



# Raising Awareness of Legionella Presence in our Local Communities

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# What is Legionella?

- Gram Negative
- Waterborne pathogen
- Causes Legionnaires' Disease and Pontiac Fever
  - Which is a pneumonia type illness and flu like illness



Phylum:	<a href="#"><u>Proteobacteria</u></a>
Class:	<a href="#"><u>Gammaproteobacteria</u></a>
Order:	<a href="#"><u>Legionellales</u></a>
Family:	<a href="#"><u>Legionellaceae</u></a>

# Legionella Historical Time line

1968 Pontiac  
Fever at DOH in  
Pontiac Michigan

1976 Bacteria was  
identified and  
named Legionella

1976 Outbreak  
at Philadelphia  
Convention of  
American  
Legion

*CDC Website*

# Who does it impact?



Elderly



Smokers



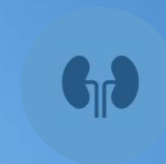
Diagnosed  
Lung Disease



Immune  
Compromised



Diabetes



Kidney or  
Liver issues



Children

# Effects

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Survivors may be significantly affected for many years or even the rest of his or her life. A follow-up study (*Lettinga 2002*) of 122 survivors of an outbreak in the Netherlands found:

Fatigue 75%

Neurologic symptoms 66%

Neuromuscular symptoms 63%

Posttraumatic stress disorder 15%

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Health-related quality of life > 1.5 years

About 1 out of every 10 people who gets sick with Legionnaires' disease will die.<sup>1</sup>

For those who get Legionnaires' disease during a stay in a healthcare facility, about 1 out of every 4 will die.<sup>2</sup> *CDC Website*



IMPACT ON OUR  
LOCAL COMMUNITY



REDUCE SICKNESS  
AND POSSIBLE  
FATALITIES

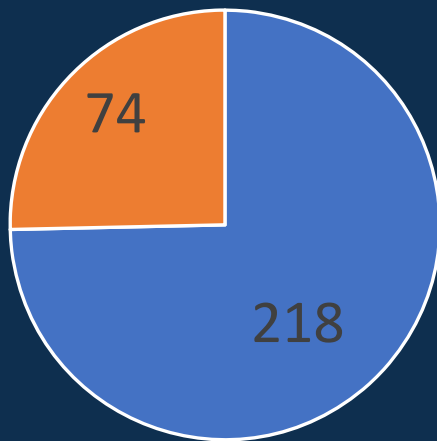


PREVENTABLE

Why do we care?  
-Public Health Safety

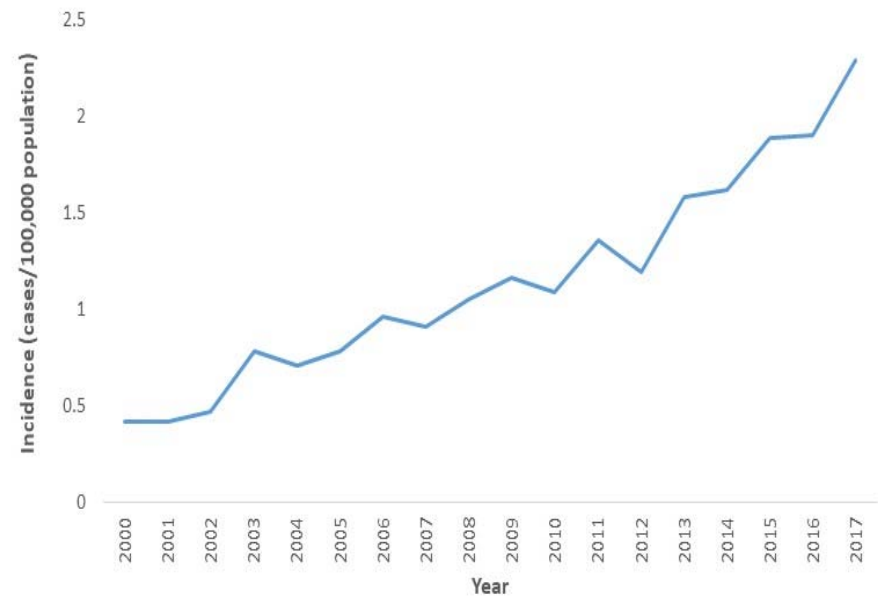
# This is rare right?

