

Water Quality & ASC's

Awareness
Preparedness
Prevention

Terry Stange, Ph.D. - President

Trusted **Water**

About Trusted Water

- National organization with headquarters in Fort Collins, CO
- 13 years of water quality instrumentation experience
- Onsite risk assessments and water management programs for ASC's
- Onsite or remote (lab) water quality testing for waterborne pathogens
- DIY water quality test kits for healthcare facilities
- DIY Legionella field test kits
- Disposable point-of-use filters for bacteria reduction
- Member ASCA

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What Is Water Quality?

- Safety
 - ✓ Health (bacteria and contaminants)
 - ✓ Potability
- Aesthetics
 - ✓ Taste, odor, appearance
- Plumbing and device compatibility
 - ✓ Scale and corrosion



Water Quality - Awareness

- Quality and supply “events”
- Waterborne pathogens
- Who owns responsibility for water quality?
 - ✓ Too many “hand-offs”
- Water is a “blind-spot” for many ASC’s
 - ✓ Over-looked
 - ✓ Under-managed



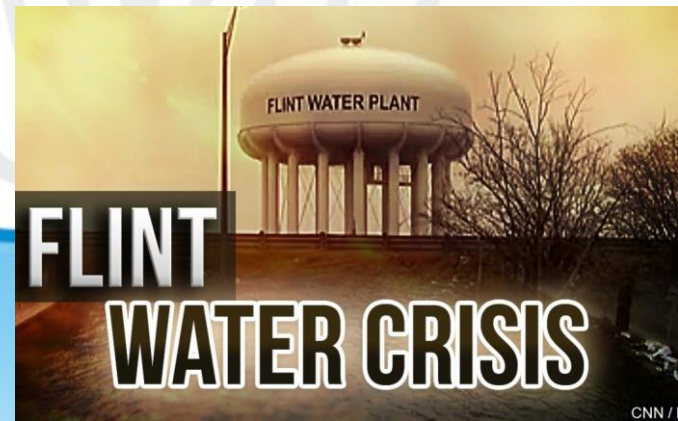
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Water Quality - Awareness

Assuming water coming into your facility has enough residual disinfectant to adequately protect you when it arrives is not a guarantee. Water systems degrade and operational changes get made. Water sources that have been stable for decades can change with a single storm, a drought or the degradation of the pipes, such as a water main break. The world of water has simply changed and as our buried water systems age, and we as a nation age, assuming that all is well can be devastating

- *Center for Disease Control*

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Water Quality “Events”

- Natural disasters (floods, etc.)
- Water main breaks
- Supplier-related
 - ✓ Source water changes
 - ✓ Process changes
 - ✓ Boil water alerts, violations, notifications
- Heavy construction nearby
- Contamination (spills, wildfires, industrial discharge)

Main Waterborne Pathogens

- Cryptosporidium
- Pseudomonas
- Shigella
- Legionella
- Novovirus
- Cyanobacteria
- Naegleria fowleri



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Pseudomonas

- Opportunistic pathogen
- Not entirely waterborne, but prefers moist environments
- Most frequent colonizer of medical devices (e.g. catheters)
- 1 in 10 hospital-acquired infections
- Naturally resistant to antibiotics
- “Swimmers ear”

Pseudomonas aeruginosa



These infections were caused by water!

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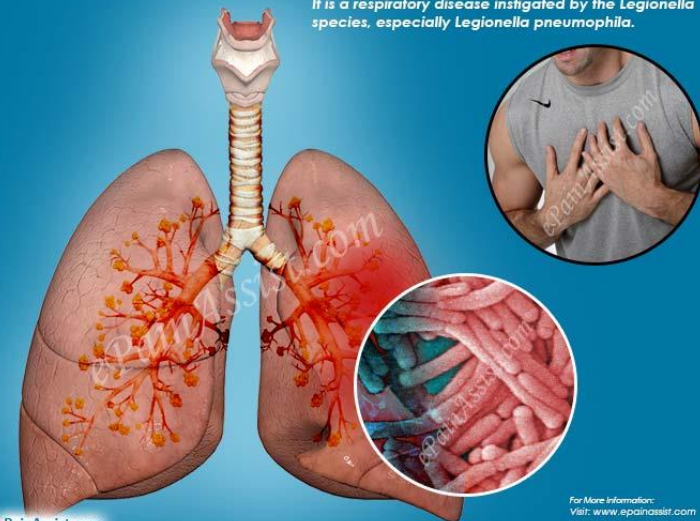
Legionella

