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## Implementation of a Peer-Evaluation Process

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***Purpose.*** Traditional dental hygiene education has focused on faculty evaluation of students. Recently, self-evaluation has been encouraged to assist students in enhancing their technical and problem-solving skills. No published studies were found on the use or effectiveness of peer evaluators in dental hygiene education. Peer evaluation was initiated to develop assessment skills without the inherent bias of self-evaluation. The purpose was to enhance clinical skills and evaluative abilities and document continued competence in selected clinical skills throughout the program. This study assessed students' attitudes toward the peer-evaluation process. Students often receive feedback from other students more positively than from faculty and learn by observing others in the same stage of learning.

***Methods and Materials.*** Students in their first clinical semester evaluated classmates on oral hygiene instruction, unit disinfection, polishing, and fluoride administration. Peer evaluators did not assign grades; they indicated only a "satisfactory" or "unsatisfactory" judgment on each item. At an orientation session, students were introduced to the concept of peer evaluation, given copies of the forms, and informed that their evaluations would have no impact on the course grade of the student being evaluated.

***Results.*** Over the course of the semester, 23 peer evaluators marked all items as "satisfactory"; only nine marked any items as "unsatisfactory." Number of U's given ranged from 0 to 13 per evaluator. For the semester, a total of 32 U's were given: 69% on unit disinfection, 16% on oral health instructions, 9% on polishing, and 6% on fluoride administration. The number of U's received ranged from 0 to four per sheet. At the end of the semester, students completed a 12-item questionnaire on attitudes and experiences as both a peer evaluator and the subject of peer evaluation. Using the Binomial Test, significantly more ( $P < .05$ ) students considered the process enriching and learned much about their own clinical skills. Significantly more ( $P < .05$ ) students were comfortable with the peer-evaluation process.

***Conclusion.*** This process was found to be valuable for the students, both as peer evaluators and as subjects of peer evaluation.

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## Preparing Students for Alternative Practice: Rewards and Barriers in Service Learning

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*Throughout the United States, an emphasis has been placed on: 1) access to oral health care with the publication of the Surgeon General's report on oral health in America and Healthy People 2010, 2) decreasing restrictive supervision laws as they relate to the practice of dental hygienists, and 3) service learning. Southern Illinois University in Carbondale (SIUC) defines service learning as a form of experienced education in which students engage in activities that address human and community needs, with structured opportunities intentionally designed to promote student learning and development. Junior and senior dental hygiene students participated as part of clinical and service learning requirements in a grant-funded dental sealant program. Serving as the sponsoring agency, the SIUC Dental Hygiene Program received funds from the Illinois Department of Public Health/Division of Oral Health (IDPH/DOH) to provide dental examinations and pit and fissure sealants for school-aged children who qualified for free or reduced-cost lunch or Medicaid/Kidcare. Initial funds were used to purchase portable equipment and supplies. The grant is currently in its second renewal period and SIUC is the only grantee that is operating within a dental hygiene program in the state. A major advantage of working from within a dental hygiene program is that the students serve as the largest human resource, along with a supervising staff dentist, one dental hygiene faculty member, and a graduate student assistant. The purpose of this activity was to not only provide sealants and preventive dental education to underserved elementary school children, but also to enhance the dental hygiene students' experiences working outside a formal clinical setting. This experience provided a snapshot of one aspect of dental hygiene practice in public health and community outreach settings. Since April 2001, the SIUC sealant program has had an overall sealant retention rate of 84.22%, based on the total number of teeth sealed divided by the total number of retained sealants. Feedback was solicited from students regarding their experiences with the program from a short three-item survey. All self-reported responses are based on 19 total students representing 32% of the population eligible to participate in the service learning activity, but constitute a 100% return rate. A total of 47.3% (n = 9) gained self-confidence from the experience working as a team and providing caring and compassionate care. Approximately 80% (n = 15) noted that they felt proficient in applying sealants in an environment other than the dental hygiene clinic. Students cited that providing care for children was rewarding; they were not just "scaling teeth" and enjoyed working in a non-formal setting. Barriers to this learning opportunity included the fact that not all dental hygiene students and elementary school students were able to participate, the need for advanced planning, and the dental supervision requirement. Further opportunities need to be developed to augment service learning that focuses on access to care issues.*

