STANDARD OPERATING PROCEDURE

Dental Unit Waterline Maintenance SOP

Document no.	SOP-DEN-005
Revision	1.0
Owner	Sterilization Coordinator
Effective date	September 15, 2026
Review cycle	Every 12 months

1. Purpose

To keep water delivered through dental unit handpieces and syringes within accepted quality limits by controlling biofilm buildup in the waterlines.

2. Scope

Applies to dental unit waterlines feeding handpieces, air-water syringes and ultrasonic scalers in all operatories. Municipal water supply and plumbing are outside this SOP.

Definitions

Biofilm	A layer of bacteria that forms on the inside of waterline tubing and can contaminate water delivered to the patient.
Shock treatment	A periodic chemical treatment used to break down and remove biofilm from waterline tubing.
Water quality test	A test, typically using a self-contained test kit or independent lab, that measures bacterial contamination in dental unit water.

3. Responsibilities

Dental Assistant	Performs daily flushing, changes treatment cartridges and records completed tasks.
Sterilization Coordinator	Schedules shock treatments and water quality testing and tracks results.
Dentist	Reviews failed water quality results and decides whether a unit is taken out of service.

RACI matrix

Activity	Dental Assistant	Sterilization Coordinator	Dentist
Perform daily waterline flushing	R/A	I	-
Perform periodic shock treatment	R	R/A	I
Test water quality	R	R/A	I
Respond to a failed water quality result	I	R	R/A

R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Materials and PPE

Materials, tools and systems

- Waterline treatment or shock treatment chemical
- Self-contained water quality test kit
- Independent testing lab service, if used
- Waterline maintenance log
- Manufacturer's instructions for each dental unit

Personal protective equipment

- Disposable gloves
- Eye protection when handling shock treatment chemical

5. Procedure

Step	Task	Owner	Done
5.1	**Flush lines at the start of the day** Before seeing the first patient, flush each dental unit's waterlines and air-water syringe for the manufacturer's recommended time to clear standing water.	Dental Assistant	☐
5.2	**Flush lines between patients** Flush handpieces and air-water syringes for the manufacturer's recommended time between patients to clear water that may have been drawn back into the line. **Checkpoint:** Between-patient flushing is completed and documented before the next patient is treated.	Dental Assistant	☐
5.3	**Change or replenish waterline treatment** Change waterline treatment cartridges or add treatment solution to the unit's water reservoir on the manufacturer's recommended schedule.	Dental Assistant	☐
5.4	**Flush lines at the end of the day** Flush each unit's waterlines again at the end of the clinical day to reduce standing time in the lines overnight.	Dental Assistant	☐
5.5	**Schedule periodic shock treatment** Schedule shock treatment for each dental unit's waterlines on the interval recommended by the unit and treatment manufacturer to break down existing biofilm.	Sterilization Coordinator	☐
5.6	**Perform the shock treatment** Follow the shock treatment product's instructions for concentration, contact time and rinse cycle for each affected dental unit. **Warning:** Never mix shock treatment chemicals with other cleaning products, and rinse thoroughly before the unit is used on a patient.	Dental Assistant	☐
5.7	**Confirm the unit is rinsed and ready** Run a full rinse cycle after shock treatment and confirm no chemical odor remains before returning the unit to clinical use.	Dental Assistant	☐
5.8	**Test water quality on schedule** Collect a water sample from each dental unit on the practice's testing schedule using the self-contained test kit or independent lab process.	Sterilization Coordinator	☐

Step	Task	Owner	Done
5.9	**Review water quality results** Compare each unit's result against the accepted water quality limit for dental treatment water and log the result by unit and date. **Checkpoint:** Every unit's water quality result is reviewed against the accepted limit and logged before the unit continues routine use.	Sterilization Coordinator	☐
5.10	**Take a failing unit out of service** If a unit fails water quality testing, take it out of service for non-surgical use as directed by the dentist until it is retreated and retested successfully. **Warning:** Do not use a dental unit that has failed water quality testing until it passes a retest after treatment.	Dentist	☐
5.11	**Retreat and retest a failed unit** Repeat shock treatment on the affected unit and retest before returning it to normal clinical use.	Dental Assistant	☐
5.12	**Maintain the waterline maintenance log** Keep flushing, shock treatment and water quality test results current in the waterline maintenance log for every dental unit in the practice.	Sterilization Coordinator	☐

6. Quality checks

- Daily and between-patient flushing is documented for every operatory.
- Water quality testing is completed on schedule for every dental unit.
- No unit with a failed water quality result is used until it passes a retest.
- Shock treatment is completed on the manufacturer's recommended interval.

7. Records

- Waterline maintenance and flushing log
- Shock treatment records by unit
- Water quality test results
- Out-of-service and retest log for failed units

8. KPIs

- Water quality test pass rate
- Percentage of units with flushing completed on schedule
- Time a failed unit stays out of service
- Shock treatment compliance rate

9. Common mistakes

- Skipping between-patient flushing when the schedule is busy.
- Using a dental unit again right after shock treatment without a full rinse cycle.
- Letting water quality testing lapse past the scheduled interval.
- Continuing to use a unit for non-surgical care after it failed testing without retreating it.

10. Revision history

Revision	Date	Description	Reviewed by
1.0	September 15, 2026	Initial release	Ilia Pirozhenko

Approval

Prepared by	Approved by	Date

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