

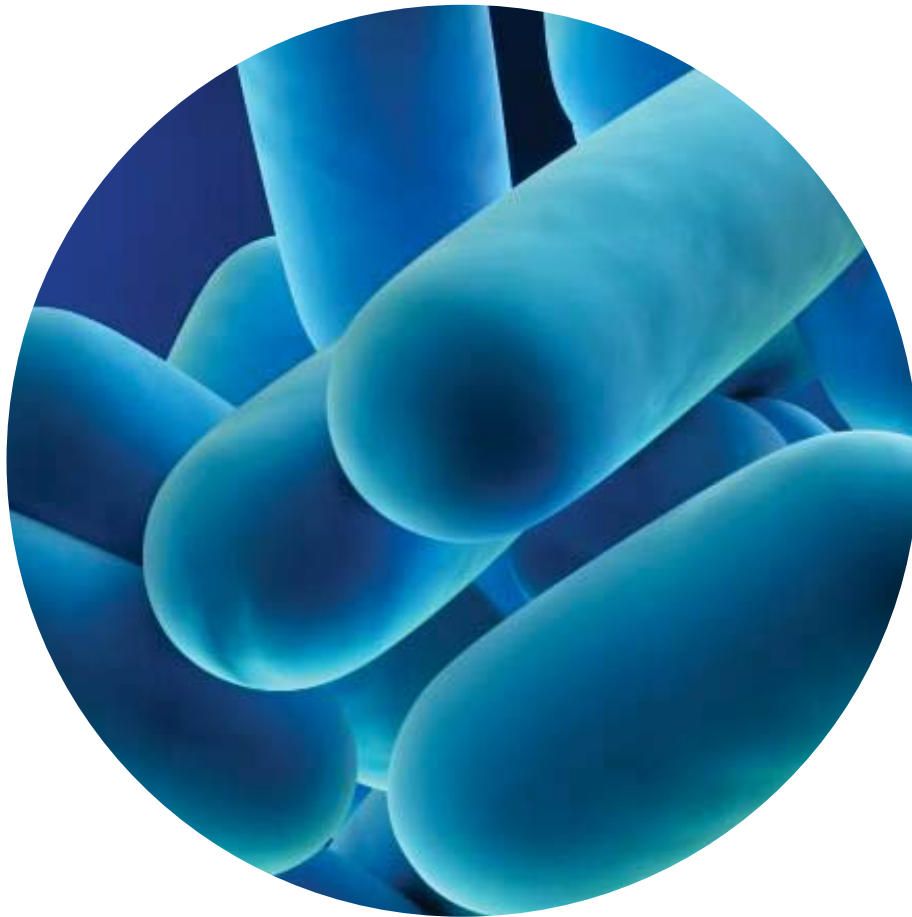


Legionnaires' Disease Overview



Patsy Root
Regulatory Affairs Manager
IDEXX WATER

Legionella Characteristics



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

Where does *Legionella* live?



