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Cluster of *Legionella pneumophila* Pneumonia (Legionnaire's Disease) Associated with an area of Ashworth Avenue in Hampton, NH

Key Points and Recommendations:

1. The New Hampshire Division of Public Health Services (DPHS) has confirmed four patients with *Legionella* pneumonia (also known as Legionnaire's Disease) associated with Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire.
2. These four cases likely acquired disease in late July or early August, based on clinical symptoms and the incubation period of *Legionella* bacteria.
3. NH DPHS is working with the Department of Environmental Services (DES) to identify potential sources of exposure and mitigate risk of additional cases.
4. Health care providers should consider *Legionella* infection when evaluating community-acquired pneumonia and ask patients about travel (including local travel) in the 10 days prior to symptom onset.
5. Diagnostic testing for *Legionella* infection should include both urine antigen and culture of respiratory specimens. The New Hampshire Public Health Laboratories is available to support testing.
6. While the investigation is underway, in an abundance of caution, DPHS has recommended that people who are at increased risk for severe disease from *Legionella* may consider postponing their visit to the area of Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire. People who are at increased risk include those who are older than 50, who have chronic respiratory disease, or who have a weakened immune system.
7. Healthcare providers should report suspected and confirmed cases of *Legionella* infection to the Bureau of Infectious Disease Control at 603-271-4496 (after hours 603-271-5300).

Background

The NH Division of Public Health Services (DPHS) has been notified of four patients with *Legionella pneumophila* pneumonia (Legionnaire's Disease) and has discovered that all four had traveled to the area of Ashworth Avenue between Island Path and H Street in Hampton, New Hampshire during the last week of July and first week of August, which is consistent with the incubation of *Legionella*. NH DPHS is also actively investigating additional suspect cases and is working closely with the Town of Hampton and the Department of Environmental Services to identify and mitigate the possible environmental source.

Legionella bacteria are aerobic, gram-negative, intracellular pathogens that are commonly found in water and soil. Human infection is typically acquired through inhalation of contaminated aerosols. Most *Legionella* infections are sporadic; however, outbreaks can occur and are often

associated with exposure to communal water supplies in large facilities such as hospitals, hotels, hot tubs, or apartment buildings. Prior outbreaks have also identified water or cooling towers as sources of *Legionella* bacteria.

The two major clinical syndromes caused by *Legionella pneumophila* are Legionnaires' disease (pneumonia) and Pontiac fever; the latter being an acute, nonspecific, self-limited febrile illness. Legionnaire's disease is a pneumonia characterized by fever, cough, shortness of breath, muscle aches, headaches, and pulmonary infiltrates consistent with pneumonia. Illness typically is severe enough to require hospitalization and has an up to 10% fatality rate. Symptoms develop 2-14 days following exposure to an environmental source. Because of the self-limited and nonspecific nature of Pontiac fever, the epidemiology and pathogenesis of this disease have not been well characterized.

Legionella species are estimated to cause about 2-10 percent of cases of community acquired pneumonia, with over 75% of cases occurring in adults >50 years old. In addition to older age, risk factors for Legionnaires' disease include smoking, chronic respiratory disease, diabetes mellitus, and other immunocompromising conditions.

From 2013 - 2017, DPHS received an average of 32 cases of *Legionella* pneumonia each year, with more cases generally occurring in the months of July and August. Nationally there has been an increase in cases since 2000. This may be a true increase in the frequency of disease due to several factors (e.g., older U.S. population, more at-risk people, plumbing infrastructure, or climate change) or partially attributed to increased use of diagnostic testing or better disease reporting. There are more cases of *Legionella* diagnosed in mid-late summer months' due seasonality of exposures (e.g., cooling units, water sources).

Laboratory Diagnosis and Treatment

Diagnostic tests include urine antigen testing (although this test only detects *L. pneumophila* serogroup 1, accounting for 70-80% of infections) and culture of sputum or bronchoalveolar lavage fluid for *Legionella*. Culture requires special culture media (Buffered Charcoal Yeast Extract medium), which is not always routinely available. Respiratory specimens should be collected prior to antibiotic administration, if possible. The NH Public Health Laboratories can support providers with *Legionella* culture. Laboratory testing can be arranged by calling the Bureau of Infectious Disease Control at 603-271-4496 (after hours 603-271-5300). For patients with compatible or confirmed illness, treatment with azithromycin or levofloxacin is recommended.

Additional Resources

Centers for Disease Control and Prevention (CDC) Frequently Asked Questions:

<https://www.cdc.gov/legionella/ga-media.html>

CDC Materials for Providers: <https://www.cdc.gov/legionella/clinicians.html>

CDC Materials for Diagnosis, Testing, treatment, and prevention:

<https://www.cdc.gov/legionella/clinicians/diagnostic-testing.html>

NH DHHS-DPHS
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For any questions regarding the contents of this message, please contact NH DHHS Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345 ext. 5300).

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