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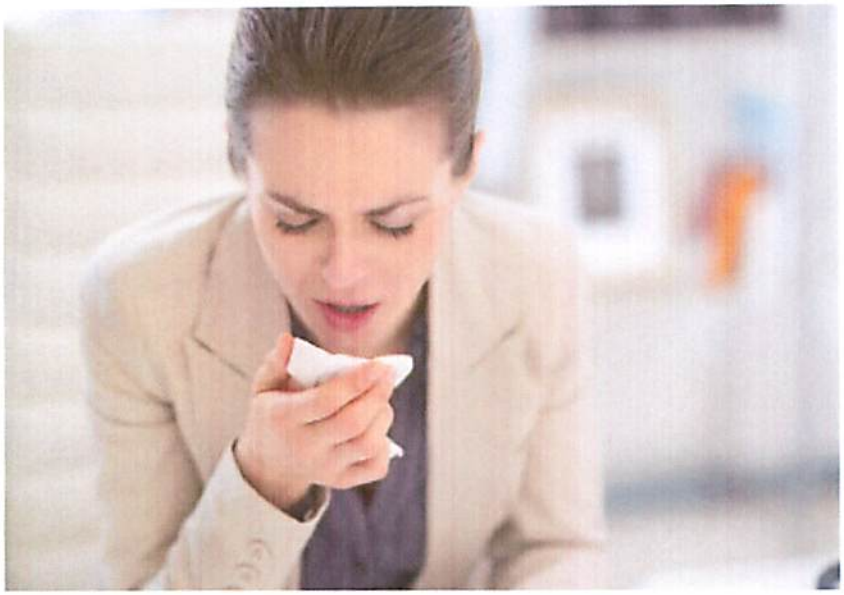
Legionnaires Disease Symptoms

Legionnaires Disease is a form of Pneumonia that is caused by Legionella bacteria. It can only be contracted by aspirating infected water vapor and can be fatal is left untreated.

The risk of death from Legionnaires Disease is higher for those who are infected while already in a hospital or for those with chronic diseases.

Symptoms typically appear 2-10 days after exposure. Treatments for Legionnaires Disease use antibiotics to fight the symptoms and breathing assistance from a ventilator may be required.

The Symptoms Of Legionnaires' Disease Include:



Initial Symptoms

- Headache
- Muscle pain
- Chills and/or fever

Advanced Symptoms

(usually appear after 2-3 days)

- Cough (with mucus or blood)
- Chest pains
- Shortness of breath
- Nausea, Diarrhea, or Vomiting
- Confusion

When to Seek Medical Attention

Please contact your doctor if you experience these symptoms or if you suspect you have been exposed to Legionella bacteria by aspirating infected water vapor. Certain people are at an

elevated risk for contracting Legionnaires Disease, like smokers, people over 50 years of age, or those with weakened immune systems.

Read more about Legionella bacteria and Legionella prevention through copper silver ionization.

Contact EPI Systems

919 Penn Avenue
Pittsburgh, PA 15221
(800) 369-7662
info@enrichproductsionization.com

Enrich Products, Inc.

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Recent EPI Articles

- Legionnaire's Disease Claims Another Victim at Oakland VA Hospital in Pittsburgh ›
- Copper for Nosocomial Prevention ›
- Copper as Possible Cure for ALS ›

Routine Monitoring

If levels of legionella colonization are controlled within acceptable ranges, or there are no known or suspected cases of Legionellosis, site analysis once per week and lab analysis once per month.

Reactive Monitoring

If levels of legionella colonization are undesirable, or there are suspected or known cases of Legionellosis, site analysis twice per week, and lab analysis weekly – preferably Monday.

Site Copper Testing

At least two samples need to be collected per system. More samples can be required depending upon the complexity of the plumbing system. One sample should be collected from the treated water supply, and the second should be from a location far away from the water supply (distal).

Lab Testing for Copper / Silver levels

Lab testing, which is the only way to accurately measure silver, reveals whether copper and silver levels are within optimal ranges and determines whether system adjustments are needed.

Use of EPI systems results in significant yearly savings when compared to companies that charge remote monitoring fees.

Music to my ears ›

SPECIAL PATHOGENS LABORATORY

Legionnaires' disease

What is Legionnaires' disease?