## Local Legionella Values 2019



■ NDCCount ■ DetectCount

## Legionnaires' disease is on the rise in the United States



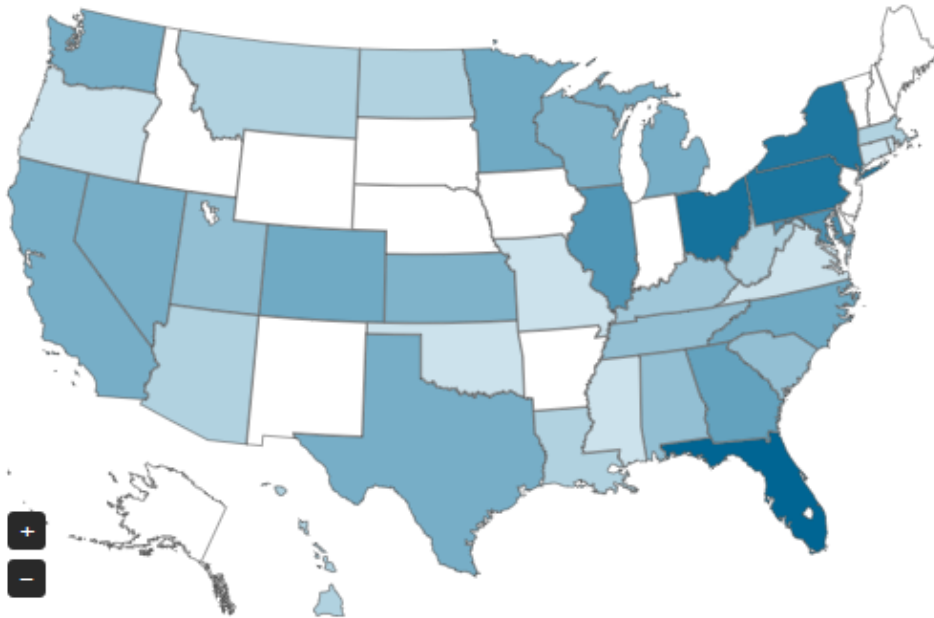
**Rate of reported cases increased 5.5 times (2000–2017)**

Source: National Notifiable Diseases Surveillance System

Centers for Disease Control and Prevention (CDC)

## Outbreaks per State

Display: U.S. Map



## Quick Stats - Current Filters

**290** Outbreaks

**1,917** Illnesses

**1,107** Hospitalizations

**141** Deaths

## Quick Stats - Overall

**46,024** Outbreaks

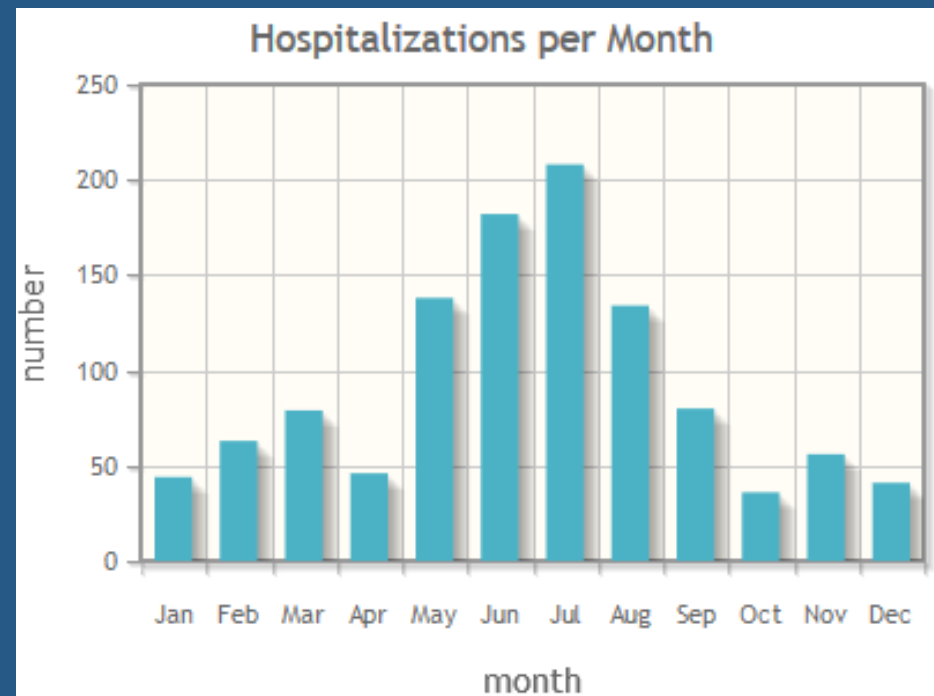
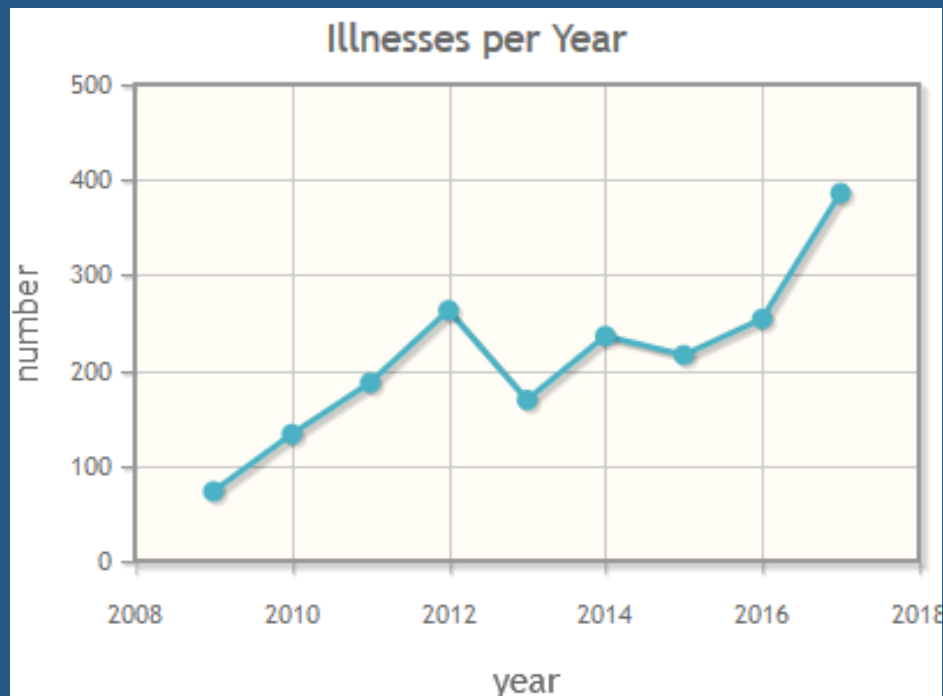
**1,177,980** Illnesses

