different topical areas for state LD programs. Topics included the overall structure of LD programs, diagnosis and clinical testing protocols, surveillance and reporting, outbreak and response, water management programs and prevention, and risk communication (see appendix). The results and key takeaways from these interviews are summarized below.

Results

Interviews revealed that LD programs may be structured differently depending on how the overall SHA is positioned. States with centralized SHAs often take the lead when responding to LD outbreaks, compared to states with decentralized SHAs, in which local health departments (LHDs) lead surveillance and response efforts. In states with centralized agencies, SHAs conduct both investigations and environmental assessments.

The type of staff (e.g., epidemiology versus environmental health) that conduct these assessments may differ depending on where the LD program sits in the SHA and the type of facility that is under investigation (e.g., healthcare facilities, hospitality, long-term care facilities, or prisons). For states with decentralized SHAs and lower LD burden, SHAs may play a greater role in supporting LHDs in their response efforts, while local jurisdictions with higher case rates may have dedicated staff within the LHD to support outbreak investigations, as well as routine case investigation and reporting. During outbreak investigations, SHAs may encourage or require facilities to hire third-party consultants to perform response and remediation activities on site. When consultants are involved in outbreak response, it is important that SHAs work with LHDs to streamline quality control. In most states with decentralized health agencies, SHAs manage epidemiologic surveillance and work closely with LHDs during response efforts. However, LHDs in some states also report surveillance data directly to CDC.

DIAGNOSIS AND CLINICAL TESTING PROTOCOLS

■ REPORTED CHALLENGE: A need for increased clinician engagement on LD.

Frequency of Meetings With Healthcare Sector

As part of their education and outreach to the healthcare sector on diagnosis and clinical testing protocols, LD staff at SHAs participate in a range of activities. As a whole, interview respondents agreed that there is room for increased engagement with clinicians on LD.

One SHA staff member noted that they give regular LD lunch and learn presentations to members of the Association of Professionals in Infection Control, which has shown to be a good peer group for disseminating information. Another state mentioned giving LD presentations at universities for both medical students and local area practitioners.

The most straightforward way to conduct proactive outreach is by providing updates and raising awareness of LD during regularly scheduled meetings with clinicians, hospital associations, and other members of the healthcare sector.

To help address the unique challenges that LD plays for the healthcare sector, in 2018, the Tennessee Department of Health and the Tennessee Hospital Association ran a series of six [webinars](#) for members of the healthcare community (including long-term care facilities). The webinars were held on a reoccurring monthly basis to help with scheduling. Topics included “Introduction to Healthcare-Associated Legionellosis,” “Water Management Programs,” “Developing a Water Management Program,” “Healthcare Experience with Water Management Programs,” “What to Expect in an Outbreak,” and “Review Resources and Healthcare Implications.” TN noted that the webinars were well-received, although they were time consuming to develop and market. They also found that offering continuing education credits for participating in the webinars was a successful incentive for clinicians.

During an LD outbreak, SHAs may use health alert notices to communicate directly with providers, hospitals, and healthcare associations to help target impacted communities and put clinicians on the lookout for people with LD symptoms. This communication is important during outbreaks and can build upon prior SHA LD outreach and training.

Guidance Needs

During the interviews, SHAs reiterated the need for increased clinician education and guidance regarding effective LD testing practices, specifically for serology versus culture. According to SHAs, clinicians prefer one-page factsheets or easily digestible documents. Although CDC has factsheets available on this topic, states noted that this guidance could be better operationalized to help with clinician response. For example, clinicians and labs may order the wrong test because they aren’t aware of the differences in testing codes, which can cause testing duplication and delays in getting results and starting an investigation. Moving forward, enhancing outreach to industry associations (e.g., hospital associations and physician associations) may be the most effective way to engage and reach clinicians, especially since guidance from public health hasn’t penetrated these groups as effectively. Another idea is to include LD-related information in clinician newsletters.

SURVEILLANCE AND REPORTING

■ REPORTED CHALLENGE: Incompatibility of state and local systems with CDC's Supplemental Legionnaires' Disease Surveillance System.

In general, LD cases tend to be underdiagnosed, so SHAs find it helpful to conduct outreach to clinicians and hospitals to encourage more testing for Legionella with recommended methods, when indicated.

Some SHAs noted challenges with their IT systems, in some cases stating that their infrastructure is not set up to support streamlined case reporting to CDC's Supplemental Legionnaires' Disease Surveillance System. SHAs noted problems automating information or inputting case details into the federal reporting systems, with some SHAs having to resort to manually submitting forms to CDC. One SHA discussed an effort to align their surveillance tool with CDC's message mapping guidance, and others highlighted the need for templates and examples of electronic report submissions to save time and to improve consistency. In terms of surveillance, state interviewees did not share challenges related to understanding reporting guidance, but noted that they have limited personnel to conduct interviews and may also face problems during the process of submitting information and sending reports.

