2014 DENTSPLY Posters

The Role of the Dental Hygienist in Screening for Sleep Apnea

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Problem: Sleep apnea (SA) can contribute to a variety of serious health problems and often goes undetected. Dental hygienists are in a good position to assess patients for SA, but limited research exists on the feasibility of incorporating SA screenings into dental hygiene appointments. The purpose of this exploratory study was to obtain information about dental hygienists' attitudes, acceptance of and perceived barriers to performing screening for SA during a dental hygiene appointment.

Methods: Sixteen practicing dental hygienists were recruited to complete a pre-screening survey, screen 5 patients for SA using the Berlin questionnaire, and then complete a post-screening survey. Individual screening time and accuracy determining a Body Mass Index (BMI) were recorded during the screening process. Data were analyzed using descriptive statistics, Spearman's rho and Wilcoxin signed-rank test.

Results: A total of 81 patients were screened and 30% were identified to be at high risk of having SA. Participants determined the BMI correctly for 89% of patients, and the mean time spent on screenings was 4.49 minutes. Pre-screening survey results showed 25% of participants felt that it was very important for dental hygienists to screen patients for SA, compared to 50% post-screening. Participants reported patient's willingness as the most important issue when considering incorporating SA screening into practice.

Conclusions: Results suggest dental hygienists can provide patients a valuable health service by including SA screening as part of routine health assessment. Dental hygienists recognize the importance of screening patients for undiagnosed medical conditions and are proficient at conducting these screenings.

Barriers to Membership in the American Dental Hygienists' Association in the State of Georgia

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Professional associations must have a significant level of membership to be effective. Georgia membership is increasingly low; therefore, ADHA cannot represent dental hygienists' interests. This study determined factors that caused dental hygienists to continue to forgo membership in the ADHA. Several theoretical views of professional membership were considered. The population was acquired from an unbiased systematic sampling of 50% (3,270) of registered dental hygienists and a convenience sampling of ADHA nonmembers at 2 continuing education seminars in Georgia. Data collection procedures included an electronic cover letter, consent form, and survey via Survey Monkey or hard copies for seminars. Three-hundred and sixteen participated yielded a 9.6% return rate. Participants were primarily women, holding associate degrees and graduates of programs in Georgia. Participants worked full time in private practice, were satisfied with their working hours, and did not join GDHA because membership fee is too high or not sure of benefits offered. Twenty-one percent stated that lowering membership fee would entice them to join, and participants indicated they obtained their continuing education hours at the Hinman (52%) convention and online (27%).

Calculus Detection Calibration Among Dental Hygiene Faculty Utilizing Dental Endoscopy: A Pilot Study

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Dental and dental hygiene faculty do not provide consistent instruction in the clinical environment especially in tasks requiring clinical judgment. From previous efforts to calibrate faculty in calculus detection using manikins, researchers suggested using emerging technology in calculus detection to improve the consistency of clinical faculty instruction. Therefore, the purpose of this pilot study is to determine if a training program, designed to improve calibration of dental hygiene faculty members in calculus detection using an ODU 11/12 explorer, manikins and dental endoscopy, will affect intra- and inter-rater reliability levels for faculty receiving training compared with faculty who do not receive training. This pilot study will recruit participants from the dental hygiene faculty at Sacramento City College and will utilize a 2 group randomized experimental design. Intra- and inter-rater reliability levels will be measured before and after the calibration training. Pre- and post-training Kappa averages of all faculty participants will be compared to determine the effectiveness of the calibration training on intra- and interrater reliability levels. To evaluate for any variances between sample groups, ANOVA analysis of the Kappa averages will be calculated.

Use of Immersive Visualization for the Control of Dental Anxiety During Dental Prophylaxis

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Purpose: The purpose of this study was to determine the effectiveness of immersive visualization therapy in anxious patients during an oral prophylaxis.

Methods: A split mouth design was utilized in a convenience sample of thirty adults (7 males and 23 females). Subjects were randomly divided into two groups: group A (immersive visualization on the right side), and group B (immersive visualization on the left side). Subjects received a full mouth oral prophylaxis, always starting with the right side. At screening medical and dental histories, oral examinations and Corah's Dental Anxiety Scale-Revised (DAS-R) were performed. Individuals who scored a 9 or higher on the DAS-R presented with no severe dental calculus, severe periodontal disease, severe dental caries or medical contraindications were enrolled. At baseline the DAS-R was validated. The Calmness Scale was scored pre- and post Immersive visualization treatment. After the full mouth prophylaxis, subjects completed a post-immersive visualization Opinion Survey.