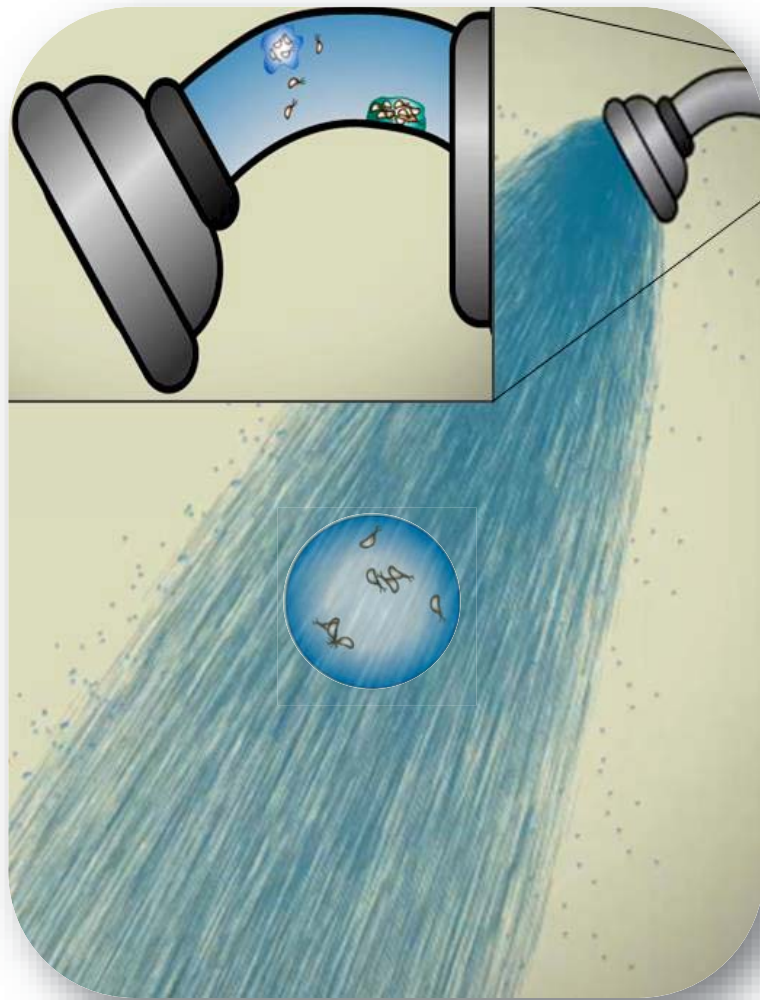
Potable Water



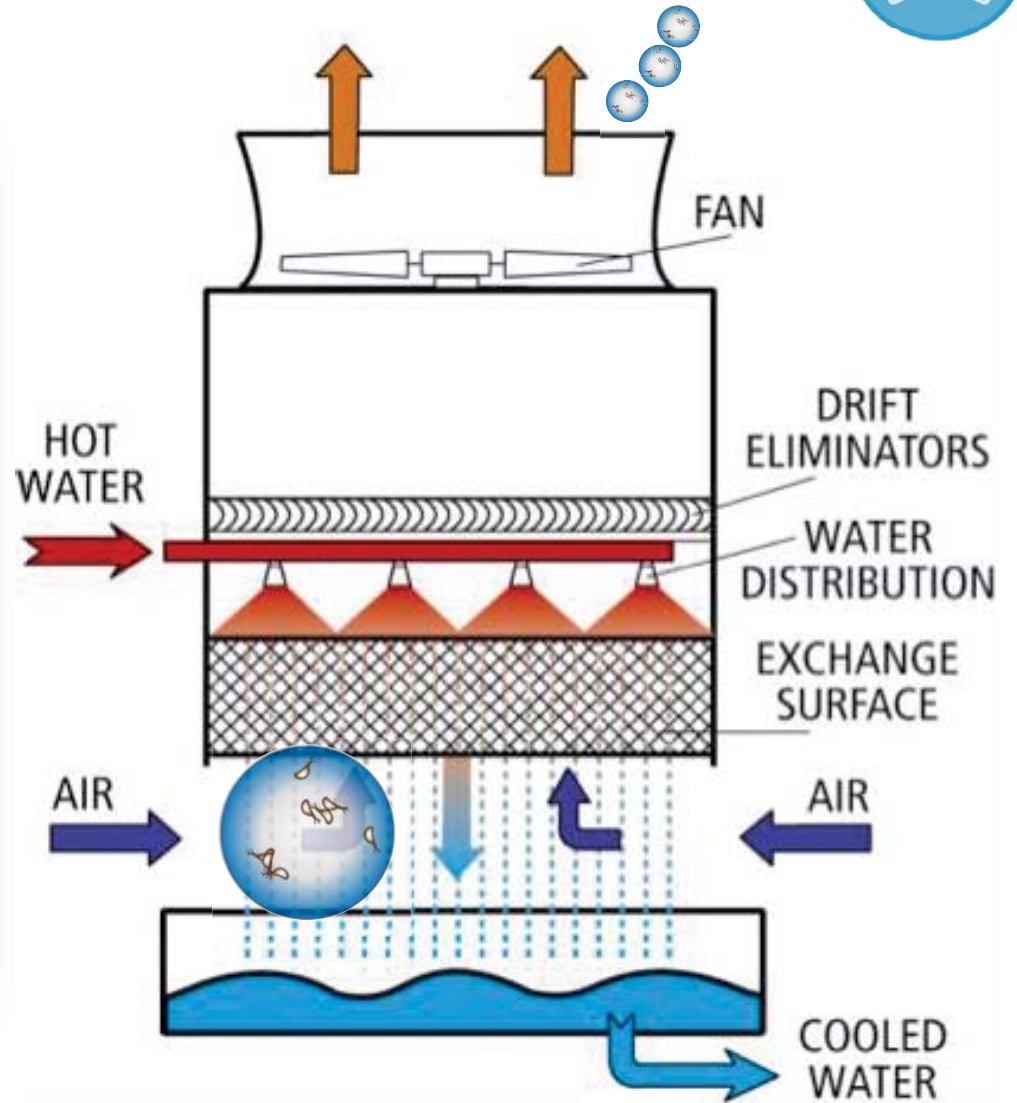
Nonpotable Water



Infectivity – *Legionella* Aerosolization