CASE OUTBREAK AND RESPONSE

■ REPORTED CHALLENGE: Staff capacity and subject-matter expertise with sampling/environmental assessments.

Since staff develop subject-matter expertise through the experience of dealing with outbreaks in real time, interviewees revealed that it would be beneficial for both state and local health agency staff to get hands-on trainings for environmental assessments, especially for newer staff who lack experience, or in areas where LD incidence is lower. SHAs staff noted that [CDC's Legionella Environmental Assessment Form](#) doesn't always explain the rationale for some of the questions (e.g., why are temperature measurements of cold-water distribution systems significant?), and that it would be helpful to have more context on the types of questions health agency staff can expect to hear from the facility staff.

Better equipping staff with more technical information would also help states because both state and local health agency staff often consult with CDC for technical assistance when interpreting investigation findings. If CDC doesn't provide context for a question, then the local or state public health staff leading the investigation may need assistance interpreting the meaning of both the question and the facility answer to that question. Since there is a direct correlation between experience and comfort level or readiness to conduct an environmental assessment, gaining technical knowledge through additional training or even having access to a subject-matter expert during environmental assessments would be very helpful. This could take the form of virtual assistance for the health agency staff through a dedicated consultant to their state program or in-person support for a site investigation.

SHA staff would also like guidance on how to best talk to a site following an environmental assessment about the need to develop a WMP to reduce risks in the future. For example, how and when should SHA or LHD staff follow up with the facility? Should they continue to reach out until the facility has a more robust plan in place?

SHA staff interviewees noted that they could benefit from an LD outbreak and response toolkit. The toolkit could include sections on healthcare-associated infections, what to do with presumptive positive

LD cases, guidance for specific settings (e.g., long-term care facilities and hotels), and how to coordinate across programs like epidemiology, environmental health, and labs for testing.

As a reflection of the current pandemic, state respondents indicated that they could use clarification on CDC's definition of healthcare-associated exposures during the COVID-19 pandemic and co-infections with LD and COVID-19. As the pandemic is ongoing, this clarification could be beneficial for the year(s) ahead.

WATER MANAGEMENT PROGRAMS AND PREVENTION

■ **REPORTED CHALLENGE:** Water management programs are common, but notably underutilized and not always properly designed and implemented.

The U.S. has very little WMP regulation, aside from very specific settings. There is some [guidance](#) from the Centers for Medicare and Medicaid Services to reduce *Legionella* risk in healthcare facility water systems, and from a small number of state healthcare facilities (e.g., in [New York](#)). However, many WMPs are written by consultants and are typically developed using cookie-cutter templates.

The best opportunity for guidance is giving LHDs the necessary technical knowledge to appropriately discuss the opportunities for Legionella growth and exposure. Another opportunity is walking facilities through developing a meaningful WMP.

Often, the topic of WMPs only comes up when SHA staff speak directly with a facility about an existing issue. When a health agency identifies a case, the agency staff may send a letter to the facility with recommendations on improving water quality, along with including CDC guidance on WMPs. However, it is not clear how long the SHA or LHD staff should follow up with the facility after an outbreak. SHAs also identified a need for more trained surveyors from the Centers for Medicare and Medicaid Services, regardless of whether the healthcare facility has a WMP.

Key informant interviewees revealed that SHA staff could benefit from some additional training before having to do environmental assessments, or would appreciate having an on-site consultant with experience in environmental assessments specifically for *Legionella*. Local environmental health staff often have experience conducting environmental assessments for foodborne illness investigations, and while the overall concepts related to assessments are similar (e.g., identifying pathogen sources, exposure routes, and root causes), the technical aspects for LD are quite different (e.g., plumbing engineering and *Legionella* ecology). All interviewees identified a need for environmental assessment training and resources on creating and implementing effective WMPs. Interviewees noted that WMP users who have all the essential elements and understand what is required in WMPs will also be able to clarify who is responsible for writing, reviewing, and validating WMPs.

RISK COMMUNICATIONS

When communicating with the public about LD cases or outbreaks, SHAs may publish press releases, public warnings, or alerts on social media. For well-defined outbreaks, such as those associated with hotels or public hot tubs, SHAs may publish a public report, along with a press release, with the facility's name to notify customers of potential exposure risk while investigations are ongoing. For outbreaks or clusters at hotels or other travel accommodations, SHAs recommend having formal protocols for risk communication due to the risk of travel exposure. SHAs usually call clinicians and healthcare facilities directly when alerting them of a *Legionella* outbreak, whereas SHAs send health alert notice or CDC's Epidemic Information Exchange when communicating with public health partners.

SHAs generally rely on their public information officers or other communications personnel to develop materials and refer to CDC language as a guide for messaging. SHAs often must strike a balance between providing too much and too little information to avoid messaging fatigue while also working to keep the public informed.

Key Takeaways

Based on information solicited from ASTHO's LD Gap Analysis and subsequent key informant interviews, it is clear that SHAs have similar challenges and resource needs. ASTHO plans to share this information with our federal, state, local, and nongovernmental organization partners to help target future LD resource efforts and development.

