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Antibiotic resistance in the oral bacterial community

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Purpose: This study was designed to define the antibiotic resistance index of the cultivable oral microbiome to Amoxicillin Clavulanic acid, Vancomycin, Ciprofloxacin, Clarithromycin, Chlorotetracyclin, Bacitracin, Kanamycin and Tobramycin using a new method adapted from the Kirby Bauer assay.

Method: Oral wash samples were collected from 2 current smokers and 2 nonsmokers. Bacterial community were pelleted by centrifugation and used to create a lawn for the assay employing standard disk diffusion assay. Zones of inhibition and number of colonies in the zone were recorded. Mean values of inhibition zones were compared to established databases to draw conclusions.

Result: The zones of inhibition of Bacitracin antibiotics shows that several bacteria from one of the non smokers were resistant to Bacitracin, while the smokers showed marked susceptibility.

Conclusion: The new method developed in our lab yielded consistent set of data which serve as criteria for determining resistance of the oral microbiome to antibiotics. Quite remarkably, it is known that pathogenic beta Streptococci are susceptible to Bacitracin while non-pathogens are not; confirming that healthy persons harbor the healthy strains of streptococci. However the unanswered question is Could these normal biota pick up genes and become resistant too? Only time and human habits will decide but we have developed a baseline and an easy method for testing.