Results: Results showed there was no statistically significant difference in anxiety level between groups, based on DAS-R ($p=0.69$). There was a statistically significant correlation between Calmness Scale and gender ($p=0.01$); females report higher anxiety levels than men. Ninety seven percent of the subjects responded positively to the use of immersive visualization eyewear during treatment.

Conclusion: The use of immersive visualization eyewear during oral prophylaxis can be an effective method to control anxiety.

The Effect of Piezoelectric and Magnetostrictive Scaling Devices on Treatment Outcomes

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There are 2 types of ultrasonic devices used by dental hygienists: magnetostrictive (M) and piezoelectric (P). Research supports using these devices during prophylaxes/periodontal debridement, but there is little evidence determining which is superior. The purpose of this study is to determine if there is a difference in calculus removal effectiveness between these ultrasonic devices. A secondary purpose is to determine if patient and practitioner preferences exists between the units. Subjects included senior dental hygiene students and patients of The OSU College of Dentistry. This double blinded study employed a quantitative quasi-experimental randomized split mouth design on contra-lateral quadrants for the evaluation of calculus removed by each device. Five calibrated examiners recorded the presence of calculus on the quadrants assigned prior to and post treatment. Upon completion of each device, patients completed a visual analog scale (VAS) to gauge patient preference and each student completed a 5-point Likert survey to measure practitioner preference. Sixteen of 40 subjects completed the study. Preliminary data reveals the M device removed more calculus than the P device (73% vs 70%, respectively). Results from the student survey reveal the M device was more user friendly than the P device (1.6 vs 2.5, respectively). Other areas of practitioner preference were comparable. Results from the patient VAS reveal M is preferred for discomfort, vibration and noise factors. Although this study is still in progress and being analyzed for statistical significance, current data suggests the magnetostrictive device is superior for calculus removal, patient and practitioner preference.

The Use of Restorative Procedures Among Allied Dental Health Personnel in Minnesota

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Background: In 2003, the Minnesota legislature revised the Dental Practice Act to include restorative functions in the scope of practice for dental assistants and dental hygienists. This study examined the impact of this change on dental practice.

Methods: A survey was mailed to all restorative function (RF) certified professionals (n=387) in Minnesota to determine how RF was being utilized and by whom. Descriptive statistics were used to summarize the data. T-tests and Fisher's exact tests (p-value<0.0001) were used to make comparisons between groups.

Results: There was a 63% response rate. Less than half (38%) of the participants licensed to perform RF were utilizing this skill. Of those using RF in practice, 71% were dental assistants. Increased access and an increase in the number of patients treated were perceived by respondents as outcomes of RF.

Conclusions: The results of this survey indicated the impact of restorative functions on statewide dental practice has been limited. More dental assistants reported using restorative functions than dental hygienists. The practice location of those using restorative functions was nearly equally distributed between urban areas and Greater Minnesota. Practitioners who obtained their restorative function training through a continuing education program were more likely to use their skills than those who received their training within their professional curriculum. Perceptions of those utilizing this function indicate a positive impact on clinical practice.

Assessing Evidence-Based Practice Knowledge, Attitudes, Access, and Confidence Among Dental Hygiene Educators

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Purpose: To assess U.S. dental hygiene educators' evidence-based practice (EBP) knowledge, attitude, access, and confidence utilizing the KACE assessment instrument, which was designed and validated for dentistry by Hendricson et al.

Methods: A cross-sectional survey was conducted with a sample of dental hygiene faculty from 334 U.S. dental hygiene schools, which included 246 associate dental hygiene programs and 88 baccalaureate dental hygiene programs. ANOVA and Pearson correlation coefficient statistical analysis were conducted to investigate whether significant differences or a correlation exists between selected demographic variables and the level of knowledge, attitudes, access and confidence in applying evidence-based principles toward patient care.

Results: The response rate was 37% (n=124). Analysis showed a positive correlation between confidence scores and knowledge, attitude and access scores. Study findings also revealed that faculty that held advanced educational degrees scored significantly higher in EBP knowledge and confidence.

