

TO: Licensed dental and other medical professionals
DATE: November 7, 2022
FROM: Mark Levine, MD, Commissioner of Health

Outbreaks of Nontuberculous *Mycobacteria* Infections Highlight Importance of Maintaining and Monitoring Dental Waterlines

BACKGROUND

On October 31, 2022, the Centers for Disease Control and Prevention (CDC) issued a [Health Alert Network \(HAN\) Health Advisory](#) to emphasize the importance of following existing recommendations for maintaining and monitoring dental waterlines. The Vermont Department of Health is sharing this information with Vermont providers via this Health Advisory to stress the importance of proper water quality maintenance at dental facilities.

Across the country, multiple outbreaks of nontuberculous *Mycobacteria* (NTM) infections have occurred in children who received pulpotomies in pediatric dental clinics where the dental treatment water contained high levels of bacteria. At this time, the Health Department is not aware of any cases of nontuberculous *Mycobacteria* Infections associated with dental procedures in Vermont. CDC provides guidelines on infection control in dental settings which contain recommendations to treat dental unit waterlines and monitor water quality. Dental providers should be familiar with these recommendations on how to properly maintain and monitor their dental equipment to ensure that dental treatment water is safe for patient care.

While rare, there have been multiple documented cases of disease transmission from dental unit waterlines (narrow-bore plastic tubing that carry water to the high-speed handpiece, air/water syringe, and ultrasonic scaler). Dental units have unique characteristics that make them prone to biofilm formation. Biofilms occur in dental unit waterlines due to the long, small-diameter tubing and low flow rates used in dentistry and the frequent periods of stagnation. As a result, high numbers of common waterborne bacteria can be found in untreated dental unit water systems. Disease-causing microorganisms found in untreated dental unit water can include *Legionella*, *Pseudomonas aeruginosa*, and nontuberculous *Mycobacteria* (NTM). Dental providers and patients could be placed at risk of adverse health effects if dental unit water is not appropriately treated.

REQUESTED ACTIONS

Recommendations for Dental Providers

- For all oral surgical procedures, use sterile saline or sterile water as a coolant or irrigant for surgical procedures. Appropriate delivery devices can include:
 - bulb syringe,
 - sterile, single-use disposable products, or

- sterile water delivery systems that bypass the dental unit by using sterile single-use disposable or sterilizable tubing.
- For all non-surgical dental procedures, use water that meets CDC recommendations (i.e., ≤500 CFU/mL of heterotrophic water bacteria).
 - For all non-surgical pulpal therapy and endodontic procedures, consider following more conservative recommendations from the following organizations which recommend irrigation with a sterile and/or antimicrobial solution:
 - the American Academy of Pediatric Dentistry, [Pulp Therapy for Primary and Immature Permanent Teeth](#)
 - the American Association of Endodontists, [Position Statement on Vital Pulp Therapy](#), and
 - the Organization for Safety, Asepsis and Prevention, [Dental Unit Water Quality White Paper and Recommendations](#).
- Consult with the dental unit manufacturer for appropriate methods and equipment to maintain the quality of dental water. Many commercial devices and procedures are available and designed for this purpose.
- Follow recommendations for monitoring water quality provided by the manufacturer of the unit or waterline treatment product.
- Discharge water and air for a minimum of 20–30 seconds after each patient from any device connected to the dental water system that enters the patient’s mouth (e.g., handpieces, ultrasonic scalers, and air/water syringes).
- Review the US Food and Drug Administration’s website on [Dental Unit Waterlines](#) for recommendations for dental practitioners.

Recommendations for Dental Facilities

- Ensure the dental facility has an infection prevention plan that includes policies and standard operating procedures dedicated to maintaining and monitoring water quality.
- Provide staff training on how to properly maintain and monitor dental water quality. Training should be based on the manufacturer’s instructions for use of the products and devices used in the dental facility, provided for all new hires, and provided when new equipment is purchased and then at least annually. Contact the manufacturer of the treatment product or device if you have questions about the instructions for use.
- Document all maintenance records, monitoring results, and employee trainings. Accurate record keeping is an important component of a dental infection prevention program, ensures proper protocols have been met, and establishes accountability. Records should be maintained according to state and federal requirements.
- Report infections suspected to be associated with receiving health care, including dental care, to the appropriate public health authorities. CDC provides [contact information for State Healthcare Associated Infections Prevention Programs](#).

Recommendations for Medical Providers

- Consider an odontogenic source for cervical lymphadenitis or lymphadenopathy and assess a history of dental care and procedures in all children presenting with lymphadenitis.

ADDITIONAL RESOURCES

- [Guidelines for Infection Control in Dental Healthcare Settings – 2003](#)
- [Dental Unit Waterlines \(Federal Drug Administration\)](#)
- [Policy on Infection Control \(American Academy of Pediatric Dentistry\)](#)
- [Dental Unit Water Quality: Organization for Safety, Asepsis and Prevention White Paper and Recommendations– 2018 \(Organization for Safety, Asepsis and Prevention\)](#)
- [Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care](#)
- [State-based Healthcare Associated Infection Prevention Activities](#)
- [Dental Unit Waterlines, Frequently Asked Questions](#)
- [Foundations: Building the Safest Dental Visit](#)

If you have any questions, please contact Robin Miller at robin.n.miller@vermont.gov

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HAN Message Type Definitions

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: Provides important information for a specific incident or situation; may not require immediate action.

Health Update: Provides updated information regarding an incident or situation; unlikely to require immediate action.

Info Service Message: Provides general correspondence from VDH, which is not necessarily considered to be of an emergent nature.