Legionnaires’ Disease Overview

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IDEXX WATER
Legionella Characteristics

- Aerobic
- Gram-negative (do not stain well)
- Nonsporing-forming
- Flagellated
- Pleomorphic
- Facultative intracellular bacteria
- The causative agent of *legionellosis* including:
  - Legionnaires' Disease
  - Pontiac fever
Where does *Legionella* live?

**Potable Water**
- Image of a person washing their hands
- Image of a shower
- Image of a rusted tank

**Nonpotable Water**
- Image of cooling towers
- Image of an ice machine
- Image of a swimming pool
Infectivity – *Legionella* Aerosolization

Shower aerosol

Cooling tower aerosol
Infectivity Risk Factors – Need All 3

Exposure

Virulence of Strain

Susceptibility of Patient
Legionnaires’ disease is on the rise

- Reported cases have increased more than 450% in the last 15 years
- 8,000 to 18,000 people contract legionellosis in the U.S. each year (est.)
- ~10% of known cases are fatal, but 25% if contracted in healthcare setting

Source: National notifiable disease surveillance system
Legionella pneumophila is the cause of 97% of Legionnaires' disease cases

Data from clinical cultures of 4,719 patients over seven years in 17 countries

*L. pneumophila* is one of the most dangerous waterborne pathogens

Waterborne outbreaks associated with drinking water, 2013-2014

World Health Organization (WHO) focus on *L. pneumophila*

**Drinking Water Parameter Cooperation Project**

“Focus verification monitoring on *L. pneumophila* instead of *Legionella* spp. This is the approach taken by France, for example. *L. pneumophila* is the most significant causative agent of legionellosis in Europe.”

“When a microbiological parameter is defined taxonomically, the parameter is much less prone to ambiguous results. This also allows for the development of alternative methods, as the endpoint is defined, while in the case of *Legionella* spp. the endpoint is defined by the culture method. Note that this has also been the rationale for changing from faecal coliforms to *E. coli* in the previous revision of the Directive.”

WHO Recommendation paper September 2017
What can public health leaders do to make a difference?

- Build awareness through community outreach and education to healthcare facilities
- Share best practices for prevention, including how Water Safety Management Plans are written, implemented and monitored
- Connect facility owners and managers to valuable resources
Legionnaires’ disease

Summary:

- *Legionella* bacteria live in water, including in man-made systems.
- *Legionella* bacteria must be aerosolized and breathed in to create illness.
- Legionellosis consists of two disease states: Pontiac fever and Legionnaires’ disease.
- Not all Legionella are pathogenic; *Legionella pneumophila* are the causative agent of Legionnaire’s disease.
- Public Health and Healthcare leaders can encourage and guide building owners to write, implement and monitor water safety management plans that effectively reduce Legionnaires’ disease.