Conclusions: The level of EBP knowledge, attitude, access and confidence has been shown to increase with additional education. Therefore, more EBP training may be necessary for faculty that do not possess advanced degree levels of education. Further incorporation of EBP into dental hygiene curricula may occur as dental hygiene educators' knowledge of EBP increases, which in turn could enhance students' acquisition of EBP skills and their application of EBP principles toward patient care.

Oral Health in the Pediatric Primary Care Setting: A Survey of Attitudes and Practice Behaviors of Physician Assistants Nationwide

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Oral health is a topic absent from the required curriculum for physician assistants, therefore, it is unclear if physician assistants are comfortable or willing to apply fluoride varnish and incorporate oral health topics within their practice. This study sought to determine the oral health training practicing pediatric primary care physician assistants have received and to evaluate the current practice behaviors of physician assistants in regards to oral health. Surveys were distributed to 194 physician assistants at three PANCE board review courses across the country. Twenty-five valid surveys were returned (n=25), and 80% (n=20) indicated that they did not feel as though they had received adequate oral health education prior to licensure. Mann-Whitney U tests were performed to test the null-hypotheses. There was a slight difference in mean rank when evaluating the physician assistant's comfort level in regards to applying fluoride varnish; however, no statistical significance was present. These tests were also performed to determine the difference between the perceived need for more oral health education prior to licensure and the physician assistant's comfort level in performing certain oral tasks. No statistical significance was evident between the perceived need for additional education and the comfort level of the PA prescribing fluoride supplementation ($U=30$, $p=0.123$, $r=-0.309$). While further research is recommended, physician assistants seem generally willing to incorporate oral health into their practice but believe that further education is necessary.

Physician Evaluation Among Dental Patients who Screen High-Risk for Sleep Apnea

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Introduction: Obstructive sleep apnea (OSA) is increasing in prevalence, widely undiagnosed, and a precursor of significant pathology. Collectively these features point to the public health salience of OSA screening in clinical settings. This study sought to investigate the feasibility of screening for OSA risk in a dental practice and to examine the response of patients to a recommendation for physician evaluation.

Methods: A convenience sample of 119 adults was recruited at a community-based dental practice. OSA risk was assessed using the validated STOP screening questionnaire and overnight pulse oximetry. Patients classified as high-risk on one or both instruments were advised to seek physician evaluation within 3 months. Three months later, patients were asked by telephone if they had sought physician evaluation. Prevalence ratios (PR) with 95% confidence limits (95% CL) were estimated using a log-binomial regression model in which the binary dependent variable was physician evaluation. The independent variable was OSA risk classified as low-risk on both instruments or high-risk on: STOP only, pulse oximeter only or both instruments. Covariates were age, sex, body mass index and daytime sleepiness.

Results: Among 119 patients, 50.4% screened high-risk on STOP questions, 58% on pulse oximetry, and 31.9% screened high-risk on both instruments. Physician consultation information was obtained from 111 patients (93.3%). Of those patients who screened high-

risk for OSA, 35.3% (n=42) sought physician evaluation. There was no difference in consulation behavior between patients who screened high-risk on STOP questions alone compared to those at high-risk on pulse oximetry alone (PR=1.42, 95% CL: 0.51, 3.94). Likewise, subjects classified high-risk on both instruments were not significantly more likely to consult a physician than those at risk on the STOP questions alone (PR=1.91, 95% CL: 0.73, 4.99).

Conclusion: Dental patients were equally receptive to seek physician evaluation when screened high-risk for OSA on one instrument versus both. Findings have implications for establishment of recommendations for clinically-based OSA screening.

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Admission Requirements for A.S. Degree Dental Hygiene Programs: Implications for Admission Committees

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Admission requirements for Associate Degree dental hygiene programs differ from program to program. The purpose of this study was to determine which admission requirements were most commonly used by these programs.

To determine differences, a 13 question survey was developed and distributed via Survey Monkey. One–hundred and thirty–four associate degree dental hygiene program directors that participated in the Council on Interstate Testing Agency (CITA) during 2013 received questionnaires to determine program admission requirements. An email with the Survey Monkey survey link and a letter of consent and study explanation was sent. A 2 week window response deadline was given to the study population. A follow up reminder email was sent at 1 week to ensure participation. Two additional reminder emails were sent to potential participants with the last email stating the survey should take no longer that 10 minutes and results of the survey could be mailed to participants upon request to further garner participation.