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## Project Mouthguard

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*Project Mouthguard was funded by the Illinois Department of Public Health to change the policy concerning the wearing of protective custom mouthguards by children in grade school through high school, regardless of socioeconomic status. Under the stipulations of the grant, the program was to be eventually extended to reach children in programs that sponsor sporting events within the community. The sponsoring agency was the Southern Illinois University at Carbondale (SIUC) Dental Hygiene Program, which looked at the possibility of implementing Project Mouthguard as an additional opportunity for students to learn and work through a grant-funded program. Program funds were utilized to purchase equipment and supplies, with the intent to provide treatment at various sites. A private practitioner provided a venue away from the dental hygiene clinic. Project Mouthguard is in its initial phase of implementation within the SIUC Dental Hygiene Program; therefore, determination of its success is anecdotal. Dental hygiene students were able to participate in the program by assisting with the taking and pouring of impressions, as well as the fabrication of the appliances. Advantages for the dental hygiene students included gaining practical experience working with dental materials such as alginate, gypsum products, and mouthguard materials beyond the classroom or laboratory. As an incentive, students were given clinical credit, and some students received credit for community service through their respective fraternal organizations. Project Mouthguard was expanded to meet the needs of children that participated in the Give Kids a Smile Program, sponsored locally by the SIUC Dental Hygiene Program, and nationally by the American Dental Association. During the special program, dental technology faculty and students assisted with the fabrication of the appliances. Children receiving the appliances on the same day not only had a quality, custom mouthguard made with the best in modern equipment and current technology, but it was also an exemplary demonstration of what collaboration between two separate entities within the dental profession could accomplish in a short time frame. Another advantage for the dental technology students was that they further gained applied experience beyond their laboratory setting, and the dental technology faculty could apply this to service to the community for merit. Furthermore, Project Mouthguard will serve as a mechanism for future collaborations between dental hygiene and dental technology faculty and students. To date, a total of 24 of 31 children (77.4%) have actually received mouthguards from the grant-funded program. The children ranged in age from 8 to 18, and all of them indicated participation in at least one sport. Currently, the Illinois Department of Public Health has no data collection system employed for monitoring the use of mouthguards in sporting activities, and it would welcome any input gathered from its grantees. The dental hygiene program has now been provided the impetus for adding to the existing body of knowledge as it relates to attitudes and perceptions of athletic coaches regarding the wear of protective mouthguards, and for coaches to evaluate existing policies or to create new policies that pertain to this preventive measure.*

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## **Collaborative Project in Web Site Development**

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*The Internet has had a tremendous impact on society. It has become not only an initial source for information, but also a venue for capitalism, commercialism, and consumerism. Consequently, new graduates need to be savvy in the use and aware of the advantages of the Internet. The purpose of this project was to 1) introduce to the students the use and advantages of the Internet, 2) establish a collaborative effort among the faculty and students to design a project for the Internet, 3) introduce and identify the benefits of an online Web site for the students in the dental hygiene program at Weber State University, 4) decide on type, content, quantity, and quality of the Web site(s), 5) learn and create a Web site using Web site development software. The result of this project was the creation of two Web sites: a student site for those in the dental hygiene program and a site for the program's clinic manual that could be accessed chairside and at off-site facilities. The student Web site has pages that include a student registry, calendar of events, a listing of first- and second-year courses with links to course Web sites, a SADHA page, and a dental related links page. The clinic manual site has the entire program clinic manual hyperlinked and organized for easy navigation. During the development process of the project, the students negotiated and signed contracts with the faculty regarding expectations and outcomes. The group, as an assessment tool of the final project, created a rubric. The rubric covered information regarding the overall general design, text, navigation, links, and graphics of the Web sites. Once the architectural frameworks of the sites were created, they were launched with URL addresses. The group met weekly to evaluate and discuss the two sites' need for improvement. Evaluation was done by the solicitation of anecdotal feedback from student peers, an observation of the "hit" counters that were on each site, and the developed rubric combined with the opinion of the students and faculty who worked on the project. The results of this evaluative process revealed the student site to be informative and user-friendly. A new webmaster position was created within SADHA to provide for future maintenance of the student site. In addition, the clinic manual, while helpful and convenient in its current form, needed further organizational management. This was achieved through the incorporation of pages with frames for the heavily text-laden components of the manual. As with anything that is technology related, evaluation for content and relevancy will continue to be ongoing. This project has been fulfilling and beneficial for both the students and the faculty. In the future, Weber State dental hygiene faculty and students will continue to work collaboratively to create innovative projects using technology.*

