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**Efficacy of Chlorhexidine Gel on Reduction of *Streptococcus mutans* in Head Start Children. OLSON D\*, DRAKE D, KANELIS M, DAWSON D. Univ. of Iowa**

**Introduction:** One of the challenges facing the dental profession relative to early childhood caries is the development of effective, low-cost preventive strategies that can be implemented in settings where high-risk children are accessible. Chemotherapeutic agents that target *Streptococcus mutans* have been recognized for their ability to prevent dental caries. **Purpose:** The purpose of this study was to evaluate the ability of a novel 1% chlorhexidine gel to reduce *Streptococcus mutans* levels in Head Start children and to determine whether a chlorhexidine brushing program is reasonable to perform on young children in a preschool setting. **Methods:** A longitudinal, double-blind study was performed using fifty-four children 3-5 years of age from two Iowa Head Start centers. Subjects were divided into three groups: (1) No Treatment group (n=18), (2) Placebo Gel group (n=18), and (3) 1% Chlorhexidine Gel group (n=18). An Investigational New Drug application was approved by the FDA for use of the 1% chlorhexidine gel and parental consents were obtained. Participants in the gel groups had a chlorhexidine or placebo gel brushed on their teeth at baseline. The principal investigator used a toothbrush to apply 0.50g of gel (0.25g per arch) for a total of one minute. The No Treatment group received a dry brushing of the dentition. Plaque swabs were collected at baseline before treatment and at one week, two weeks, three weeks, and four weeks following treatment. Plaque samples were cultured on MSKB selective media. **Results:** Nonparametric Kruskal-Wallis analysis of longitudinal levels of *Streptococcus mutans* detected no significant differences between treatment groups ( $p = 0.57$ ). *Streptococcus mutans* infection at baseline was found in 26 subjects (48%). No side-effects were seen in any subjects following treatment. The raspberry flavored chlorhexidine gel proved acceptable to the children, with only one child in the placebo gel group expectorating prior to the time limit. **Discussion:** Chlorhexidine gel is a promising new treatment for the prevention of dental caries. The chlorhexidine brushing program was simple to implement and did not disrupt the normal daily activities of the children. The lack of significant findings may be due to the study population's low prevalence of *Streptococcus mutans* infection and the overall good oral hygiene of the subjects. Further investigations should be targeted at subjects with known high levels of *Streptococcus mutans* and could include multiple treatments with chlorhexidine gel.