Based on a small response rate (37%), this study concluded an admissions rubric/use of a points system was the more widely used admission instrument. Included in the rubric were high school and college GPA, entrance exams such as ACT, SAT, Test of Essential Academic Skills (TEAS) and Career Readiness Test, grades earned in science prerequisite courses, and observation of a dental hygienist prior to entering a dental hygiene associate degree program. Future research should include increasing participation for this study and determining which admission requirement(s) will identify students who will matriculate and subsequently well represent the dental hygiene profession.

Oral Health Knowledge of Eating Disorder Treatment Providers

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Purpose: The aim of this study was to explore oral health knowledge and opinions of eating disorder professionals.

Significance: Individuals with eating disorders require significant preventive and/or restorative dental treatment as a result of this disorder, and many lack access to appropriate oral care during treatment.

Methods: A descriptive, exploratory survey of licensed behavioral and medical health providers assessed level of oral health related education, knowledge and treatment recommendations. An invitation to participate in a web-based survey was sent via electronic newsletters and/or list-servs to three professional eating disorder organizations. An inability to track the use of electronic media within the study time frame precluded an exact number for the study population, however, the proportion of respondents (n=107) directly corresponds to the framework of the eating disorder treatment team.

Results: Of the respondents who completed surveys, a majority (64.4%) reported dissatisfaction with their level of oral health education, and 19.5% reported no oral health education. Respondents consider their knowledge of clients risk for oral disease as average or above (84%), and ranked tooth erosion as the greatest reason for oral care (63%) while dry mouth led in the rankings for least significant (33%). Referral for oral care was found to be more common after reports of complication (55%).

Conclusions: Eating disorder professionals may lack understanding of associated oral risk factors, and current oral guidelines. Oral care providers should be considered for inclusion within the eating disorder treatment team.

Assuring Dental Hygiene Clinical Competence for Licensure: A National Survey of Dental Hygiene Program Directors

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Purpose: To conduct a national survey of dental hygiene program directors to gain their opinions of alternative assessments of clinical competency, as qualifications for initial dental hygiene licensure.

Methods: A 22 question survey, comprised of statements eliciting Likert-scale responses, was developed and distributed electronically to 341 U.S. Dental Hygiene program directors. Responses were tabulated and analyzed using Qualtrics® computer software. Data were summarized as frequencies of responses to each item on the survey.

Results: The response rate was 42% (n=143). The majority of respondents (65%) agreed that graduating from a Commission on Dental Accreditation (CODA) approved dental hygiene program and passing the national board examination was the best measure to assure competence for initial licensure. Most (73%) agreed, "The variability of live patients as test subjects is a barrier to standardizing the state and regional examinations." The statement that the one-time state and regional examinations have "low validity in reflecting the complex responsibilities of the dental hygienist in practice" had a high (77%) level of agreement.

Conclusion: Most dental hygiene program directors agree that graduating from a CODA-approved dental hygiene program and passing the national board examination would ensure that a graduate has achieved clinical competence and readiness to provide comprehensive patient-centered care as a licensed dental hygienist.

Do Cardiologists Refer Patients for Periodontal Evaluation?

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Purpose: The association of periodontal disease and atherosclerotic vascular disease is proven in current scientific literature. However no empirical evidence exists to suggest cardiologists recognize this link or collaborate with dental professionals to improve health outcomes for their mutual patients.

Methods: This qualitative research study utilized grounded theory methodology. A standardized open-ended interview with 12 questions provided data to examine the beliefs and practices of five cardiac specialists. Theories were developed that help explain the central phenomenon of a perceived lack of professional collaboration between cardiology and dentistry.

Results: Results imply that while study participants accept the oral-systemic link as associative and relevant to cardiovascular disease, they are not convinced treating periodontal disease or collaborating with dental providers will affect health outcomes. Theories that emerged to support these findings are: (a) periodontal disease has not been proven causal, (b) cardiac practitioners' lack of time; must focus on well known risk factors, (c) if something is obvious about the patient's oral health, it will be discussed with patient, (d) cardiologists adhere to practice standards and guidelines, and (e) collaboration will only happen when dentist initiates it.

Conclusion: Study findings suggest because patients are not likely to hear about the oral-systemic link at the cardiology office, dental professionals should be prepared to address the oral-systemic link when providing oral care. Additionally, because cardiologists are not formally trained to detect all types of oral infection, and do not routinely refer to dentists for evaluation; the opportunity for medical and dental collaboration is overlooked.