LEGIONELLA AWARENESS

Building Safer Water Systems

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WORKSHOP AGENDA

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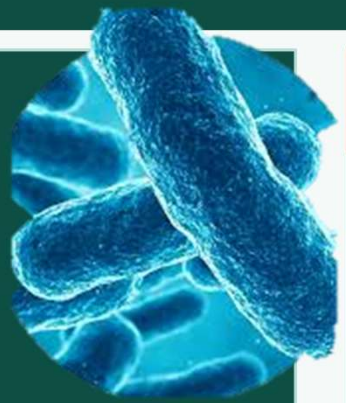
What is Legionella?

THE BACTERIA

Legionella pneumophila



- Naturally occurring bacterium found in freshwater environments
- Thrives in warm water (77–113°F / 25–45°C)
- Multiplies in stagnant water or biofilms in pipes and tanks
- Over 60 species identified; L. pneumophila causes ~90% of cases

Legionnaires' Disease

- Severe pneumonia-like illness
- Incubation: 2–10 days after exposure
- Symptoms: high fever, cough, shortness of breath, muscle aches
- Requires antibiotics; can be fatal if untreated

*Medical Clinics must report positive cases to DOH

Pontiac Fever

- Milder, flu-like illness (no pneumonia)
- Self-limiting — resolves without treatment in 2–5 days
- Same bacteria, but different immune response

Office of General Services

Where Legionella is Found

Health & Safety PEF Department

COOLING TOWER

Cooling Towers

Primary high-risk source — aerosolize water droplets that can travel long distances from the building.

SHOWERS FAUCETS

Showers & Faucets

Low-flow or infrequently used fixtures allow warm water to sit stagnant in pipes.

HOT WATER

Hot Water Systems

Storage tanks and heaters maintained below safe temperatures allow bacteria to multiply.

FOUNTAIN

Decorative Fountains

Recirculated water with limited treatment creates a high aerosolization risk.

SPA WHIRLPOOL

Whirlpools & Spas

Warm, aerated water is an ideal growth environment if not properly maintained.

DEAD LEGS

Plumbing Dead Legs

Unused pipe sections where water stagnates — common during building renovations.

CONDITIONS THAT ALLOW LEGIONELLA TO MULTIPLY

TEMP

Temperature

77–113°F (25–45°C)

Optimal bacterial growth range. Bacteria thrive most actively at 95–115°F.

STAG

Stagnation

Low or No Water Flow

Standing water in pipes, dead legs, tanks, or unused fixtures.

BIO

Nutrients & Biofilm

Scale, Rust & Sediment

Organic material, rust, and pipe scale provide nutrition for bacterial colonies.

CHEM

Inadequate Disinfection

Low Biocide Levels

Insufficient chlorine or biocide allows bacteria to grow unchecked.

Warm temperature + stagnation + nutrients = highest risk for Legionella growth

Risks & Exposure Pathways

HOW EXPOSURE OCCURS

INHALE	Inhaling fine water droplets (aerosols) contaminated with Legionella — the primary route of infection
MIST	Mist or spray from cooling towers, showers, spas, or decorative fountains
ASPIRE	Aspiration of contaminated water — higher risk for elderly or those with swallowing difficulties

WORKPLACE RISK FACTORS

- Aging or complex plumbing infrastructure
- Building shutdowns or periods of low water use
- Cooling towers on or near the building
- Spa facilities, decorative fountains, or irrigation systems

HIGHER RISK POPULATIONS

- Adults 50 years or older
- Current or former smokers
- Chronic lung disease
- Weakened immune system
- Diabetes or heart disease
- Kidney or liver disease
- Cancer or immunotherapy

Myths & Misconceptions

"Legionella spreads person-to-person"

FACT

FALSE — Legionella is NOT contagious between people. It cannot be spread by coughing, sneezing, or physical contact. Exposure only occurs from environmental water sources.

"You get it from drinking contaminated water"

FACT

NOT TYPICALLY — Infection occurs through inhaling aerosolized water droplets, not usually by swallowing. **Drinking contaminated water rarely causes Legionnaires' disease.**

"Any cough or cold could be Legionnaires'"

FACT

UNLIKELY — Legionnaires' disease is a specific, serious pneumonia confirmed through lab testing. Not every respiratory illness is Legionella. See a physician if symptoms are severe.

