

Crashing the Biofilm Party
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Why do we care about dental unit waterlines?

Biofilm:

- Biofilm is growing in the small dental tubing because of a high surface-to-water flow ratio.
- Bacteria can reach 200,000 CFU/mL in less than 5 days in brand-new lines

*Barbeau J., Tanguay R., Faucher E., Avezaard C., Trudel L., Cote L., Prevost AP. *Appl Environ Microbiol* 1996; 3954-9

Patients:

- Patients have died or been hospitalized because of contaminated dental unit waterlines.

Clinician:

- What are we breathing? Dental Unit waterlines are a major basis of aerosol bacteria in the dental environment

Kumar, P. and Subramanian, K., 2020. Demystifying the mist: sources of microbial bioload in dental aerosols. *Journal of Periodontology*.

Meethil, AP, Saraswat, S, Chaudhary, PP, Dabdoub, SM, Kumar, PS. 2021. Sources of SARS-CoV-2 and other microorganisms in dental aerosols. *J Dent Res July 2021*

Rafiee A, Carvalho R, Lunardon D, Flores-Mir C, Major P, Quemerais B, Altatbaei K. Particle Size, Mass Concentration, and Microbiota in Dental Aerosols. *J Dent Res*. 2022 Jul;101(7):785-792.

CDC Guidelines

- Even if your state hasn't adopted CDC guidelines, we are still required to provide a safe dental visit.
- Most Dental Equipment Manufacturers have updated their IFUs in the last few years to protect themselves from the new FDA recommendations for Dental Unit Manufacturers:
<https://www.fda.gov/medical-devices/dental-devices/dental-unit-waterlines>

How:

Shock- use a strong disinfectant to clean the lines

- Shock Before Initial Use of a Water Treatment Product
- Shock at least every quarter
- When your waterline test reveals a contamination level of 200 CFU/ml or more

Test- the only way you know if your lines are in compliance and your product is working.

OSAP recommends testing monthly on each dental unit; if you pass for 2 consecutive monthly cycles, move to quarterly testing

- Mail-in testing
- In-Office testing

Treat- using a low-level antimicrobial to maintain clean lines.

No matter what product you choose, you must follow the instructions for use!

- Tablets
- Straws
- Liquids

Maintain- establish a Standard Operating Procedure (SOP) and make sure the entire team understands the why.

- Appoint a Waterline Warrior
- Test and Document your results
- Flush lines at the beginning of the day and in between patients
- Choose a maintenance product and use it according to the IFUs
- Re-test quarterly (and document)
- Shock as needed

Waterline Protocol



Current Products Used:

BluTube Maintenance Straw
6.25% Bleach Shock
Toppen Dolphin Pod Hypochlorous Tablets
Monarch Lines Cleaner
ProEdge Quick Pass
ProEdge Flo Waterlines mail in test

Daily

Morning:

Fill water bottles with tap water
Reattach bottles
Flush ALL dental unit waterlines for 30 seconds

Between Patients:

Flush lines for 20-30 seconds

End of day:

Empty water bottle
Reattach bottle, taking care not to damage the Blu Tube straw

Weekly

Air Flow One Maintenance
Pour Monarch Lines Cleaner in Air Flow Cleaning Canister
Run half of the treated solution into unit and let it sit for the weekend
Monday morning purge the remaining treated solution
Flush the system with one full canister of clean tap water

Testing Protocol

Testing will happen Quarterly **PRIOR TO SHOCK**
Once a year, closest to January perform a ProEdge Flo mail-in test for third party verification
Record test results on Waterline testing log
The other three times test with Quick Pass in office test
Read the test in 48-72 hours and Document on Waterline testing log

Shock Protocol

Use properly diluted bleach shock following attached protocol
Use Dummy straw (Do NOT shock through the BluTube)
Shock quarterly to ensure CFU's stay below 200

In case of Failure

Shock with diluted bleach or crushed Hypochlorous tablet
Retest monthly until the lines pass for two consecutive months