Legionellosis

- Type of pneumonia, inhaled aerosols
- Most significant US waterborne disease
- ~60% of waterborne disease outbreaks
- Only current WB disease that kills people
- 5000-30,000 cases /year in the US
- Hospital acquired, 10 to 30% death rate
- Many causes-not just water
- Water at least 5%, but much higher

Flint: Legionellosis not lead was the harm
Who is at Risk?

- Elderly
- Smokers
- Immune compromised - i.e. cancer patients
- Under medical treatment
- Intensive Care Units
Risk Environments

- Hospitals
- Longterm care
- Other buildings
- Homes
Transmission Pipe
Problem

• No consistent guidance
• Multiple state policies—from nil to stringent
• PWS Regulatory Barriers
• Supplemental treatment can trigger PWS
• Should facilitate rather than inhibit disinfection
• Why not exclude hot water treatment?
• Are DW regulations needed?
• Who should oversee?
• Drinking Water or Health Authorities
Need for Authoritative Guidance

- Temperature range
- Plumbing System Management
- Flushing
- Disinfectant residuals
- Monitoring
- Interpretation
- Water Safety Management Plans
- Many countries use 1 CFU/mL (1000/L)
How is the distribution/plumbing system seeded?

• Treated water—probably minimal but not zero
• New Construction Plumbing
• Plumbing repairs
• Atmospheric deposition (vented tanks)
• Distribution system pipeline breaks*
• Spas
• Cascades
• Seeding and Biofilms and amoebas
• Loss of disinfectant residual
• Water Growth Temperature ~25-50 C
INFRASTRUCTURE

• Repair
• Replace sooner
• Find water losses - where the leaks are
• Unmetered water losses are expensive
• It’s out of sight until the pipe breaks, then it is an expensive crisis
>500,000 water main breaks in USA per year
Factors Related to Pipe Failures

- Age* and pipe material
- Corrosion – pit, wall thinning, stray current
- Ground movement
- Thrust restraint failure
- Hydraulic events – surge or vacuum
  *

- Changes in water temperatures
- Vibration or shaking
- Third party damage – equipment damage
Consensus Has been Delayed

- Minimal EPA Guidance
- Multiple State Approaches
- ASHRAE 188
- CDC Recommendations

- Let’s get on with it.
- What could be a higher DW priority? Not lead.
- It is complicated but it can be done
- People are sickened and dying in the meantime.
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