"Only old buildings have Legionella"

FACT

INCORRECT — New and recently renovated buildings can also harbor Legionella, especially after construction or during low-occupancy periods. Any building water system is at risk without a management plan.

What to Do if Legionella is Suspected

RECOGNIZE WARNING SIGNS

- High fever (above 104°F / 40°C)
- Cough or shortness of breath
- Muscle aches, headache, fatigue
- Confusion or mental changes
- Nausea, vomiting, or diarrhea
- Chest pain when breathing

STEPS TO TAKE

1. **Seek Medical Attention**
   If you or a coworker develop symptoms, seek medical care immediately. Tell your physician about potential Legionella exposure.
2. **Notify Your Supervisor**
   Report to your direct supervisor and/or building facilities management without delay.
3. **Document the Concern**
   Note the date, symptoms, and any suspected water sources. This helps investigators act quickly.
4. **Contact Your OGS Safety Officer**
   Your OGS Facilities Coordinator will initiate formal investigation

Office of General Services

OGS/Landlord Process: Testing, Monitoring & Reporting

Health & Safety Department

The Office of General Services (OGS) maintains Water Management Plans compliant with ASHRAE 188 and applicable New York State regulations.

WMP — Water Management Plans

- Site-specific risk assessment for every building
- Written control measures and action levels
- Annual review and mandatory update cycle
- Required staff training documentation

TEST — Testing & Monitoring

- Regular water sampling at designated points
- Culture and PCR laboratory testing methods
- Daily temperature monitoring and logging
- Disinfection residual level checks

REPT — Reporting Protocols

- Internal incident reporting chain of command
- NYS Dept. of Health notification when required
- Detailed documentation and record retention
- Corrective action tracking to completion

FIX — Remediation Actions

- Hyperchlorination / shock disinfection
- Full system flushing and mechanical cleaning
- Equipment repair or replacement as needed
- Post-remediation testing and verification

CASE STUDY 1

A Large Building Water System Failure

Setting: Large Multi-Use Building | Duration: Several-week cluster | Outcome: Multiple confirmed cases, hospitalizations

What Happened

- Cluster of pneumonia cases emerged among building occupants over several weeks
- Public health investigation traced the source to the building's cooling tower
- The tower had not been inspected, cleaned, or tested in over a year
- Biocide treatment had lapsed due to a gap in maintenance oversight

Contributing Factors

- No active Water Management Plan was in place
- Cooling tower maintenance had been deprioritized during budget reductions
- No staff member had been designated as a water safety point of contact
- Maintenance records were incomplete and not regularly reviewed

Lessons Learned

- Cooling tower was taken offline and a remediation protocol was initiated
- The incident highlighted the value of regular testing and documentation
- Regulatory agencies required a formal Water Management Plan going forward
- Prevention and routine maintenance cost far less than incident response

CASE STUDY 2

A Facility That Got It Right — Proactive Prevention

Setting: Large Public-Sector Facility | Program: Ongoing since adoption of Water Management Plan | Result: No confirmed Legionella cases

What This Facility Did Right

- Developed a comprehensive Water Management Plan aligned with ASHRAE 188
- Designated a trained staff member as the Legionella Water Safety point of contact
- Conducted quarterly water sampling at all identified high-risk locations
- Maintained hot water temperature logs and verified disinfection levels regularly
- Performed annual system flush and disinfection during planned low-use periods
- Reported all test results to the facilities director and safety committee

KEY TAKEAWAYS

COST — Prevention is far less costly than outbreak response and remediation

PLAN — A written Water Management Plan creates accountability at every level

TRAIN — Designating a trained water safety contact ensures follow-through

TEST — Routine testing catches issues before they become serious problems

OGS — Partnering with OGS keeps your facility in regulatory compliance

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Questions & Discussion

Thank you for participating in our Legionella Awareness Training

For More Information Visit:

https://www.cdc.gov/legionella/index.html

https://www.health.ny.gov/diseases/communicable/legionellosis/

or

Contact Your Local Leadership/Health and Safety Committee