- Bacteria causing a serious type of pneumonia
 - ✓ Pneumophila strain (serotype 1)
- Occurs naturally in water and soils
- HAI's increasing significantly
- 10% mortality rate overall
- CMS regulation (July 2016)
- Found in ~20% of ASC's (TW data)

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What is Legionnaires Disease?

It is a respiratory disease instigated by the Legionella species, especially Legionella pneumophila.



Water Quality - **Preparedness*

- Facility Risk Assessments
- Water Management Programs
- Specified Testing Protocols

*CMS regulation for Legionella risk reduction at healthcare providers

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Facility Risk Assessment

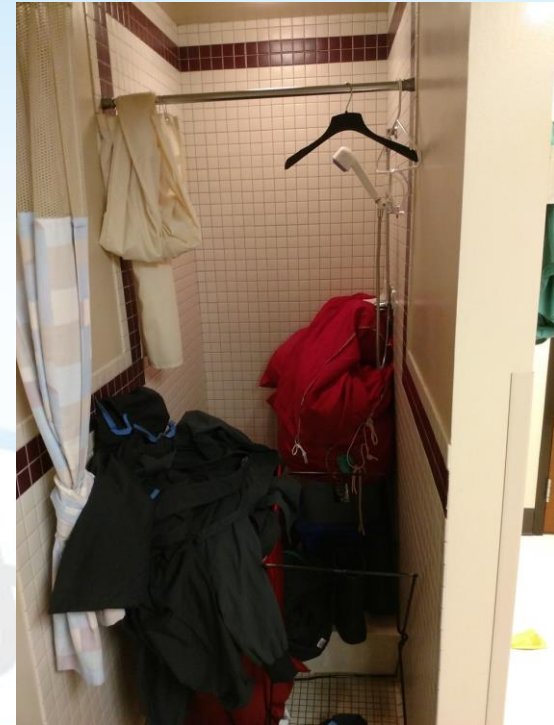
- *Water Supply*

- Level and stability of incoming disinfectant, distribution location
- Risk of incoming waterborne pathogens
 - Source water – surface water typically higher risk
 - Incoming bacteria levels (ATP and HPC)
- Nutrient loading supporting bacterial growth
- History of issues/violations, water main breaks, source changes
- Willingness to support and engage to solve problems

