

**Comparison of Dentacide™ and Bleach in Treated Dental Unit Waterlines.** W.D. WARREN\*<sup>1</sup>, E.K. ESKEW<sup>1</sup>, G.A. SIEGEL<sup>1</sup>, P.B. SIEGEL<sup>1</sup>, V.L. THOMAS<sup>3</sup>, H.R. RAWLS<sup>2</sup> and B.A. SANFORD<sup>3</sup> (Biomedical Development Corp.<sup>1</sup>, University of Texas Health Science Center School of Dentistry<sup>2</sup> and Dept. of Microbiology<sup>3</sup>, San Antonio, TX).

The ADA's goal for the year 2000 is to improve the microbiologic quality of water in dental unit waterlines (DUWL) to  $\leq 200$  colony forming units (CFU)/mL of aerobic mesophilic heterotrophic bacteria. To meet this standard, we have developed a unique disinfectant, Dentacide™, for the chemical disinfection of DUWL. The objective of this study is to compare Dentacide™ to bleach which is currently recommended by A-dec for chemical disinfection of waterlines in their Self-contained Water System. Waterlines from 10 dental units in a dental clinic setting were evaluated. Waterlines in 5 dental units equipped with Dentacide™ Delivery Systems were treated with Dentacide™ overnight on a daily basis. After treatment, lines were flushed with tap water for two minutes to remove residual Dentacide™ from the lines. Dentacide™ did not come into contact with patients and was used at the end of the day after all patients were seen. Tap water was used for routine use of these units. The remaining 5 units were equipped with A-dec's Self-contained Water Systems and treated weekly with 1:10 diluted household bleach (0.525% sodium hypochlorite). Additionally, a solution of tap water containing ~3 ppm free chlorine was continuously used during patient treatments. Water samples (~5 mL) were collected weekly for 24 weeks (n=120) from the handpiece of each DUWL and plated on R2A agar to determine CFU/mL. Over the entire 24 weeks, 91% of samples from units treated with Dentacide™ were  $\leq 200$  CFU/mL while only 62% from bleach-treated units were  $\leq 200$  CFU/mL. In the last 12 weeks of the study, 97% of samples from units treated with Dentacide™ were  $\leq 200$  CFU/mL while 43% from the bleach-treated units were  $\leq 200$  CFU/mL. In conclusion, Dentacide™ appears to be more effective than bleach in maintaining  $\leq 200$  CFU/mL of aerobic mesophilic heterotrophic bacteria in DUWL. Funding was provided to Biomedical Development Corporation by the National Institute of Dental Research (2 R44 DE 11221-02).