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Legionella – A Sensible Path Forward for Pennsylvania

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What is the issue we are facing ?

We have State Representatives in Pennsylvania, supported by lawyers, lobbyists, and activists who are pushing for legislation requiring that PA DEP address *Legionella* in potable water supplies.

What is supporting this ?

- The first reported outbreak of Legionnaire's disease occurred in Philadelphia during 1976.
- There continue to be outbreaks in Pennsylvania associated with potable water systems in buildings such as hospitals, hotels, and motels.
- Since *Legionella pneumophila* could originate in a public water supply, then there is interest in managing the "seeding" of building water systems with *Legionella* although such "seeding" may not be the most important factor.

Don’t Regulations Already Exist?

Current EPA Regulation addressing *Legionella*

Surface Water Treatment Rule

- Set an MCLG=0 for *Legionella* spp.
- Assumes that the Ct requirements for *Giardia* and viruses reduce *Legionella* to acceptable levels at the entry points to distribution.
- Assumes that the maintenance of a detectable disinfectant residual maintains *Legionella* at acceptable levels in distribution systems.
- Includes no monitoring or reporting requirements.

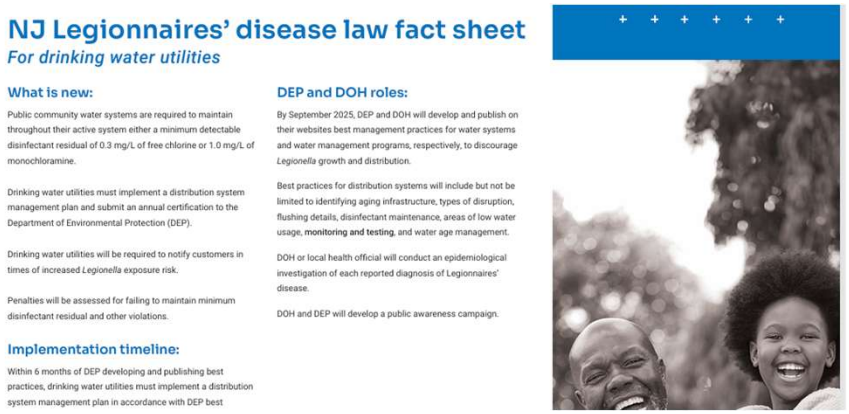
Current PaDEP Regulation addressing *Legionella*

Disinfection Requirements Rule

- Entry point disinfectant residual ≥ 0.20 mg/L
- Distribution system residual ≥ 0.2 mg/L
- Must report individual sample results

New Jersey Legionnaires' Disease Regulation

- Set into law in 2024
- Addresses public drinking water systems
- Addresses specified building water systems



NJ Legionnaires' disease law fact sheet

For drinking water utilities

What is new:

Public community water systems are required to maintain throughout their active system either a minimum detectable disinfectant residual of 0.3 mg/L of free chlorine or 1.0 mg/L of monochloramine.

Drinking water utilities must implement a distribution system management plan and submit an annual certification to the Department of Environmental Protection (DEP).

Drinking water utilities will be required to notify customers in times of increased *Legionella* exposure risk.

Penalties will be assessed for failing to maintain minimum disinfectant residual and other violations.

Implementation timeline:

Within 6 months of DEP developing and publishing best practices, drinking water utilities must implement a distribution system management plan in accordance with DEP best

DEP and DOH roles:

By September 2025, DEP and DOH will develop and publish on their websites best management practices for water systems and water management programs, respectively, to discourage *Legionella* growth and distribution.

Best practices for distribution systems will include but not be limited to identifying aging infrastructure, types of disruption, flushing details, disinfectant maintenance, areas of low water usage, **monitoring and testing**, and water age management.

DOH or local health official will conduct an epidemiological investigation of each reported diagnosis of Legionnaires' disease.

DOH and DEP will develop a public awareness campaign.

New Jersey Jumped Ahead – Good Points

- Requires owners and operators of specified building water systems most at risk to implement water management programs.
- Requires testing in buildings to focus on *L. pneumophila*.
- Requires water utilities to develop and certify a Distribution System Management Plan.

But New Jersey Jumped Off Course!

- Current training and certification of effective water management programs for building water system owners and operators is not adequate.
- The requirement to maintain ≥ 0.3 mg/L free chlorine or ≥ 1.0 mg/L monochloramine is not science-based.
- Includes a requirement to notify customers in times of "increased *Legionella* risk" from system disturbances although it is unknown where and when "increased risk" occurs.

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What are the Stumbling Blocks for Increasing Regulations Regarding *Legionell*a in Water?

Legionella is Not a Typical Pathogen

- Many species of *Legionella* are found in surface and ground water, and soil. Occurrence does not signal contamination.
- *L. pneumophila* can be detected at < 5% occurrence in well-run systems.
- *L. pneumophila* is almost always detected at very low concentrations, when found, in well-run systems; well below health concern levels.

EPA set up Disincentives within the SWTR

- **This rule was set well before we had a good understanding of *Legionella* though we knew it could be detected in drinking water.**

- **EPA set the MCLG=O which is well below the public health level.**
- **The MCLG is for *Legionella* spp. instead of focusing on *L. pneumophila*.**

This has provided a significant disincentive to data collection and proactive monitoring

High Concentrations of Chlorine Residual are not Needed

- The greatest benefit may be realized when raising disinfectant concentration to 0.2 mg/L; further increases in disinfectant concentration appear to provide marginal improvements in *L. pneumophila* control.
- The consistency of maintaining a minimum disinfectant residual may be more important than the disinfectant residual concentration level.