Facility Risk Assessment

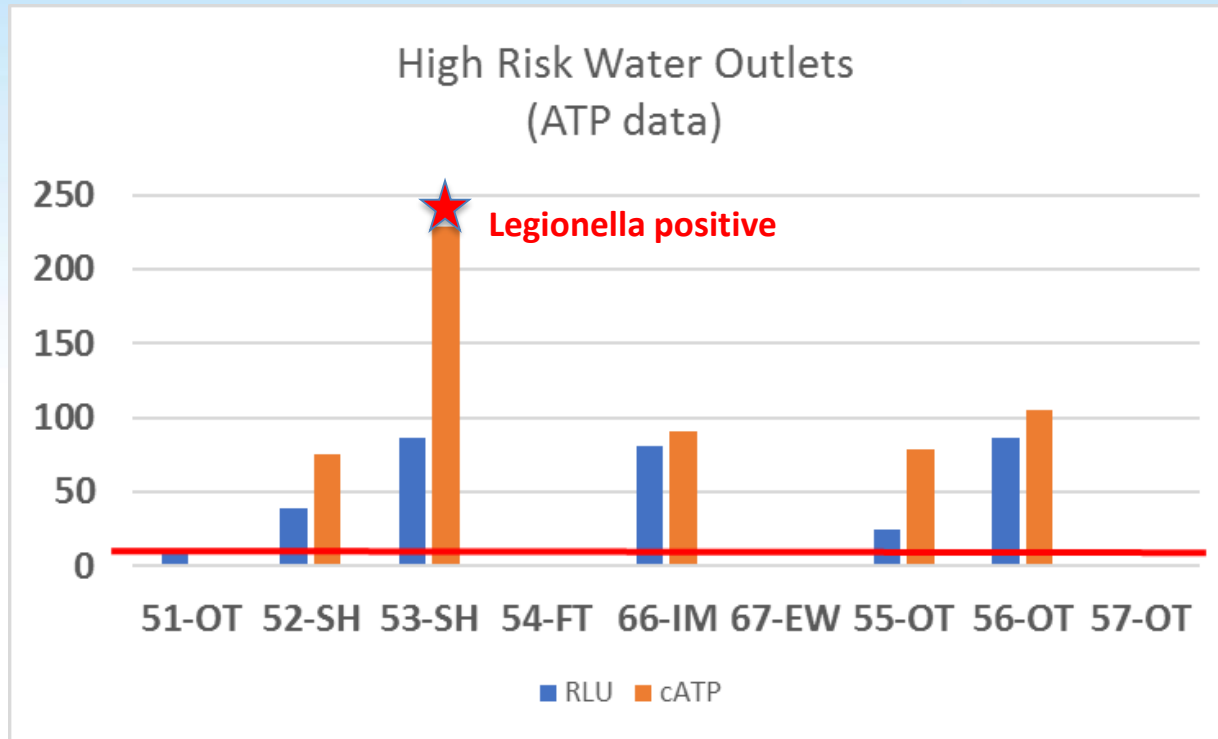
- *Amplification*

- Are you removing disinfectant with TMV's?
- What is chlorine demand through the facility?
- Identify stagnant water or unused outlets
- Flushing, cleaning or maintenance protocols
- Review water testing data – if any
- Measure bacteria at high-risk devices/outlets
- Is Legionella already established?



