

Overview of Legionellosis

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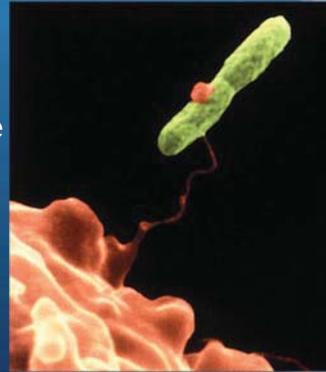
Quick Facts of Legionnaire's disease

- Named after an outbreak in 1976
- Estimated 8,000 to 18,000 hospitalizations in the U.S. each year
- *Legionella* bacteria are found naturally in the environment
- Not transmitted from person to person.



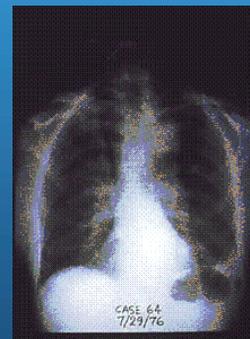
Legionella

- Motile, gram-negative, aerobic rod bacteria of the genus *Legionella*
- ~ 40 species in genus, over half implicated in human disease
- About 90% of legionellosis cases are caused by *Legionella pneumophila*
- Ubiquitous aquatic organism, thrives in temperatures between 25 and 45 °C (77 and 113 °F) with an optimum temperature of 35 °C (95 °F)
- It resides in biofilms



Legionnaires Disease Symptoms

- Early symptoms include lethargy, headaches, high fever, chills, muscle aches, and anorexia. Some may experience diarrhea, nausea, and vomiting.
- Dry, hacking cough, shortness of breath and pneumonia develop shortly after
- Can be fatal in 10%-15% of cases
- Symptom onset occurs 2-14 days after exposure



Pontiac Fever Symptoms

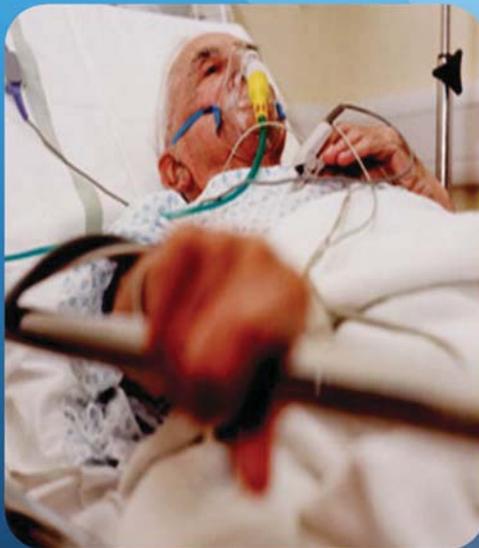
- Milder than Legionnaires' disease
- Presents as an influenza-like illness, with fever, headache, and myalgias, but no signs of pneumonia
- Can affect healthy people, as well as those with underlying illnesses
- Symptoms occur within 72 hours of exposure

Laboratory Testing for Diagnosis

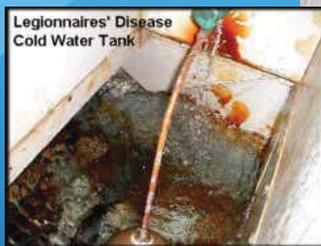
- Clinical tests
 - ❖ antigens/antibodies
 - ❖ urine and serology
- Culture
 - ❖ Live bacterial cells
 - ❖ lung biopsy, respiratory secretions, sputum
- Fluorescent antibody staining
 - ❖ bacterial antigens
- Gene probes
 - ❖ bacterial DNA
- PCR
 - ❖ bacterial DNA

Who are at risk

- Opportunistic Disease: underlying illness/weak immune system
- Healthcare associated infections are major concerns
- Middle-aged, elderly, COPD, smokers, alcoholics and immune susceptible