Monochloramine appears to be better, not worse, than free chlorine at managing *Legionella*

Legionella **colonized 60% of the hot water systems before monochloramine versus 4% after conversion.**

Increasing the use of monochloramine in water supplies throughout the United States may reduce *Legionella* transmission and incidence of Legionnaires' disease.

Reducing Legionella Colonization of Water Systems with Monochloramine. Brendan Flannery, Lisa B. Gelling, Duc J. Vugia, June M. Weintraub, James J. Salerno, Michael J. Conroy, Valerie A. Stevens, Charles E. Rose, Matthew R. Moore, Barry S. Fields, Richard E. Besser. *Emerging Infectious Diseases* Vol. 12, No. 4, April 2006.

Major Gaps in the Science Still Exist for *Legionella* Occurrence in Water Supplies

- We cannot establish *Legionella* management plans for distribution when the science, guidance and tools behind those plans do not yet exist.
- We cannot issue public notification that risk is elevated when disruptions occur because the science does not yet exist to support this.
- We cannot define or prescribe mitigation methods because the science does not yet exist to identify effective mitigation methods.

What Position Should Water Utilities in Pennsylvania take?

Water utilities should be proactive and leaders in the management of *Legionella* in drinking water supplies!

Redefine the Target

The SWTR refers to "*Legionella*" and there are many species of *Legionella,* but it is *Legionella pneumophila* that gives the primary public health risk of concern for drinking water systems.

Any new requirements should refer specifically and only to *Legionella pneumophila*.

Unleash the Means for Data Collection

An appropriate focus on *Legionella pneumophila* will focus testing methods on those most appropriate for use; those that are available, practical and cost effective that can be used by regulatory agencies, health agencies, public water utilities, and consultants.

A Practical Test Method Exists

- The Legiolert protocol by IDEXX, scores any test with a brown color or turbidity within the Quanti-Tray as positive for *L. pneumophila.*
- Utilities have a high success rate with using the Legiolert test.

Remove Data Collection Disincentives

It is inappropriate and not supported by science to consider any single detection of *Legionella pneumophila* in any water sample as presenting a public health risk.

Establish a reasonable response protocol for positive detections.

Requirements for a Disinfectant Residual should be based on Science

- The latest science shows that a disinfectant residual of 0.2 mg/L for free chlorine and chloramine provides the greatest benefit in reducing the occurrence of *Legionella pneumophila.*

- Requiring a greater level of chloramine compared to free chlorine is contrary to existing science.

Public Notification Must also be based on Science

A requirement for public notification during times of increased risk of *Legionella* bacteria is also premature. The risk should be focused on *Legionella pneumophila* while national discussion between EPA and CDC and states is needed to determine when and how such notification should be made.

Support Science-based Changes in EPA's Regulation

The Drinking Water Advisory Council M-DBP Rules Working Group advised EPA to take the following actions:

1) **Adopt a national numeric minimum disinfectant residual requirement.**
2) **Require disinfectant residual sampling and monitoring plans that represent the entire distribution system, including areas that have low or no detectable disinfectant residual.**
3) **Revise the disinfectant residual compliance basis to reduce the potential for areas of systems to repeatedly experience insufficient disinfectant residual.**

Reinforce Existing Regulatory Programs

- **Bolster Sanitary Surveys in reviewing the multiple barriers for management of *L. pneumophila.***
- **Bolster the training of operators for large and small systems to address the science of *L. pneumophila.***

Encourage Proactive Drinking Water Utilities…

- To conduct testing for *L. pneumophila* to establish their baselines and to detect deviations from the baselines.

- To follow best practices for managing water quality, such as the Partnership for Safe Water, Distribution System Optimization Program and other AWWA best management practices.

Fill Gaps in Occurrence and Control Data

- **Support an ongoing State-wide summer-time survey covering various types of public water systems to gather the information needed to define best practices for *Legionella* management and to document baselines.**

Reinforce the Need for Shared Responsibility

- The management of risk is a shared responsibility between public water system managers and building water system managers.
- Therefore, any regulation must address both responsibilities.

Encourage Proactive Drinking Water Utilities…

- To develop water quality reports that help building water system designers, installers, owners and operators to know their water quality.

- To connect with building owners and operators to provide support in understanding water quality and its management.

Encourage the State to Reduce Risk in BWS's using WMPs

- Start where the risk of exposure is obvious and highest in building water systems.
- Identify the BWS's that are most at risk.
- Require Water Management Programs (guidance already exists).
- Develop and train inspectors (similar to how Sanitary Surveys are done) for these programs.
- Avoid the installation of chemical feed systems on buildings unless they are demonstrated to be needed.

Provide Education and Training to Everyone

- Develop training for the management of *L. pneumophila* for State sanitary inspectors, public health investigators, and building water systems owners and operators.
- Work with the health community to develop case investigation data collection that builds a needed database on water systems.
- Provide training for building water system operators on such issues as sampling water quality, interpreting test results, testing for total chlorine residual, and working with public water suppliers.

Let's Sit in the Driver's Seat Rather Than be Left Waiting at the Bus Stop!!!

We Can Help Put Pennsylvania on the Right Road for the Management of *Legionella* in Water Systems

Recap of a Sensible Path Forward

- Reinforce existing EPA and State programs
- Base regulations on the latest science
- Encourage water utilities to be proactive
- Remove disincentives for collecting needed data
- Require water management programs for specified buildings
- Support, train and educate all Involved

Follow the Latest Science and Do Not Jump Ahead Without It

Let's Stay Connected and Keep the Conversation Going