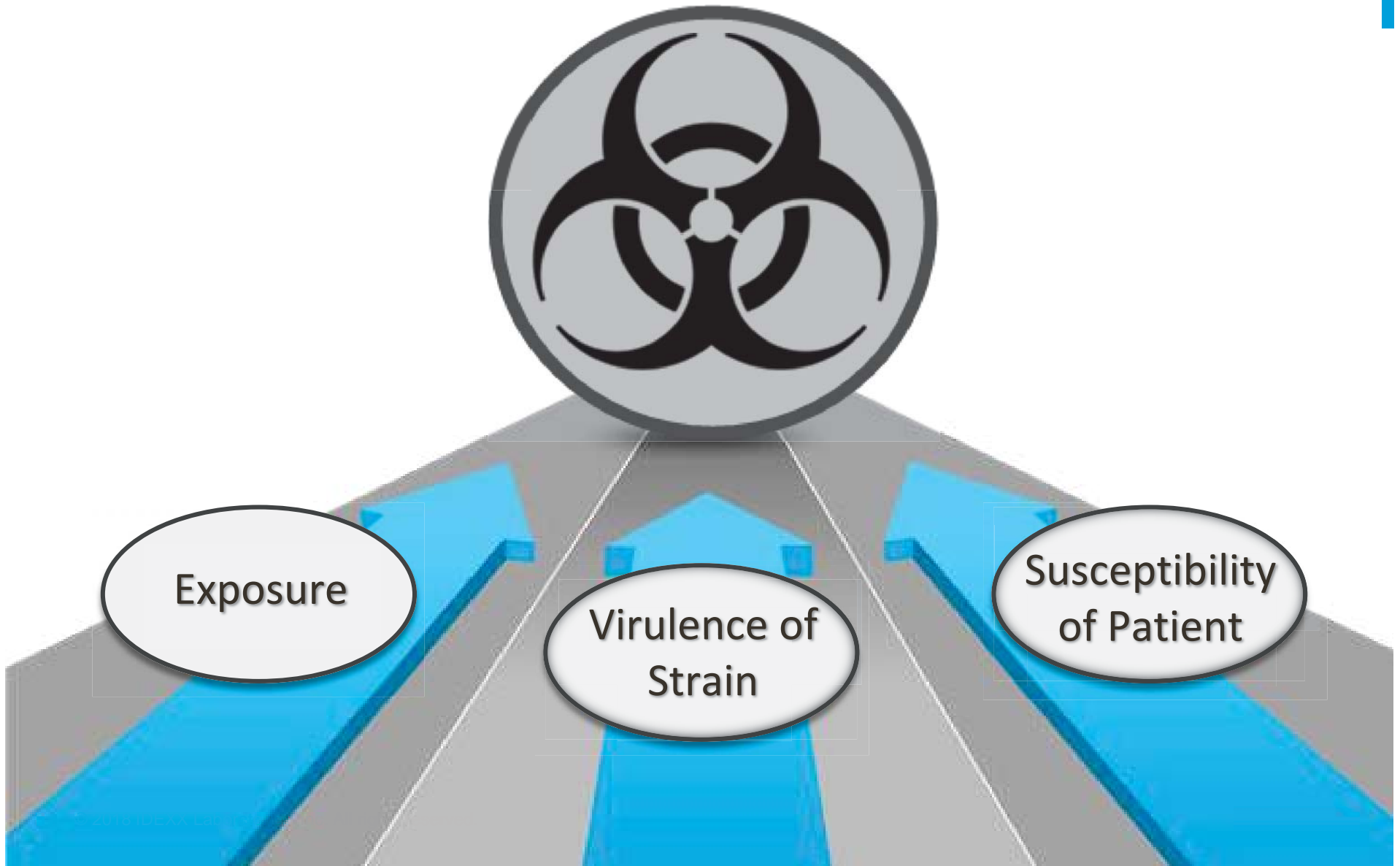


Shower aerosol



Cooling tower aerosol

Infectivity Risk Factors – Need All 3



Exposure

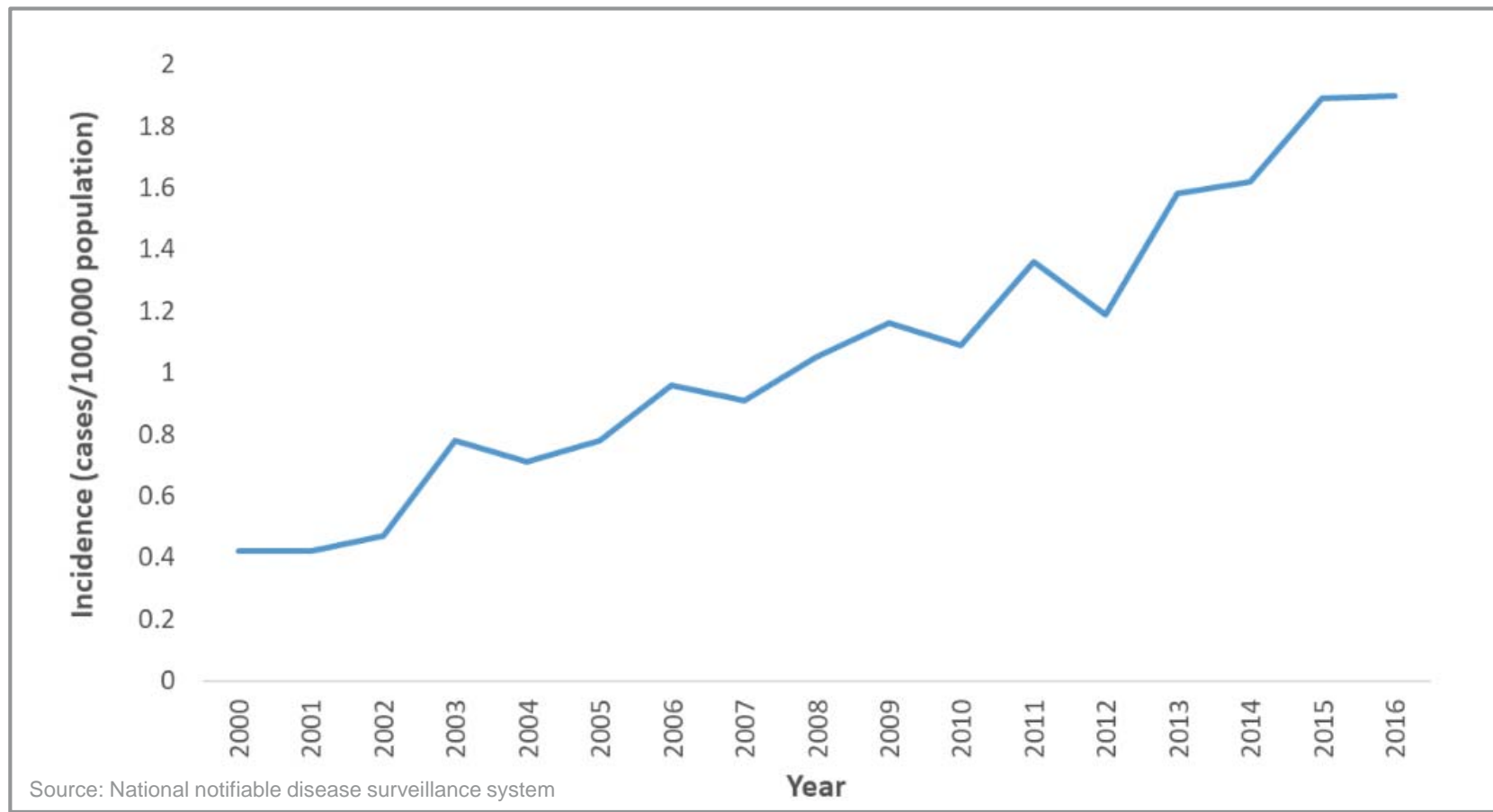