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## **Salivary Mutans Streptococci and Caries Incidence in Middle School Children in Rural Washington State**

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***Funding for this project was provided by the National Institute of Dental and Craniofacial Research, National Institutes of Health, Grant #U54 DE14254.***

***Purpose. Streptococcus mutans is the primary organism associated with dental caries, an infectious, bacterial, and multi-factorial disease that remains the world's most common biofilm-related dental disease. However, the relationship between caries experience and the salivary mutans streptococci (MS) load is controversial. By understanding this relationship, we might better link caries activity to microbial diagnostic tests and improve caries management. This study aims to determine if caries experience in children is associated with salivary bacterial load of MS.***

***Methods and Materials. We acquired adult institutional review board consent from parents and consent from their children to conduct oral examinations and collect buccal and salivary samples. A total of 149 children (88 female, 61 male; 11-15 years) were recruited. Overall, the children were healthy, with 91.8% having no history of major disease. Most children had permanent dentition (80.4%). The children presented with no decay (35%), low decay (32%, <3 D+F), and high decay (33%, =3 D±F) surfaces. From the 149 children, 20 with high caries experience and 20 with no caries were selected for study of salivary MS levels. The estimation of bacterial load in saliva was determined by radio-labeled ribosomal RNA probes using 10-fold dilutions of saliva samples. The lowest dilution at which salivary MS was detected was scored for correlation with caries experience. These data will be analyzed using the student's t test once all samples are assayed.***

***Results. To date, 29 samples have been assayed, 16 from the high-caries group and 13 from the no-caries group. The high-caries children showed detectable salivary MS at dilutions of 102 and 103, while the no-caries group showed a wide distribution of detection ranging from 102 to 106. Thus, the high-caries group had lower levels of salivary MS than the group with no caries. One possible explanation for this surprising result is that MS in high-caries children may have greater adherence to teeth and, therefore, have low concentrations in saliva.***

***Conclusion. These results emphasize the multi-factorial nature of the dental caries process in which bacteria, diet, oral hygiene, and genetic factors all contribute to the overall risk for caries.***

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## **The Effects of Relaxation Training on Dental Anxiety and Pain Perception During Dental Hygiene Treatment**

Lynne C Hunt, Mary George, Rebecca Wilder, William Maixner and Susan Gaylord

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*This study was funded by the ADHA Institute for Oral Health.*

***Purpose.** Dental anxiety affects a significant proportion of the population and can lead to avoidance of dental care. Anxiety levels are strongly correlated to pain perception during dental and dental hygiene treatment. Relaxation training has been shown to reduce anxiety and pain perception during dental treatment. The primary purpose of this exploratory study was to examine the effects of a short, simple relaxation intervention on dental anxiety and pain perception during a dental prophylaxis.*

***Methods and Materials.** A convenience sample of 17 (nine females, eight males) dentally anxious (Corah's Dental Anxiety Scale/DAS), healthy subjects between the ages of 18 and 60 were recruited by advertisement in two local newspapers and flyers distributed throughout the campus of the University of North Carolina. Institutional review board approval was granted in April 2002. Subjects were allocated by block randomization into the experimental group (relaxation training) and the control group (standard treatment). All subjects received quadrant scaling divided among three visits, with the experimental group receiving the relaxation training at the second visit. Blood pressure and reported pain perception was recorded prior to scaling, at midpoint, and after scaling at all three visits.*