**31,109** Hospitalizations

**1,474** Deaths



# Diagnosed Illnesses up more than 50% in last decade



# Common Sources of Contamination



HOT TUBS



HOT WATER  
TANKS AND  
HEATERS



LARGE  
PLUMBING  
SYSTEMS



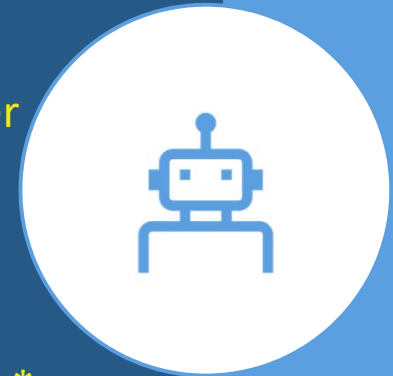
COOLING  
TOWERS



DECORATIVE  
FOUNTAINS

# How can we prevent?

- **Run water** routinely
- **Vinegar bags** on faucets/showerheads quarterly
- **Shock wells** annually
- **Change filters** routinely if applicable
- **Regular maintenance**, cleaning and disinfection of cooling towers together with frequent or continuous addition of biocides\*
- Installation of **drift eliminators** to reduce dissemination of aerosols from cooling towers\*
- Maintaining an adequate level of a **biocide** such as chlorine in a spa pool along with a complete drain and clean of the whole system at least weekly\*
- Keeping hot and cold water systems clean and either keeping the hot water **above 50 °C** (which requires water leaving the heating unit to be at or above 60 °C) and the **cold below 25 °C** and ideally below 20 °C or alternatively treating them with a suitable biocide to limit growth, particularly in hospitals and other health care settings, and aged-care facilities\*



*\*WHO Website*

# Florida DOH Criteria

Colony Forming Units  
(CFU) of *Legionella* per  
milliliter

## *Cooling tower*

- *Action 1: 100*
- *Action 2 1,000*

## *Domestic water*

- *Action 1: 10*
- *Action 2 100*

**Action 1:** Prompt  
cleaning and/or biocide  
treatment of the system.

**Action 2:** Immediate  
cleaning and/or biocide  
treatment. Take prompt  
steps to prevent  
employee exposure.

## Treatment Options

- Treat whole distribution system
- thermal (super heat and flush)
- hyperchlorination
- copper-silver ionization
- Treatment for isolated area:
  - ultraviolet light sterilization
  - ozonation
  - instantaneous steam heating
    - *EPA Legionella Factsheet*

# Certification process

## Several Options:

- CDC Elite- Not as relevant since ASHRAE update
- ISO 17025:2017
- NELAP by state

## Have a Quality System

- Perform Proficiency test
- Method Validation
- Experienced Management and staff

# Biggest Clientele?

CMS required nursing homes and hospitals to implement water safety plan.

