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CONNECTING THE NATION'S ENVIRONMENTAL LABORATORIES

ACCREDITED ENVIRONMENTAL PUBLIC HEALTH LABORATORIES CAN HELP MANAGE RISK OF LEGIONNAIRES' DISEASE

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Legionnaires' disease cases and outbreaks have risen dramatically over the past few years and the causative agent, *Legionella pneumophila*, is recognized nationwide as the most dangerous waterborne pathogen of our time. To help reduce the risk of exposure to *L. pneumophila*, building owners, healthcare facilities and others should implement water safety management (WSM) plans.

The guidance typically used in the US to develop effective WSM plans comes from either the American Society of Heating, Refrigerating and Air-Conditioning Engineers standard (ASHRAE Standard 188) or the US Centers for Disease Control and Prevention (CDC) *Legionella* toolkit. Both documents reference a seven-step WSM plan development process that culminates in routine validation testing to ensure the plan is effective at controlling the risk of *L. pneumophila* exposure. Both documents are also recommended resources for compliance with water safety management planning per the US Centers for Medicare and Medicaid Services rule.

A WSM plan is usually validated by testing routine water samples at various locations within a building, including its cooling towers, to ensure the level of *L. pneumophila* is within an acceptable range and below any pre-established action limit, as determined by the WSM plan team. Choosing the right environmental laboratory for WSM validation testing is extremely important because these routine validation test results determine whether any additional or different action must be taken to improve the management of the water and minimize *L. pneumophila* risk. But what criteria should be used when choosing a laboratory to perform routine validation testing?

It is good to bear in mind that microbiological water testing has been an integral part of the strategy to ensure water safety in the US for decades. In addition to stringent and well-established requirements for water treatment, the US Environmental Protection Agency (EPA) also requires routine testing of drinking water to ensure this treatment is working and to enable a quick response when testing results show a system is out of control. To ensure

BENEFITS OF USING AN ACCREDITED LABORATORY FOR LEGIONELLA TESTING

- Quality Management System

- Regular 3rd party audits

- Passing accredited Proficiency Test requirements

- Sample contract procedures, including Chain of Custody and Data Reports

- Required Quality Assurance for all equipment, reagents and media

- Documented Technical competence: Demonstrations of Capability for each analyst/method

testing data is reliable, the EPA requires the use of accredited laboratories for this microbiological water testing. Indeed, the vast majority of public health environmental laboratories are accredited to provide drinking water testing data to the EPA. The ASHRAE Standard 188 Annex C guidance also recommends contracting with a laboratory accredited to standards nationally recognized by the American National Standards Institute or International Standards Organization (ISO). The interdisciplinary teams charged with developing WSM plans in any community are encouraged to use the same principle: engage an accredited laboratory for routine WSM plan validation testing to ensure reliable data with which to make water management decisions.

Accreditation options include, but are not limited to: ISO 17025, AIHA/EMLAP or the TNI Standard. Additionally, each state offers accreditation to environmental laboratories. To gain accreditation, environmental laboratories must be able to demonstrate proficiency in enumerating the bacteria of interest—which, in the case of validating WSM plans, should include *L. pneumophila* testing.

Laboratory accreditation covers all aspects of the technical, managerial and contractual operations of a laboratory. An accredited laboratory is subjected to third-party audits to ensure all portions of the laboratory's quality system are complete, being followed and documented. Sample receipt, chain of custody, having analytical methods in standard operating procedures, documented performance training for all analysts, vendor and customer contract processes, quality control testing, and data results reporting are just a few of the requirements an accredited laboratory must meet. All of these requirements help ensure the laboratory is consistently supplying its users with data of known and documented quality.

Some may ask: Why not use a CDC Environmental *Legionella* Isolation Techniques Evaluation (ELITE) laboratory for routine validation testing of WSM plans? The CDC ELITE program issues participating environmental laboratories a certificate, but is not a national or recognized accreditation program in and of itself, which is a recommendation in ASHRAE Standard 188. That being said, many ELITE program laboratories are accredited for water testing by EPA or their designee, but they are not guaranteed to be so.

In summary, a water safety management plan should include routine validation testing to ensure it is effectively controlling the risk of exposure to *L. pneumophila*. For greatest confidence in their decision-making data, and the effectiveness of their plan, WSM plan teams should consider the recommendation of ASHRAE Standard 188 and the CDC toolkit and consider the use of an accredited laboratory when routine *Legionella* testing is implemented for WSM plan validation.

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.

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