***Results.** For the control group, no indication of statistically significant differences in blood pressure occurred between visits 1 and 2, 1 and 3, and 2 and 3 ( $P > .06$ ). For the experimental group, statistically significant differences occurred between visit 1 and 2, 1 and 3 ( $P < .05$ ), but not 2 and 3. This trend was consistent for all timings of blood pressure recording. Average pain expectation scores (0-100 scale with 100 = most painful) for the control group was 43 (SD = 29), 32 (SD = 18), 21 (SD = 19) and 62 (SD = 29), 41 (SD = 27), and 33 (SD = 27) for the experimental group. Expected pain repeated measures ANOVA analysis revealed no statistical difference between groups. Average DAS for the control group prior to the first visit was 15.22 (SD = 1.7) and, after the final visit, 11.44 (SD = 2.5); and for the experimental group 14.6 (SD = 2.3) prior to the first visit, and 10.87 (SD = 2.8) after the final visit.*

***Conclusion.** Subjective impressions of the principal examiner and the consistency in the direction of change after relaxation training indicated the training did have an effect on blood pressure. Both groups reported reductions in expected pain scores between visits and DAS scores between screening and post-treatment visits.*

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## **Obstetricians' Knowledge of and Practice Behaviors Concerning Periodontal Disease and Preterm Low Birth Weight**

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*Funding for this project was provided by the ADHA Institute for Oral Health.*

*Purpose. Recent evidence has shown that periodontal disease may be a risk factor for preterm low birth weight (PTLBW). This study assessed obstetricians' knowledge and practice behaviors concerning periodontal disease and its possible effect on preterm low birth weight.*

*Methods and Materials. One hundred ninety-four practicing obstetricians in a five-county area in central North Carolina were surveyed. Second and third mailings were sent to non-respondents. Descriptive statistics, chi square, and Fisher's exact tests were calculated using SAS software (Cary, NC). Fifty-five obstetricians in the population were ineligible because they had retired, were no longer practicing obstetrics, or were no longer in the study area.*

*Results. Of the remaining 139 eligible obstetricians, 55 responded, yielding a 40% response rate. When asked about the cause of gingivitis (95%) and periodontitis (67%) most answered correctly. When asked about risk factors for periodontal disease, most correctly indicated bacteria (94%), tooth decay (73%), aging (69%), and excess dietary sugar (51%). When asked if they looked into patients' mouths, 22% did so at the initial visit, 9% did so periodically, and 48% did so only when a problem was mentioned by the patient. When asked if they recommended dental examinations, 49% responded rarely or never. When asked about risk factors that may contribute to PTLBW, 99% responded maternal smoking, 94% responded preeclampsia, 84% indicated periodontal disease, and 79% indicated bacterial vaginosis.*

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## **Ease and Comfort of the Anterior Middle Superior Alveolar Nerve Block Using a Computer-Controlled Anesthetic Delivery System**

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***Purpose.*** Many dental patients have preconceived thoughts concerning pain upon the injection of local anesthetic. Dental clinicians have the task of achieving successful anesthesia with a minimum of patient discomfort. The Anterior Middle Superior Alveolar (AMSA) nerve block achieves pulpal and lingual soft tissue anesthesia for the maxillary central incisor through the maxillary second premolar, without collateral anesthesia of the face or lips. This injection is accomplished using a computer-controlled anesthetic delivery system. The purpose of this pilot study was to determine ease of administration, degree of anesthesia achieved, and perceived comfort level of the patient when the AMSA technique is utilized.

***Methods and Materials.*** A small convenience sample of nine senior dental hygiene students enrolled in the University of South Dakota Department of Dental Hygiene was selected to participate in this study. Selection criterion was limited to students who chose to complete their local anesthesia competency at one of two pre-selected operatories. Study participants administered the AMSA injection to a student partner following a brief orientation to the Dentsply Comfort Control Syringe® and the correct injection technique. Operators administered 0.9 ml of lidocaine with epinephrine 1:100,000. The operator and student partner completed separate surveys to evaluate the injection technique.

***Results.*** Using a scale of 1 to 5, respondents rated the ease of administration, comfort of the injection, and degree of anesthesia, with a score of 1 equaling a high degree of success and 5 equaling a low degree of success. Respondents rated ease of injection with a mean score of 1.56. The student partner rated the comfort of receiving this injection with a mean score of 1.75 and the degree of anesthesia with a mean score of 2.25.

***Conclusion.*** The authors of this study concluded that this injection was easy to administer, relatively comfortable to receive, and achieved effective anesthesia.



