REDUCING MICROBIAL EMISSIONS OF DENTAL UNITS WITH EMOVABLE POWER SCALERS

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Objective: The purpose of this study was to measure the effect chemical cleaning of dental unit waterlines (DUWL) had on emissions by three-way syringes and power scalers.

Methods: Involved were ten randomly selected dental units in the Dental Hygiene Clinic. Each had an attached self-contained independent water reservoir. Also used were two different types of removable power scalers (five each). Pairing of a scaler with a specific unit remained for the duration of the study. Prior to this study, power scalers were not included in the chemical cleaning scheme. The Clinic had been idle for six weeks before the start of the fall semester. A single chemical cleaning (Sterilex) occurred prior to the collection of water specimens. Analysis indicated unacceptable levels of microorganisms and the need for a shock treatment, which included chemical cleanings on three consecutive days. Collection of water specimens followed shock treatment and then weekly for one month. Water specimens from the three-way syringes and power scalers were spiral plated onto duplicate R2A agar plates. Incubation was at room temperature for seven days. Colonies counting then occurred with the numbers present expressed as colony forming units per mL (CFU/mL).

Results: Analyses prior to the shock treatment indicated incomplete removal of DUWL biofilms. The first sampling showed that none of the three-way syringes and only one of the power scalers produced potable water after sitting unused for six weeks and receiving only one chemical cleaning. Improvements in bacterial levels emitted by power scalers occurred following the shock treatment and the weekly cleanings - all of the power scalers emitted potable water. However, eight of the 50 water specimens collected over the period of this study from the three-ways syringes were unacceptable.

Conclusion: Results of the study suggest when using Sterilex as a line cleaning agent treatment for never before cleaned removable power scalers should include administration of an initial shock treatment followed by routine weekly maintenance. This practice resulted in the emission of potable water for the four-week duration of the study. Power scaler waterline maintenance should be an integral part of every infection control program.