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Use of antimicrobial rinses for reducing bacterial counts in dental unit waterlines. J KETTERING*, J STEPHENS, CA MUNOZ (Loma Linda University, School of Dentistry, Loma Linda, CA)

With the ADA limit of 200 cfu/ml in the dental unit waterlines by the year 2000, dentistry needs to evaluate methods to reduce DUWL bacterial colony counts. Studies have shown that the use of tap water in either an open water system or a self-contained water system yields significant colony counts in the lines after one-half hour of use no matter what type of antimicrobial solution is used to flush the waterlines. Our study compared the effectiveness of five antimicrobial solutions, placed in the waterlines and left overnight, in reducing the microbial count coming from the air/water syringe and the high speed handpiece lines. Fifty dental units with self-contained water bottles were divided into five equal groups. Baseline counts were taken from each unit in the study from both the air/water and high speed handpiece lines using standard tap water. The antimicrobial products tested were: 1. Original Listerine; 2. Rembrandt; 3. *Bio2000 (SteriSOL)*; 4. 0.5% NaF; 5. Dentosept. Distilled water was used in all of the self-contained bottles during the study. One ounce of each antimicrobial was used in the line and left overnight. The lines were flushed each morning for 30 seconds. To test the effectiveness of the products, water samples were taken from both lines of all 50 units weekly for six weeks and analyzed. Total heterotrophic plate counts (THPC) were measured using R2A agar. The mean baseline count was approximately 300,000 cfu/ml. All group baseline means were similar. Independent samples from both the distilled water and the school's tap water were also sent for analysis and control. Results show that all products reduce colony counts to 200 or less when used in conjunction with distilled water in a closed-water system. It is important to note that improperly stored distilled water can become contaminated. Although our study only evaluated the effectiveness of various antimicrobial products to reduce microbial counts in the dental unit waterlines, other factors need to be considered when selecting an antimicrobial agent, such as taste and **corrosive factors**.

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Detection of Oral Streptococci in Dental Unit Water Lines. P.A. SHEPHERD* and R.H. STAAT (University of Louisville, Louisville, Kentucky, USA)

It is readily accepted that most dental unit water lines contain microbial mats or biofilms which continually shed planktonic organisms as the water is utilized. It appears that the majority of organisms inhabiting biofilms are nonpathogenic bacteria typical of the environmental microflora; although, bacteria from the genera *Legionella*, *Pseudomonas*, and *Mycobacterium* have been isolated from water supply biofilms. We examined dental unit water lines from the offices of 35 private practitioners for the presence of planktonic organisms. Some dental units were relatively new and others were more than 20 years old. The data indicated that 33 of the 35 offices had bacteria suspended in the water lines and that all but one of the contaminated offices exceeded the recommended level for microbial load of 2×10^2 cfu/ml. Viable counts recovered on R2A agar incubated at 23°C ranged from 1.6×10^2 to 1.9×10^5 cfu/ml. Plates incubated at 37°C averaged about 30% fewer colonies. The majority of the organisms were gram negative rods. Evaluation of the waterline samples for oral streptococci using M/S agar incubated at 37°C showed that 29 of the 35 offices had contamination by oral streptococci (cfu/ml range: 1x100 to 2.6×10^3). Visual characterization of the colonies on the M/S agar indicated that a wide variety of oral streptococci were present and included colonies typical of *S. mutans*, *S. salivarius*, and *S. mitis*. It is concluded that bacteria from the oral cavity can contaminate dental unit water lines and can become a part of the biofilm found in these lines.