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## **Optimum Travel Distance of Dental Aerosols in the Dental Hygiene Practice**

Catherine Bowden Milejczak

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***Purpose.** Dental hygienists have a legal and ethical responsibility to prevent disease transmission. Dental aerosols are produced from mechanized instruments used in dental hygiene treatment protocols. These aerosols can contain blood, saliva, and bacteria combinations that can produce potentially harmful air contaminants (bioaerosols). Current health issues such as the continuous changes in HIV/AIDS rates, the increase in number of people infected with the hepatitis C virus, the reemergence of tuberculosis, the increase in number of people with respiratory infections, the recent outbreak of Severe Acute Respiratory Syndrome, and the number of immunocompromised individuals seeking dental care has triggered a re-evaluation of infection control procedures. The American Dental Association, the Centers for Disease Control and Prevention, and the Organization for Safety and Asepsis Procedures have issued recommendations for the reduction of dental aerosols. Though invisible to the human eye, aerosols can potentially cause severe diseases to both oral health care workers and their clients. The purpose of this study is to determine how far bioaerosols travel and if the aerosols linger beyond the client appointment time (usually one hour or less). Knowledge of the distance that these bioaerosols travel and the amount of time they remain airborne will enable the clinician to employ better aseptic techniques, employ personal protective equipment, and create a safe environment for both the dental clinician and the dental client.*

***Methods and Materials.** The operator conducted five timed mock trials of 20 minutes for each instrument type (sonic scaler, ultrasonic scaler, and air abrasive). A DataRAM Real-Time aerosol monitor designed to measure airborne particulate concentrations was used to measure the aerosols. The measurements were recorded during three phases (pre-procedure, procedure, and post-procedure) at eight specified distances (30 cm increments). The data were organized into an analysis of variance table (block design) and a factorial balanced design method (8 x 4 x 3) of analysis of variance using repeated measures (means of the means) as conducted. A repeated measures design was used to control the extraneous variation of the study (location, air/heating, air currents). The analysis was computed using the Minitab statistic analysis program. A two-way analysis of variance of the data was used to determine if there were any significant differences in the means for the distance the aerosols traveled, the length of time the aerosols remained airborne, and the concentration amounts of aerosols produced from each machine.*

***Results.** The results of the study demonstrated that particulate concentrations were present for 240 cm (nearly eight feet) and, while the greatest concentration of particles were present at the end of the procedure, a mean aerosol amount of 0.022 units was still present two hours past the procedure. The greatest amounts of aerosols were found during all time trials in the 30 to 90 cm range (1-3 ft), which is in the operators' work zone.*

***Conclusion.** The study demonstrated that the ultrasonic scaler produced more aerosols than the sonic scaler and the air abrasive instrument at each measured time. Conclusions from this study support the necessity of the dental hygiene health care provider using measures to reduce aerosols in the dental hygiene operatory. This includes the use of high volume suctioning devices (large-bore suction tips, funnel shape attachments), pre-procedural rinsing, properly wearing*

***personal protective equipment, good ventilation air recirculation in the operatory, and properly disinfecting areas where splash, splatter, and aerosols may contaminate.***

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## **Access to Oral Health Care in Virginia**

Jackie S Perry, Deanne Shuman, Margaret Green and Gayle McCombs

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*Funding for this study was provided by ADHA.*

*Purpose. Multifaceted and interrelated barriers exist in attaining access to oral health care for citizens of Virginia. As a proactive effort to improve oral health care access in Virginia's underserved communities, the Virginia Dental Hygienists' Association conducted a statewide survey of licensed dental hygienists. The purpose of this study was to assess the awareness, availability, preparedness, and commitment of the dental hygiene workforce to meet the preventive oral health needs of underserved populations.*

*Methods and Materials. In May 2000, a questionnaire was mailed to 2,530 Virginia dental hygiene licensees. The self-designed questionnaire contained 23 questions divided into four categories: demographic and professional data; practices and procedures relative to primary employment setting; regulatory and health care changes; and opinion about legislative issues. Responses were close-ended with the exception of the legislative issues. Questions and results were analyzed using SPSS software (Chicago, IL) to obtain frequency distributions and percentages.*

