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Your partner in quality water analysis

Legionella – should we be concerned?

Various factors contribute to ensuring safe, clean water is supplied when turning on taps. However, as underground water infrastructure ages and newer water supply systems are put in place, with lower flow rates, keeping water in pipes for longer enhances risks of opportunistic pathogens that may cause waterborne diseases. Legionella pneumophila is one such opportunistic pathogen that results in Legionnaires disease, a severe form of pneumonia.

But, what is Legionella?

Legionella pneumophila is a thin, aerobic, bacterium that occurs naturally in freshwater sources, such as rivers and lakes. In these freshwater sources these bacteria are present in low amounts and risks for human disease are considered negligible. But like most pathogens, under favourable conditions Legionella can proliferate to dangerous levels potentially causing Legionnaires disease. Legionnaires disease is easily contracted by people with compromised immune systems by inhaling small droplets of contaminated water through mist or vapour. However, in rare cases healthy individuals may also contract Legionnaires disease.

What environments would be susceptible to the growth of Legionella?

Ideal environments for Legionella growth include systems with insufficient circulation or lukewarm water temperatures. Once growth occurs, Legionella can easily be transmitted by any source that generates aerosols or a fine mist of water. Hospitals, retirement communities and cruise ships contain large, complex plumbing systems and are most often associated with Legionnaires disease outbreaks.

How does our water become contaminated with Legionella?

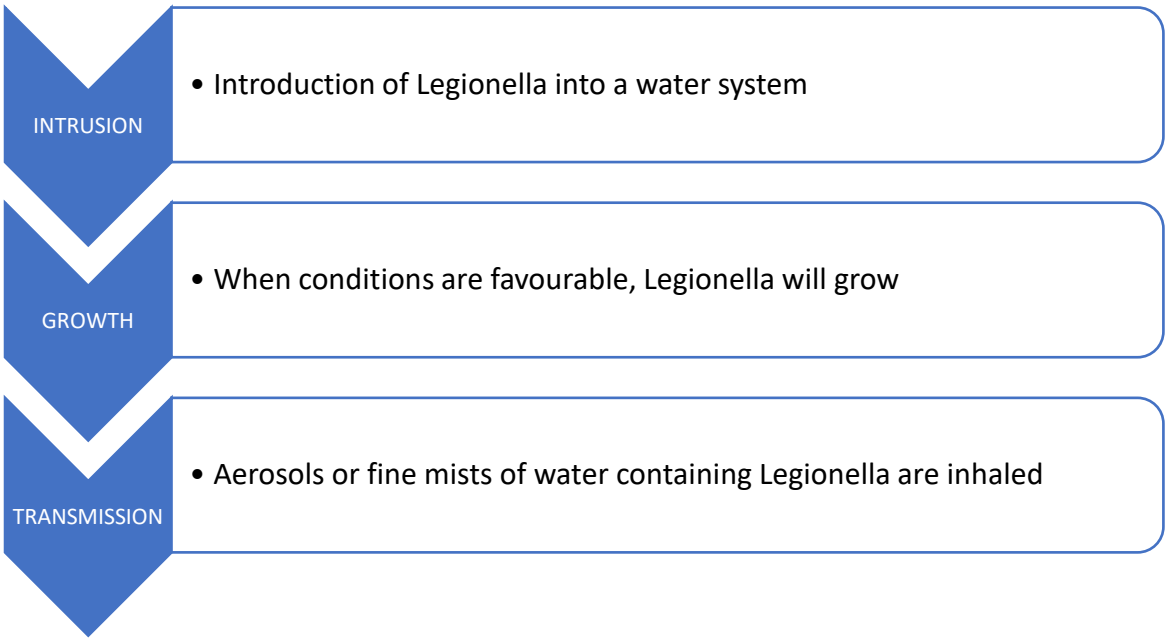
As previously mentioned, when conditions are favourable legionella will proliferate. These conditions include water supply systems that aren't properly maintained. With recent water shortage lower flow rates and alternative supply systems are put in place keeping water in supply systems for longer. Water aging problems where water is kept in supply systems for longer before reaching taps are one of the main environments in which legionella will grow.

Various other factors, not only excessive water age in water supply systems, promote the growth of Legionella;

- Biofilms which may form inside pipes of water supply systems may protect Legionella from heat treatments and disinfectants.
- Legionella growth is encouraged in water systems having warm water (25°C - 42°C)
- Water systems that have no flow or the rare flow of water through them, frequently referred to a "Dead legs".
- Insufficient disinfectant as effective water treatment strategies are essential in controlling and preventing legionella in water systems.

- Legionella growth is encouraged in water supply systems that have inadequate corrosion control. Several water quality variables result in this corrosion, including the pH of water, disinfectants used and the temperature of the water, creating an ideal environment for Legionella growth.
- Cross connections between potable and non-potable water may be a cause of the introduction of Legionella into potable water supply systems.

In short, the spread of Legionella is governed by three key elements;



How can we prevent Legionella contamination in water supply systems?

Unfortunately, this is no small task. Even after water has been centrally treated at a public water facility Legionella can colonize in water supply systems and plumbing systems of buildings. Designing, implementing and regularly updating water safety plans for water supply systems is, therefore, critical in preventing Legionella growth in water supply systems.