Legionnaires' disease is a lung infection (pneumonia) caused by a bacterium named Legionella pneumophila. The name *Legionella pneumophila* was derived from the original outbreak at the 1976 American Legion Convention in Philadelphia. *Pneumophila* means lung-loving in Greek.

What organism causes Legionnaires' disease?

Legionnaires' disease is caused by bacteria that belong to the family *Legionellaceae*. This family now includes 50 species and over 70 serogroups. Approximately half of these species have been implicated in human disease. Legionella pneumophila is responsible for approximately 90% of infections. Most cases are caused by L. pneumophila, serogroup 1. *Legionella* species are small (0.3 to 0.9 μm in width and approximately 2 μm in length) faintly staining Gram-negative rods with polar flagella (except L. oakridgensis). They generally appear as small coccobacilli in infected tissue or secretions. They are distinguished from other saccharolytic bacteria by their requirement for L-cysteine and iron salts for primary isolation on solid media and by their unique cellular fatty acids and ubiquinones.

Where do *Legionella* bacteria come from?

Legionella are natural inhabitants of water and can be detected in rivers, lakes, and streams. One type of Legionella species (*L. longbeachae*) has been found in potting soil.

What have been the water sources for Legionnaires' disease?

The major source is water distribution systems of large buildings including hotels and hospitals. Cooling towers have long been thought to be a major source for *Legionella*, but new data suggest that this is an overemphasized mode of transmission. Other sources include mist machines, humidifiers, whirlpool spas, and hot springs.

Air conditioners are not a source for Legionnaires' disease. They were suspected to be the source in the original American Legion outbreak in a Philadelphia hotel, but new data now suggests that the water in the hotel was the actual culprit.

How do people contract *Legionella*?

The most popular theory is that the organism is aerosolized in water and people inhale the droplets containing Legionella. However, new evidence suggests that another way of contracting Legionella is more common.

Aspiration is the most common way that bacteria enter into the lungs to cause pneumonia. Aspiration means choking such that secretions in the mouth get past the choking reflexes and instead of going into the esophagus and stomach, mistakenly, enter the lung. The protective mechanisms to prevent aspiration is defective in patients who smoke or have lung disease. Aspiration now appears to be the most common mode of transmission.

For more FAQs on Legionaires's disease and *Legionella*, visit SPL's educational website, legionella.org.

LEGIONNAIRES' DISEASE FACT SHEET

SPECIAL PATHOGENS LABORATORY, THE LEGIONELLA EXPERTS

(877) 775-7284
1401 FORBES AVENUE SUITE 209
PITTSBURGH PA 15219

SPECIAL PATHOGENS LABORATORY

Legionella Testing

Legionella

- **Suspected Case Investigation**. Optimal sensitivity is desirable in the context of a case investigation; therefore, two samples, water and swab, should be collected from the same water outlet(s) in the immediate environment of a suspected case.
- **Routine Monitoring**. For routine environmental surveillance, one sample, either swab or water (or a combination of the two), of an outlet is acceptable.
- **Post-disinfection Monitoring**. Ongoing surveillance for monitoring the efficacy of disinfection efforts should include previously positive locations for follow up testing.

Potable Water

1. Fill out SPL Chain of Custody
2. Use waterproof pen to label bottle and swab with sample location, description, and date.
3. Swab collection:
   a) Remove aerator if present.
   b) Moisten the outlet by turning on the hot water–briefly.
   c) Insert swab into faucet opening rotating four times against the inner surface as it moves up into the opening (for shower head, rotate swab over entire surface of showerhead four times).
   d) Replace swab in transport tube.
4. Water collection:
   a) Turn on hot water and immediately fill the bottle.
   b) Close bottle and invert to mix the sodium thiosulfate neutralizer.
5. Repeat steps 2–5 with next sample location.

Hot Water Storage Tanks

1. Open the drain valve at the base of the heater or tank and immediately fill bottle.
2. Let the water continue to drain for 15–30 seconds to flush out residual water within the drain pipe.

3. Fill a second sample bottle.
4. Submit both samples, labeled *Immediate* and *Post Flush*.

Note: Swabs are not considered an appropriate sample for hot water tanks.