*Results. A 42% response rate was obtained for the survey. The majority of dental hygienists were employed in private, general practices under direct supervision. Fee-for -service was the majority payment mechanism accepted at the respondents' primary place of employment. The majority of dental hygienists, 93%, believed that the following populations were in need of increased access to care: indigent children and adults, the uninsured, the elderly, the homeless, the mentally and physically challenged, the homebound, nursing home residents, and underserved rural area residents. Respondents indicated that if they could receive direct reimbursement for services, they would be willing to seek employment in other settings such as schools, assisted living residences, long-term care facilities, hospitals, day care centers, rural and urban health care facilities, and health departments.*

*Conclusion. It could be concluded from this study that the majority of the respondents are aware of the dentally underserved populations in Virginia and are prepared to meet the needs of these groups if reimbursement for their services was available.*

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## **Survey for Teaching Patient Education in the Dental Hygiene Curriculum**

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***Purpose.** The primary objective of this descriptive study was to assess if and when dental hygiene curricula provide practice opportunities to students in teaching patient/client oral health self-care techniques and whether that experience was prior to their first clinical experience.*

***Methods and Materials.** The survey collected data through the use of descriptive research utilizing a two-page questionnaire containing some open-ended items. The survey was mailed to all 255 accredited dental hygiene programs in the United States and Puerto Rico in August 2000, and 174 were returned. There was no pilot testing. The primary mailing resulted in a 68.2% return rate, so a second mailing was not considered necessary. Program administrators were asked to fill in their responses or pass the survey to the faculty in the program who taught preventive dentistry. The participating respondents were asked to describe the preventive dentistry portion of their curriculum by checking lists in the survey and/or by writing in responses in the space provided. Specifically, respondents were asked to indicate how their program evaluated students on teaching patients self-care techniques in a preclinical and clinical setting.*

***Results.** Almost half of the responding dental hygiene programs reported providing a preventive dentistry course. The other half incorporated the appropriate information in a preclinical course. Approximately 80% of programs responding offered a unit in their curriculum that focused on patient education, and almost 80% evaluate students' patient education technique before they begin working in a clinical setting. The results of the survey revealed that nearly all programs view patient education as highly important and would strongly agree that patients should be able to demonstrate mastery of their newly learned techniques.*

***Conclusions.** The results indicate that competency in students' teaching patient/client oral health self care techniques is a priority for dental hygiene programs. The data collected in this descriptive study suggests that a majority of dental hygiene programs are offering patient education units in their curriculum and requiring practice opportunities for students before their initial clinical experience. Programs that do not focus as much on patient education proficiency may wish to review their curricula in order to offer such opportunities to better prepare their students prior to clinical experiences. In fact, it is recommended in the Accreditation Standards for Dental Hygiene Education Programs (Sections 2-16) that "sufficient practice time and learning experiences should be provided during preclinical and clinical courses to ensure that students attain clinical competence. The number of hours devoted to clinical practice time should increase as the student's progress toward the attainment of clinical competence."*

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## **Effects of Daily Oral Care with 0.12% Chlorhexidine Gluconate and a Standard Oral Care Protocol on the Development of Nosocomial Pneumonia in Intubated Patients: A Pilot Study**

Michelle Bopp, Michele Darby, Karin Loftin and Sharon Broschious

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***Purpose.*** The purpose of this pilot study was to determine if nosocomial pneumonia rates differ among intubated patients who received twice-daily oral hygiene care with a 0.12% chlorhexidine gluconate (CHX) agent and those who received the standard oral care six times daily while in the critical care unit (CCU).

***Methods and Materials.*** Twice-daily oral hygiene care consisted of brushing the cheeks, teeth, and endotracheal tube with a suctioning toothbrush, using a 0.12% CHX antimicrobial agent with the experimental group (two intubated patients in the CCU). The control group (three intubated patients in the CCU) received the standard oral care with a soft foam swab and half-strength hydrogen peroxide. Oral care was performed by the nursing staff.

***Results.*** Results revealed that one person in the control group developed nosocomial pneumonia. None of the subjects receiving the CHX protocol developed nosocomial pneumonia.