RISK AREAS

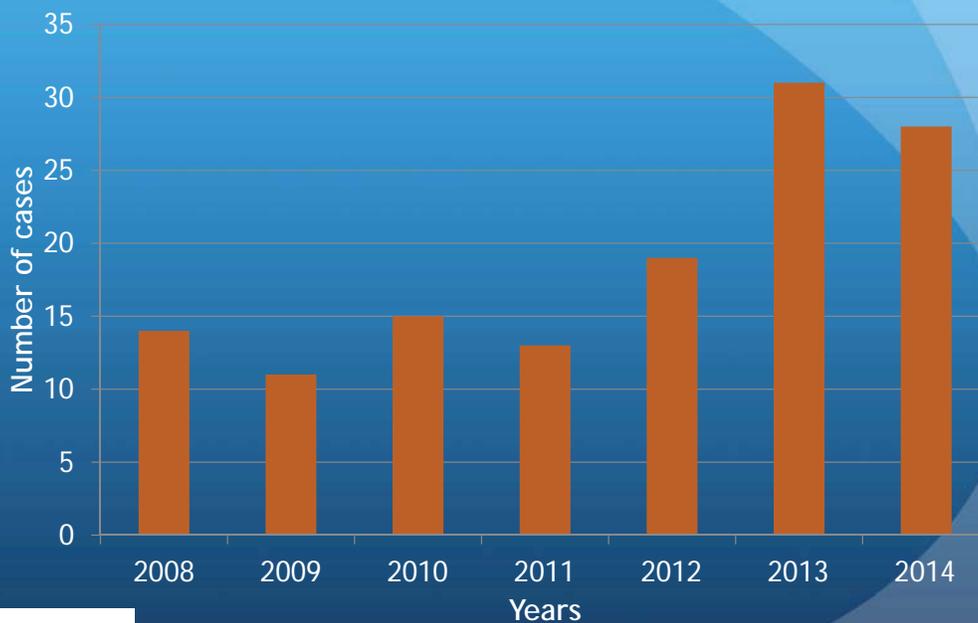


Treatment

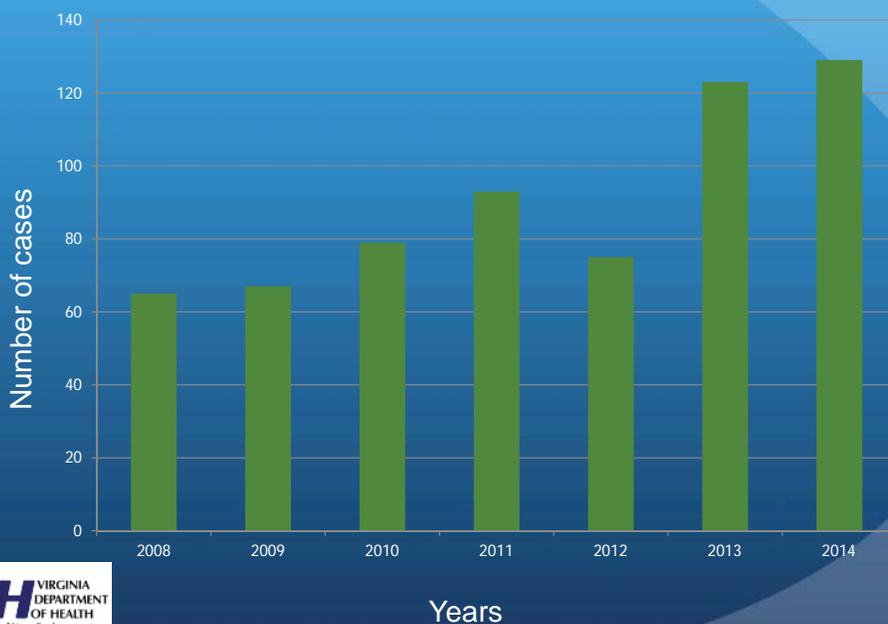
- Wide-range antibiotics to treat pneumonia (doxycycline and clarithromycin)
- Fluoroquinolones (levofloxacin)
- Macrolides (azithromycin)
- Rifampicin in combination with a quinolone or macrolide