Facility Risk Assessment

- Amplification

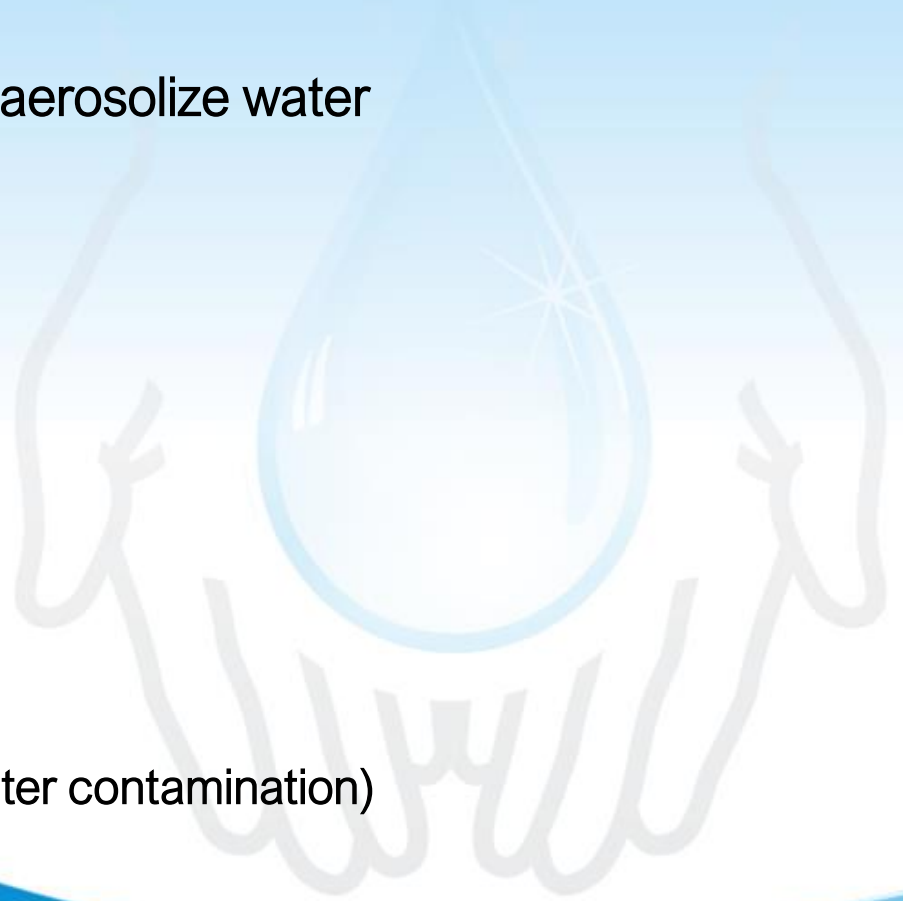


OT = Utility sink
IM = Ice machine
FT = Faucet tap
EH = Eyewash
SH = Shower head

Facility Risk Assessment

- *Distribution*

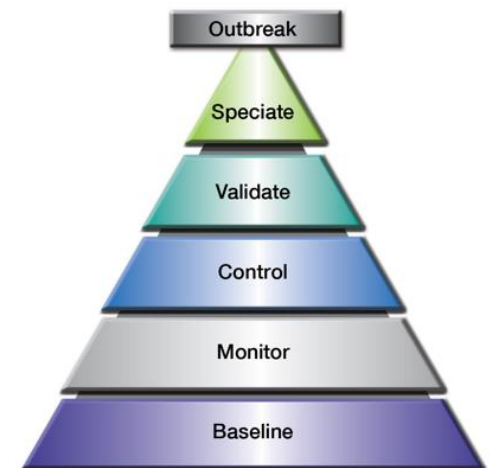
- Identify and test devices that aerosolize water
 - ✓ Showers
 - ✓ Eyewash stations
 - ✓ Humidifiers
 - ✓ Faucet aerators
 - ✓ Water features
 - ✓ Ice machines
 - ✓ Utility sinks (cleaning water contamination)



Water Quality - *Prevention*

- Periodic monitoring (disinfectant, bacteria levels)
 - Water test kits, including Legionella field testing
 - Escalation approach with evidence-based data
- Disposable point-of-use filters (unused showers)
- Flushing protocols for high-risk water outlets
- Semi-annual heat sanitization (heat and flush)
- Secondary disinfection systems

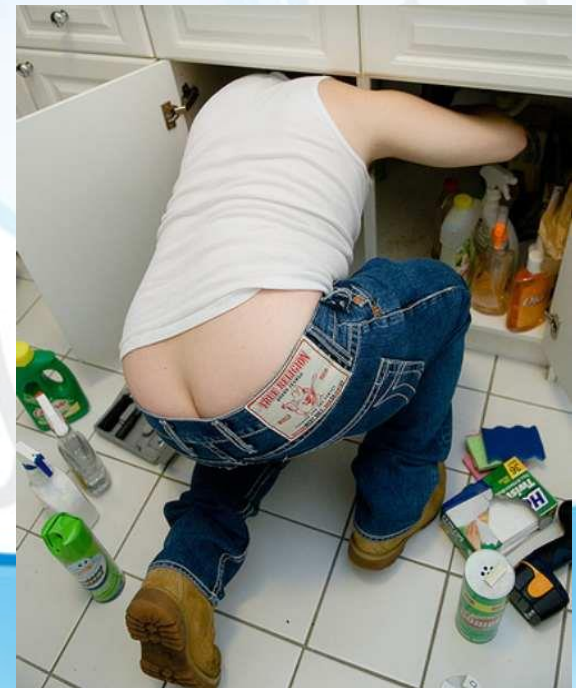
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Who Owns Your Water Quality?

- Administrators
- Clinical Directors
- Infection Preventionist

- Facilities/Maintenance



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Closing

- Thanks for your attention
- Do you (still) trust your water?
- Questions?