***Conclusions.*** Findings suggest that twice-daily oral hygiene care with a 0.12% CHX agent may reduce the risk of nosocomial pneumonia in intubated patients more than the six-times-daily standard oral care protocol, which does not include the use of an antimicrobial solution. Twice-daily oral hygiene care with 0.12% CHX as a nosocomial pneumonia reduction strategy within hospital critical care units requires further testing on a larger sample.

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## **Comparison of the Use of a Toothpick in a Toothpick Holder to Dental Floss in Improvement of Gingival Health**

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***Purpose.*** *In light of the current trend toward host modulation of inflammatory response in periodontal therapy, it is important to control the bacterial challenge to the host immune system through conventional therapy and improvement of personal oral hygiene. Toothbrushing and flossing are currently the standard methods for achieving adequate plaque control. While studies show that people are generally compliant with daily toothbrushing, they are less likely to use dental floss daily. This purpose of this study was to compare the effect of dental floss and the use of a toothpick in a toothpick holder as determined by chance in specific indices used to measure gingival health.*

***Methods and Materials.*** *Potential subjects were solicited from the University of Tennessee Health Science Center's faculty, students, staff, and dental school patient population. Those with clinical gingivitis or mild periodontitis were included in the study sample. O'Leary Plaque Index, Interproximal Plaque Index (IPI), and Eastman Interdental Bleeding Index (EIBI) scores were recorded at baseline and at each following appointment. Fifty-five subjects (42 females, 13 males) ranging in age from 18 to 50 were randomly assigned to either a dental floss group or a toothpick in a toothpick-holder group. Subjects were individually instructed in the use of the assigned plaque removal device and were examined at weeks two, six, and 12 from baseline.*

***Results.*** *At 12 weeks, 27 floss users and 20 toothpick in a toothpick-holder users completed the study. For both groups, plaque index scores were lowered as the study progressed. Mean O'Leary Plaque Index scores decreased significantly for both methods from baseline to week 12 ( $P < .05$ ). The EIBI and IPI mean scores decreased over time for each method ( $P < .05$ ).*

***Conclusions.*** *The results of this study suggest that dental floss users and toothpick in a toothpick holder users were both effective in removing plaque and in decreasing gingival bleeding scores. The use of either could result in improving gingival health.*

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## Frequency of Dental Prophylaxis and Glycemic Control in Type 2 Diabetes

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***Purpose.** Both diabetes and periodontal disease are common chronic diseases. It has been established that diabetes adversely affects periodontal health. Evidence is also increasing to support treating periodontal infection to improve glycemic control in people with diabetes. This evidence comes from reports of intervention studies evaluating the effect of treating patients with varying periodontitis severity in controlled settings. Reports on the relationship between frequency of dental prophylaxis and glycemic control are sparse. The purpose of this analysis was to test the hypothesis that people who report more frequent or more recent dental prophylaxes are more likely to have better glycemic control.*

***Methods and Materials.** We analyzed screening data from 240 university hospital clinic and HMO subjects with type 2 diabetes, who were recruited for an ongoing clinical trial to investigate whether recency of dental prophylaxis appointments was associated with glycemic control as measured by level of hemoglobin A1c (HbA1c). Bivariable analysis and multiple regression modeling were conducted to evaluate associations of HbA1c with continuous and categorical variables collected from interviews and clinical examinations. The primary explanatory variables of interest were responses to interview questions on time elapsed since dental prophylaxis appointments.*

***Results.** In bivariable analysis of numerous demographic, medical, and behavioral variables, only oral diabetes medication/insulin usage status ( $P = .03$ ) and doctor-recommended frequency of checking blood glucose levels ( $P < .01$ ) showed statistically significant associations with HbA1c. Results from multiple regression modeling indicated that race/ethnicity, education level, and doctor-recommended frequency of checking blood glucose levels were significant predictors ( $P < .05$ ), while diastolic blood pressure, low activity level, and current tobacco use were marginally non-significant predictors ( $P > .05$ ). Time elapsed since dental prophylaxis appointments showed a positive but statistically non-significant association with HbA1c in both bivariable ( $P > .25$ ) and regression analysis ( $P = .2$ ).*

***Conclusion.** Further, more rigorous investigation of predictors of HbA1c is needed to determine if recency and frequency of dental prophylaxis contribute to glycemic control in subjects with diabetes.*