Utilities are most liable for outbreaks

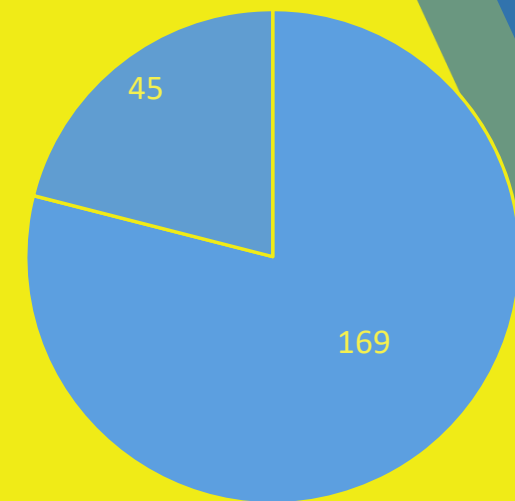
Regulatory agencies should be most aware

HOWEVER for our local lab our biggest client is....

# Homeowners

- The worst part is they call when their loved ones are sick, dying, or past and typically have confirmed case through health practitioner
- The nurse/ doctor recommended testing and they find us online.
- These are the folks I am advocating for.
- The reason awareness is so key

*Legionella pneumophila*



■ Total Houses tested  
■ Positive homes





But it isn't  
regulated...

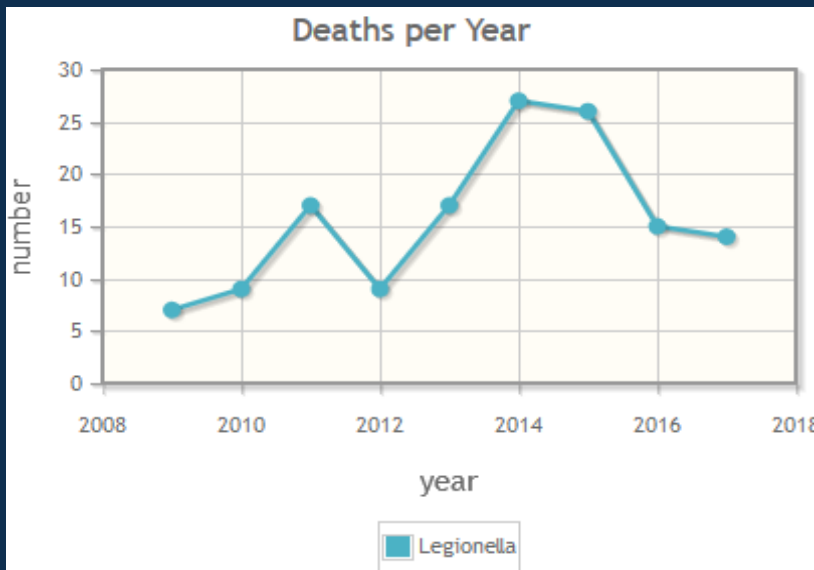
Agreed

But that does make it OK to  
ignore it?

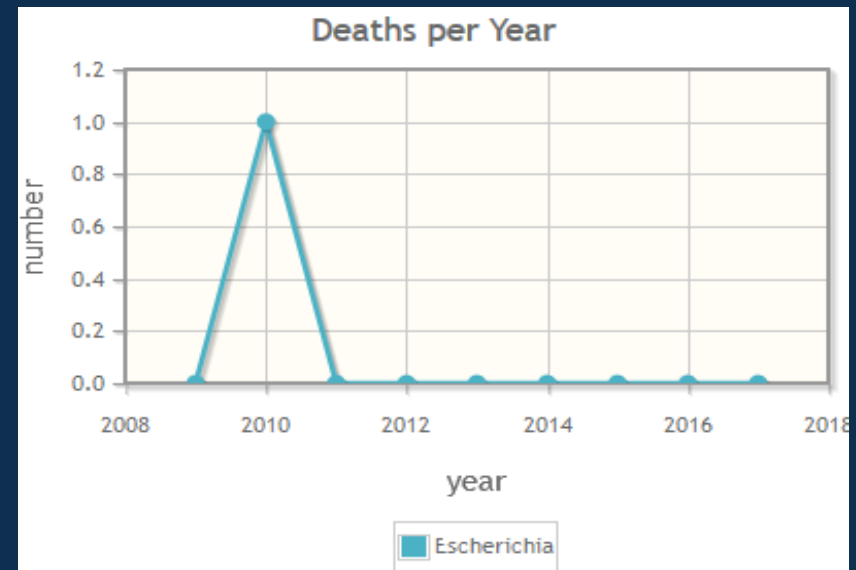
Causes more deaths than any  
currently regulated  
Bacteriological Contaminant

# 2009-2015 Water Borne Deaths by pathogen per CDC NORS Dashboard

## Legionella



## Escherichia Coli



No one else is doing this why would add this liability to my facility or analyte to my scope

- Security in knowing
  - Would you rather sweep under rug and know it might be someone in your community hurting or be proactive and look for and treat if found so people do not get sick.



What can we do?

- Prevent by:
- Testing
- Treating

- Awareness:
- Be an Advocate
- Communicate



If you have questions  
you can reach me at:

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