

Best Practices for Dental Unit Water Quality

KEY POINTS

- Dental providers should properly maintain and monitor their dental equipment to ensure that dental treatment water is safe for patient care.
- Dental providers and patients could be placed at risk of adverse health effects if dental unit water is not appropriately treated.



Why it matters

Untreated dental units cannot reliably produce water that meets drinking water standards (which is fewer than 500 CFU/mL of water of heterotrophic water bacteria). On October 31, 2022, CDC released a [Health Advisory Notice](#) to communicate the importance of following existing recommendations for maintaining and monitoring dental waterlines.

Background

Biofilm is a thin, slimy film of bacteria that sticks to moist surfaces. Dental unit waterlines have unique characteristics that make them prone to biofilm formation, including long, small-diameter tubing, low flow rates, and frequent periods of stagnation.

High numbers of common water bacteria can be found in untreated dental unit water systems, including *Legionella*, *Pseudomonas aeruginosa*, and nontuberculous *Mycobacteria*. These bacteria can cause serious, sometimes life-threatening infections.

Contaminated water from dental units has been linked to outbreaks of *Mycobacteria* infections in children. Case reports also document infections with *Mycobacteria* and *Legionella* following endodontic procedures, third molar extractions, and general dental work. In these reported cases, water samples taken from the dental clinics demonstrated levels of bacteria much higher than the recommended levels and reported breakdowns in infection prevention procedures to maintain and monitor dental water quality. These reports highlight the need for training to improve understanding of the underlying principles of dental unit water quality maintenance and monitoring, recommended practices, and their implementation in dental settings.

Recommendations

Dental unit waterlines should be treated regularly with disinfectants to meet the Environmental Protection Agency (EPA) regulatory standards for drinking water (≤ 500 colony forming units [CFU]/mL of heterotrophic water bacteria).

Dental unit water quality must also be monitored, or tested, routinely as recommended by the equipment manufacturer. This ensures that treatments are working effectively and that the water used in dental procedures meets safety standards. Monitoring dental unit water quality can also help identify problems in performance or adherence with maintenance protocols and provide documentation of compliance.

Dental providers should consult with the dental equipment manufacturer for appropriate methods and equipment to both [maintain and monitor the quality of dental water](#).

Full recommendations regarding dental unit waterlines can be found on pages 28–30 of CDC's [Guidelines for Infection Control in Dental Health-Care Settings—2003](#) and in the [Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care](#).

The Organization for Safety, Asepsis and Prevention's [Dental Unit Water Quality White Paper and Recommendations](#) [PDF](#) provides further information on this topic.

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Under a Boil-Water Advisory?

CDC provides information on what to do on page 30 of the [Guidelines for Infection Control in Dental Health-Care Settings—2003](#).

For more information, see CDC's [Emergency Water Supply Planning Guide for Hospitals and Healthcare Facilities](#).