Virulence of
Strain

Susceptibility
of Patient

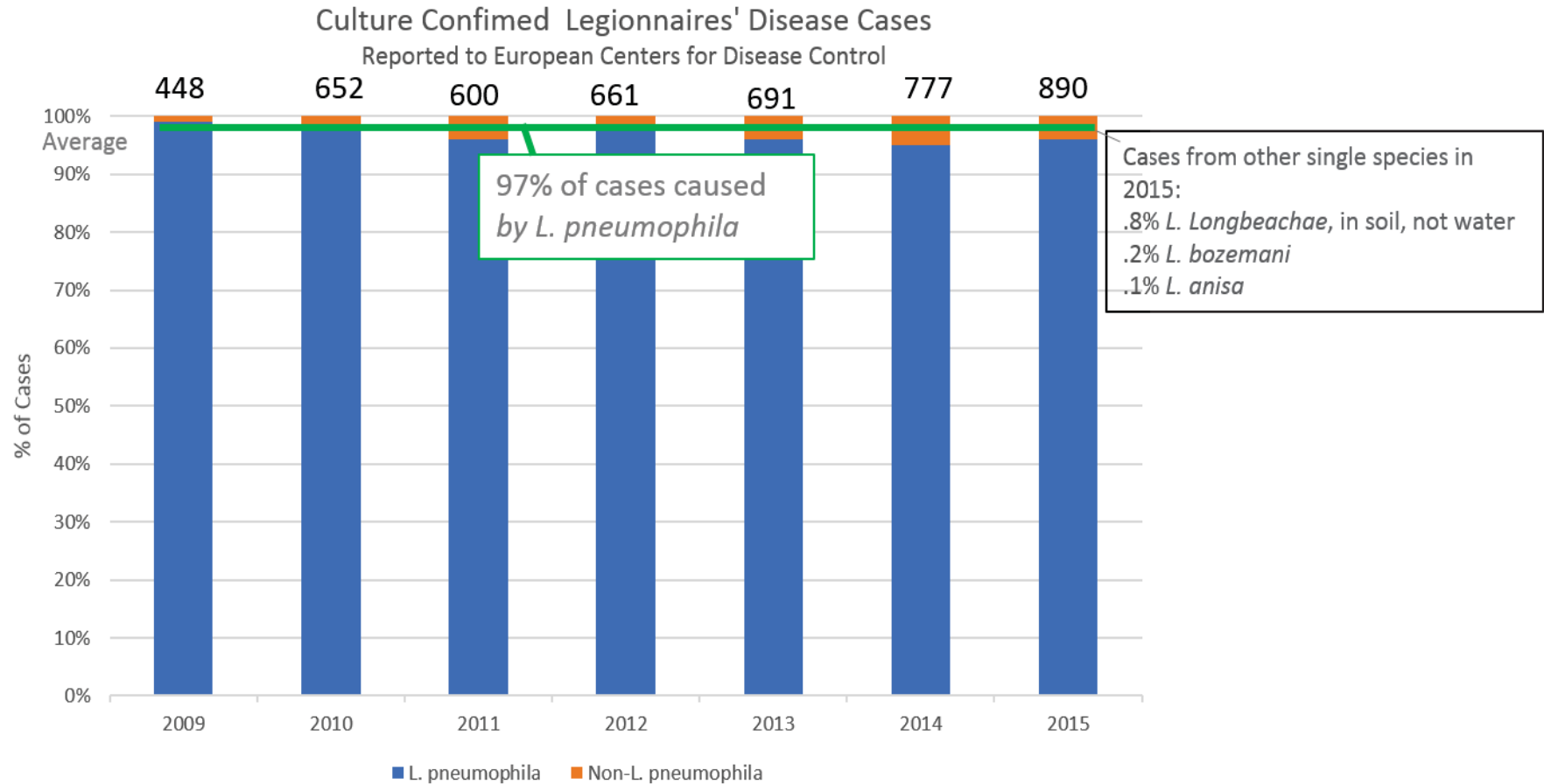
Legionnaires' disease is on the rise



- 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



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

Source: <https://ecdc.europa.eu/en/publications-data/legionnaires-disease-europe-2015>