Eastern Region Legionellosis Cases 2008-2014



Virginia Legionellosis Cases 2008-2014



Number and Incidence of Legionellosis by MMWR Year and Region Virginia, 2008-2015

MMWR Year	Region			
	Eastern		Other	
	Cases	Incidence*	Cases	Incidence*
2008	7	0.38	59	0.91
2009	7	0.38	60	0.93
2010	13	0.71	66	1.02
2011	12	0.65	81	1.26
2012	16	0.87	60	0.93
2013	36	1.96	87	1.35
2014	28	1.52	101	1.57
2015**	8	0.44	25	0.39



*based on 2013 US Census data population estimates
**year to date

Surveillance

- Legionellosis is reportable disease
- Case Classification
 - **Suspected** - clinically compatible case that meets at least one of the presumptive (suspected) laboratory criteria.
 - **Confirmed** - A clinically compatible case that meets at least one of the confirmatory laboratory criteria.
 - **Travel-associated:** a case that has a history of spending at least one night away from home, either in the same country of residence or abroad, in the ten days before onset of illness.



Epidemiologic Investigation Tools

- Confirm the diagnosis
- Completed case report
- A more detailed questionnaire is customized to outbreak situations
- Environmental Assessment and Sampling
- Remediation (for example decontamination of affected water systems)

Patient's Name: _____ Telephone Number: _____ Hospital: _____
LAST FIRST MI NUMBER STREET F WFO NO T CITY F STATE F ZIP CODE
 Address: _____ Patient Chart No.: _____
PROVIDER LICENSE NUMBER AND EXPIRATION DATE

YDH VIRGINIA DEPARTMENT OF HEALTH
VIRGINIA LEGIONELLOSIS CASE REPORT
(Adapted from CDC's Legionellosis Case Report (CDC 12-16 (E), January 2014))

Interviewer's Name: _____ Affiliation: _____ Telephone No.: _____

PATIENT INFORMATION				
1. VEDDS ID: _____	2. Reporting State: _____	3. County of Residence: _____	4. State of Residence: _____	5. Occupation: _____
6a. Date of Birth: _____	6b. Age: _____	7. Sex: _____	8. Ethnicity: _____	9. Race: check all that apply
<small>Mo. Day Year</small>	<small>Days Year</small>	<small>Male Female</small>	<small>White Hispanic/Latino Not Hispanic/Latino Unknown</small>	<small>American Indian Alaska Native Black or African American Native Hawaiian or Other Pacific Islander Asian White Unknown</small>

CLINICAL ILLNESS		
10. Diagnosis (check one) <input type="checkbox"/> Legionnaires' Disease (pneumonia, clinical or X-ray diagnosed) <input type="checkbox"/> Pontiac Fever (fever and myalgia without pneumonia) <input type="checkbox"/> Other (e.g., endocarditis, sepsis infection)	11. Date of symptom onset of Legionellosis: _____	12. Date of first report to Public Health at any level: _____
13. Was patient hospitalized? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, date of admission: _____ Hospital Name: _____ <small>Mo. Day Year City, State</small>	14. Outcome of illness: <input type="checkbox"/> Survived <input type="checkbox"/> Still ill <input type="checkbox"/> Died <input type="checkbox"/> Unknown	

EXPOSURE INFORMATION							
15. In the 10 days before onset, did the patient spend any nights away from home (excluding healthcare settings)? (check one) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, please complete the following table:							
ACCOMMODATION NAME	ADDRESS	CITY	STATE	ZIP	COUNTRY	ROOM NUMBER	DATE(S) OF STAY
							month, day, year
							month, day, year
							month, day, year

*If travel-related, was this case reported to CDC at travel@cdc.gov? Yes No Unknown

16. In the 10 days before onset, was the patient exposed to a healthcare setting (e.g., hospital, long-term care/nursing, clinic)? (check one)
 Yes No Unknown If yes, please complete the following table:



