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536 IDENTIFICATION AND SURVIVAL OF DISINFECTANT-RESISTANT BACTERIA IN THE DENTAL CLINIC

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Presentation Type: Poster Session

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Objectives: Removable surface-protecting disposable plastic barriers and disinfectant solutions are commonly used in dental clinics in order to sterilize surfaces and instruments from contaminations. In this study we isolated and identified 3 distinct bacteria from plastic barriers at the dental clinic, and compared the bactericidal effect of 5 different commercially available disinfectants on these bacteria.

Methods: After dental procedures, bacteria were collected from surface-protecting plastic barriers at the dental clinic. Bacteria were cultured aerobically on Trypticase Soy Agar plates at 37⁰C for 24hr, and 16S RNA analysis was used for the identification of 3 isolated and selected red, yellow, and white bacterial colonies. Bacteria were streaked on agar plates, exposed to the aerosol spray of Cavicide, Micrylium, OPTIM 33TB, UNISEPTA Plus and PureGreen-24 disinfectant solutions. Plates were incubated for 24hr to determine the extent of bacterial growth on the agar surface.

Results: Microscopic analysis demonstrated that the red colony was comprised of rod-shaped bacteria, while the white and yellow colonies were comprised of coccoid-shaped bacteria. Using 16S RNA analysis, these three isolates were identified as *Bacillus infantis*, *Staphylococcus haemolyticus* and *Pantoea calida*, respectively. Interestingly, *S. haemolyticus* is an oral and skin bacterium, whereas the other two are non-oral airborne bacterial species. All the disinfectants efficiently killed *B. infantis*. However, *S. haemolyticus* survived the exposure to OPTIM and PureGreen-24. While exposure to Micrylium or UNISEPTA was highly effective in killing *Pantoea calida*, this bacterium was relatively resistant to Cavicide and OPTIM disinfectants. *P. calida* was the least susceptible to PureGreen-24 aerosol spray and demonstrated luxurious bacterial growth on the agar surface.

Conclusions: This study demonstrates that following dental procedures provided to patients, oral as well as and non-oral airborne bacteria could contaminate surfaces at the dental clinic. Furthermore, not all commercially available disinfectant solutions can sufficiently and effectively kill these contaminants. ♦

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Keywords: Bacterial, Disinfection/sterilization, Effectiveness, Evaluation and Microbiology

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