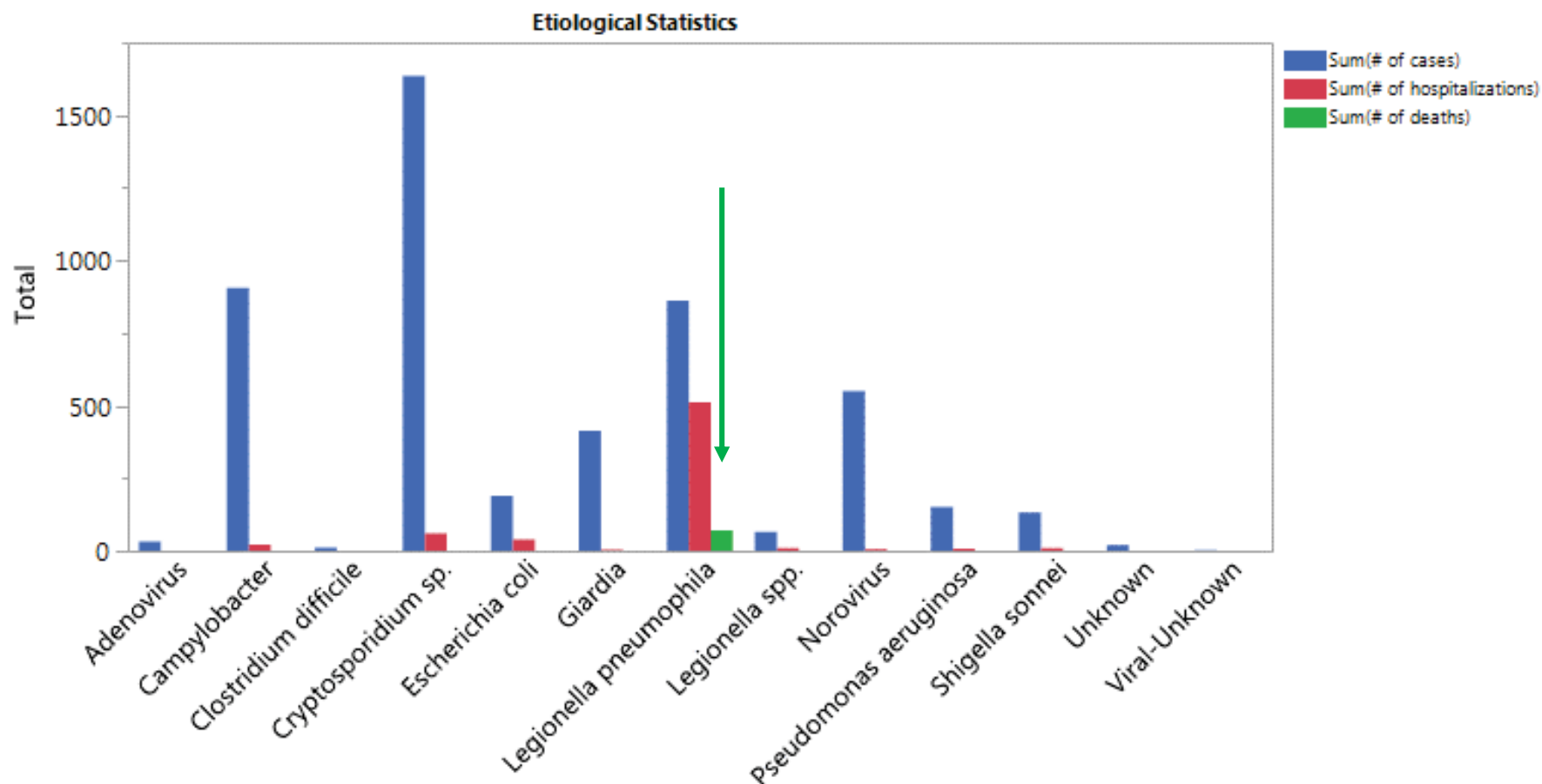
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L. pneumophila is one of the most dangerous waterborne pathogens

Waterborne outbreaks associated with drinking water, 2013-2014



Benedict KM, Reses H, Vigar M, et al. Surveillance for Waterborne Disease Outbreaks Associated with Drinking Water — United States, 2013–2014. *MMWR Morb Mortal Wkly Rep* 2017;66:1216–1221

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



Drinking Water Parameter Cooperation Project

Support for revision of Annex I Council Directive 98/83/EC on the Quality of Water Intended for Human Consumption

“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