

MLS Laboratory Update: Requesting Lower Respiratory Tract Specimens to Culture for Confirmed or Suspected Legionnaires' Disease Cases

October 7, 2019

Purpose of this Message: To notify MLS laboratories that the Minnesota Department of Health Public Health Laboratory (MDH- PHL) would like to receive available lower respiratory tract specimens (i.e. sputum, bronchoalveolar lavage [BAL], pleural fluid, or endotracheal aspirate) for Legionella culture in order to try to obtain isolates from confirmed or suspected cases of Legionnaires' disease. Clinical isolates are crucial to linking patient illness to an environmental source by molecular subtyping.

Action Items:

1. Please submit available lower respiratory tract specimens from patients with positive Legionella urinary antigen tests or positive Legionella PCR tests to MDH-PHL.
2. Use "Project 2126" on the MDH Submission form (<https://www.health.state.mn.us/diseases/idlab/forms.html>) when submitting lower respiratory tract specimens.
3. Do not submit urine specimens that are positive via Legionella urinary antigen test.

Please Submit Specimens:

- MDH-PHL is requesting that laboratories retain and submit to MDH-PHL available lower respiratory tract samples for Legionella culture for:
 1. Patients positive by Legionella urinary antigen test (UAT) and with lower respiratory tract specimens available.
 2. Patients positive by Legionella PCR and with lower respiratory specimens available.
 3. Other patients when it is known that Legionella infection continues to be clinically suspected despite a negative Legionella UAT and with lower respiratory tract specimens available.
- Lower respiratory tract specimens sent to MDH-PHL for Legionella culture should note "Project 2126" on the submission form.
- Legionella isolates from laboratories that do perform Legionella culture should continue to be submitted to MDH-PHL per usual practice.
- Urine specimens that are positive via the Legionella urinary antigen test DO NOT need to be submitted to MDH. Urine is not a good specimen source for Legionella culture.

Background:

- The incidence of Legionnaires' disease has risen both nationally and in Minnesota over the past several years. In 2018, there were 152 cases reported to MDH, which represented the highest annual number of cases ever reported in Minnesota.
- The vast majority of Legionnaires' disease cases are diagnosed via Legionella urinary antigen test (UAT), which detects Legionella pneumophila serogroup 1 infection.
- Very few (<5%) of the Legionella UAT-positive cases reported to MDH involve Legionella culture of lower respiratory tract specimens such as sputum or BAL.

- Legionella UAT may be sufficient to diagnose and treat an individual patient and fulfills the public health case definition for Legionnaires' disease laboratory diagnosis. However, as with other infectious diseases, culture-independent methods affect public health surveillance because clinical materials and isolates are not available for molecular subtyping methods such as whole genome sequencing.
- In cluster and outbreak investigations, such as the [2016 Hopkins Legionnaires' disease outbreak](#) traced to a cooling tower, clinical isolates are crucial to linking patient illness to an environmental source by molecular subtyping methods such as whole genome sequencing.
- An increase in patient specimens cultured and isolates obtained would improve MDH's capability to detect and investigate clusters and outbreaks of Legionnaires' disease.
- Because Legionella culture requires special selective media (buffered charcoal yeast extract agar), a routine bacterial culture will not yield Legionella.

Questions:

If you have laboratory-related questions please contact Paula Vagnone, Microbiology Unit Supervisor, at 651-201-5581.

If you have questions about reporting a case or epidemiology, please call Ellen Laine at 651-201-4031.

Thank you for your assistance!

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