

Legionellosis

Epidemiology

Source: Contaminated water supply

Transmission

- Inhalation of aerosolized water
- **NOT** transmitted person-to-person

Incubation
2-10 days

Found in 1-30% of hot water systems in homes

Clinical case definition

- Mild to severe pneumonia
- Fever
- Cough
- Respiratory distress
- Chills
- Myalgias
- GI tract, CNS, renal manifestations

Complication: Respiratory failure

Death: 28% fatality rate

80% Sporadic

Rare Outbreaks

- Hospital
- Hotels
- Cruise ships
- Large buildings with shared cooling towers

<5% attack rate

Persons with immunosuppression, diabetes mellitus, chronic lung disease, hematologic malignancy, smokers, and the elderly are at increased risk

10-20 Cases /year in Louisiana

Diagnosis

Legionella is a fastidious aerobic gram-negative bacilli. 20 different species, but the majority of infections in the U.S. are caused by *Legionella pneumophila* serogroup 1 (80%).

Confirmed: Clinically compatible case that is laboratory confirmed

Lab Diagnosis

- **Recovery of Legionella** from respiratory tract secretions, lung tissue, pleural fluid using special culture media (buffered charcoal yeast extract agar)
- **Detection of *L. pneumophila* antigens** in urine by immunoassays (only detects serogroup 1)
- Bacterium can be detected by direct **immunofluorescence**
- **Serologic diagnosis:** fourfold increase in antibody titer to Legionella rising to above 1:128 in paired sera. A single elevated antibody titer does not confirm a case.

False positives are caused by antibodies to *Pseudomonas*, *Campylobacter* and *Bacteroides fragilis*.

Treatment

- **Intravenous azithromycin** (10 mg/kg per day; max 500 mg; single dose) for 5-10 days
 - Oral therapy can be substituted once patient has improved
- **Rifampin** (15 mg/kg per day; max 600 mg) in addition to azithromycin in confirmed cases who are immunocompromised, severely ill, or who do not respond promptly to azithromycin
- **Fluoroquinolones** are effective but not approved for children <18 y.o.
- **Trimethoprim-sulfamethoxazole** and **doxycycline** (not recommended for pregnant women or children <8 y.o.) for 14-21 days are alternatives

Standard Precautions

Control

Prevention

- Monochloramine treatment of municipal water supplies
- Use sterile water for nebulizers & respiratory therapy equipment
- Hot water at >50°C and cold water at <20°C
- Hyperchlorination and superheating will kill Legionella
- Proper maintenance of whirlpool spas
- Hospitals should maintain hot water supply ≥60°C