Some of the common responses from SHA interviewees included:

- In states with low LD case rates, the SHA may play a large role in supporting LHDs in LD case response efforts, while states with a higher burden may need to hire additional personnel to support case investigation and reporting.
- There is room for increased engagement with clinicians on LD. Events such as lunch and learn presentations or webinar series can provide opportunities to enhance collaboration.
- All interviewees noted challenges with staff capacity and lack of access to subject matter experts with technical experience in environmental assessments, as well as a need for increased training opportunities. One SHA recommended hiring consultants with the technical knowledge needed for environmental assessments. This could take the form of hiring a regional consultant who could participate on site more readily, or having access to a national expert who can provide virtual support to SHA staff who are conducting an assessment. (CDC staff routinely support SHAs and LHDs through technical consultations and, less frequently, Epi-Aid investigations.)
- While WMPS are more common for larger facilities, they are notably underutilized and not always properly designed and implemented. SHAs could use additional training on how to walk facilities through developing a meaningful WMP. Alternatively, having access to a consultant who can work directly with facilities on WMP development and implementation may help the already-understaffed SHAs who currently provide these facility consults.
- States could use further guidance on the suggested duration of ongoing oversight or increased communication after a LD outbreak.

ASTHO will take these notable challenges and recommendations and share them with our federal, state, local, and nonprofit partners to help target future support efforts and resource development. As we continue to work together to build SHA capacity to address *Legionella* and other opportunistic premise plumbing pathogens, we will gather updated information on the six areas outlined in this document to gauge progress in meeting their needs.

This publication was supported by the grant or cooperative agreement number CDC-RFA-OT18-1802, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.

Appendix

Legionnaires' Disease Key Informant Interviews

Goal: Following up on gap analysis data and improving our understanding of the utility, perceived value, comprehensiveness, and reach/availability of Legionnaires' disease (LD) guidance for state and territorial health agencies (SHAs), as well as SHA resource needs in this area. These questions focus on relationships, processes/policies, usability, successes, challenges, needs, and gaps.

1) Overall Structure

- a. Can you please talk a little more about where LD response and surveillance sits in your agency and how you engage other program staff during a case or outbreak response?

2) Diagnosis and Clinical Testing Protocols

- a. How often do you communicate with the healthcare sector on LD issues?
 - i. Regular meetings
 - ii. During an outbreak
 - iii. Other
- b. How do you communicate diagnostic testing protocols and guidance with clinicians? (E.g., distribute via health alert notices during outbreaks, distribute via newsletter to all clinicians every summer, post on your website, or distribute via partners [if so, which ones?].)
 - i. Which components of this guidance appear to have the most impact on appropriate testing for LD?
- c. What are gaps/issues with guidance materials and distribution of those materials for clinicians and collecting/processing specimens? (*Add examples to question.*)
- d. What additional tools could be helpful? (E.g., Infographics, webinars, factsheets, template order sets, white papers, etc.)

3) Surveillance and Reporting

- a. What are the challenges to reporting a case of LD (e.g., ensuring every case is interviewed, deciphering reporting guidance, meeting reporting deadlines, or having to report to multiple federal systems)?
- b. What additional tools could be helpful?
- c. What can be done to improve reporting guidance?
- d. What can be done to clarify the case definition?
- e. What can be done to improve surveillance guidance?

4) Case Outbreak and Response

- a. What steps in the LD response process are most challenging? (*List steps.*)
- b. Where could you benefit from more guidance?
- c. Where is more guidance needed for LD response steps?
- d. In your health department:
 - i. What is your plan or protocol for LD cases?
 1. When is a full investigation for a LD case or outbreak required?
 2. When is an incident command system stood up?
 3. During LD outbreak investigations, are roles and responsibilities for epidemiologists, environmental health staff, and laboratorians clearly defined? Briefly describe these roles and responsibilities. How could collaboration between these different disciplines be maximized within your state? Do you have any additional thoughts, in general, about when it's appropriate for public health to investigate cases and outbreaks of disease?

5) Water Management Programs and Prevention

- a. What are the implementation issues related to guidance on working with water management programs, including gaps and facilitators related to these concepts?
- b. What is your process and average response time to inspect a water cooler or facility during an outbreak? Do you have any barriers to conducting these inspections?

6) Risk Communication

- a. What protocols, guidance, general principles, or criteria do you use when deciding when and how to share LD outbreak information publicly?
- b. Does your jurisdiction have specific disclosure requirements (e.g., disclose directly to exposed or potentially exposed individuals, use media outlets for larger notification efforts, etc.)? If so, how were they developed?
- c. What challenges do you face in communicating with the public about LD outbreaks? (*Probes: limited or no access to communication specialists, limited experience in communicating about LD outbreaks, difficulty deciding when and what to communicate.*)
- d. Where are more guidance documents needed in communicating with one audience vs. another during LD outbreaks? (*Name these: communication with clinicians, the legislature, the public, etc.*)