Cooling Towers

Submerge open bottle just under the surface of water to obtain approximately 120 ml of sample.

Note: Swabs are not considered an appropriate sample for routine testing of cooling towers.

Ice Machines

The ice is processed in the lab after allowing it to melt and is concentrated by filtration. Two or three sample bottles of ice are needed for adequate melted volume. Use SPL bottles to scoop up ice. If a water dispenser is part of the machine, collect the water as you would from any faucet: turn on the faucet and immediately fill the sample bottle.

Note: A swab of the faucet opening can also be collected and is recommended if assessing the outlet as a source of infection during a case investigation.

Shipping

1. Ship the same day samples are collected for receipt in the laboratory.
2. Sample(s) may be refrigerated (2–8° C) overnight if necessary.
3. Place bottles in box with insulated liner.
4. Place completed Chain of Custody form in plastic document holder and pack in box.
5. Ship overnight Monday–Thursday only: Special Pathogens Laboratory, 1401 Forbes Avenue, Suite 209, Pittsburgh, PA 15219

Questions? Call 412-281-5335

DOWNLOAD ACCOUNT APPLICATION

DOWNLOAD LEGIONELLA SAMPLING AND SHIPPING

DOWNLOAD CHAIN OF CUSTODY FORM

SPECIAL PATHOGENS LABORATORY

Research

Since 1981, SPL's research team has made seminal contributions to the fields of microbiology and infectious diseases. Dr. Janet Stout and the SPL team was the first to make the link between *Legionella* in drinking water and disease in hospital water systems. That discovery shifted the focus of research and water treatment from cooling towers to drinking water as the primary source of disease. With more than 30-years' experience, we continue to make major contributions in *Legionella* detection, clinical and environmental microbiology, epidemiology, and statistical analyses. To date, we evaluated and introduced all major *Legionella* disinfection technologies used in the field today and continue to explore new technologies.

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SPECIAL PATHOGENS LABORATORY

Consulting & Education

It takes a team to prevent Legionnaires' disease. That's why SPL provides a multidisciplinary team of professionals who collaborate with you to help you meet your *Legionella* water safety needs, including ASHRAE 188 compliance. Our team, from the fields of engineering (HACCP certified), microbiology, medicine, water treatment, public health and communication, is led by Dr. Janet E. Stout. No matter how simple or complicated your water distribution system, we provide the broad range of expertise to assist you in successfully managing *Legionella*.

Planning for Prevention

Legionella plans and policies can save lives and help prevent emergency clean-up costs, public relations headaches, and legal liability. Our expertise in risk management includes water safety plans and the Hazard Analysis and Critical Control Point (HACCP) risk management method. Sharing our *Legionella* expertise in collaboration with your team lays the foundation for effective management and response.

- Environmental risk assessments
- Water safety plans
- Policy development and review
- Annual audits
- *Legionella* sampling plans

Assessing and Controlling Risk

Your facility is unique and all disinfection systems have pros and cons. Controlling *Legionella* requires knowledge of the bacteria and your building's water system. Our research and experience in all things *Legionella* provides cost-effective and evidence-based recommendations.

- Disinfection recommendations
- Resource sensitive corrective actions
- Water system design review
- Commissioning and start-up assistance

- Optimization of system operation
- Outbreak and emergency response
- Liaison to government agencies

Understanding *Legionella*

Understanding *Legionella* gives you confidence in the choices you make. As advocates for prevention for more than 30 years, our mission is to share our knowledge and experience to assist you in preventing Legionnaires' disease.

- Presentations
- Staff training
- Live and on-demand webinars
- Research publications
- Client resources

Applying Research

Stay current with the science on *Legionella*. Through our research partnership with the University of Pittsburgh Swanson School of Engineering, Civil and Environmental Engineering and the Graduate School of Public Health, we provide objective information for effective solutions.

- Product evaluation
- Model system trials
- Full scale field trials

SERVICES

- *Legionella* risk assessments
- Water safety plans
- ASHRAE compliance and water management programs
- Design and construction review
- Outbreak response
- *Legionella* training and presentations

GSA CONTRACT HOLDER

SPL provides laboratory and consulting services to government organizations through the General Services Administration. Contact us for more informaton.