

2015 CLL POSTER ABSTRACTS

A Study of Nutrition in Entry-Level Dental Hygiene Education

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Problem: Though CODA (2013) requires nutrition be incorporated in dental hygiene education to the extent that students have the ability to provide oral health services that include analyzing and synthesizing interrelationships of whole health systems (CODA, 2013), CODA, the ADEA and the ADHA do not specify competencies, standards or recommendations to ensure adequate knowledge of nutrition and the ability to perform nutrition assessments and counseling. Without specific standards, determining whether dental hygiene students are receiving adequate information to incorporate effective nutrition assessments and counseling is impossible to ascertain. A specific nutrition education model may be useful to address the possible lack of nutrition knowledge and to implement an effective standard. To develop an adequate nutrition model, an analysis of current curriculum content needed to be conducted.

Objective: The purpose of this study was to document the extent of nutritional information included in dental hygiene program curricula, identify perceptions and barriers to expanding nutritional content within the curriculum, and determine the need for a proposed nutrition curriculum model.

Method: This was a mixed method study involving qualitative and quantitative aspects. An invitation letter was emailed to all 335 entry-level dental hygiene program directors in the United States to determine interest in participating in this study. Fourteen nutrition instructors and 10 program directors were interviewed regarding their perceptions and opinions of nutrition education for dental hygiene students, and 55 course syllabi were analyzed.

Results: All aspects of the content analysis results revealed nutrition content in entry-level dental hygiene programs is diverse. Some programs did not include nutrition content, while others provided oral and whole health nutrition intervention subject matter. Some programs offered multiple applied clinical applications and patient contact opportunities while most required none. The interview results disclosed a variety of opinions and perceptions of dental hygienists' role in nutrition. Several interviewees viewed

dental hygienists' role in nutrition to be an integral part of patient care, while others indicated the role is minimal to provide caries prevention or none.

Conclusions: Nutrition is an integral component of oral and general health. Recommendations for teaching nutrition in entry-level dental hygiene programs exist. However, nutrition education for entry-level dental hygiene students varies throughout U.S. institutions. Some programs require nutrition as a prerequisite, some teach nutrition content within other courses throughout the curriculum, while others provide a stand-alone course. Opinions and perceptions of the dental hygienists' role in providing nutrition interventions and the essential nutrition content are also diverse. Without a standard of nutrition knowledge for dental hygiene students, clinical dental hygienists are not able to reliably provide an expected standard to patients in need of nutrition interventions. This study implies that dental hygiene students may or may not have the knowledge to provide necessary nutrition counseling to their patients, or the wisdom of when and where to refer. Therefore, a proposed standard nutrition model created for dental hygiene interventions within the dental hygiene care plan is recommended.

Leadership in Degree Completion Programs- A Study Comparing Stand-Alone Leadership Courses versus Leadership-Infused Curricula

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Problem: Equipping future dental hygiene professionals with leadership skills is essential for advancing the dental hygiene profession. Leadership skills are necessary in many facets of the dental hygiene profession including research, education, licensure and regulation, public health, and government; however, leadership in dental hygiene education appears to be lacking. According to a survey of degree completion programs, only 31 percent of the responding programs reported a stand-alone leadership course in the core curriculum. Portillo et al. affirmed that little is known about the subject of leadership in degree completion programs.

Objective: The purpose of this study was to compare the extent to which leadership is taught in degree completion programs by comparing stand-alone

leadership courses/hybrid programs versus leadership-infused curricula.

Method: This study was a mixed method approach using both qualitative and quantitative data. Personal interviews of (16) program directors and faculty members that teach either a stand-alone leadership course, a hybrid program or leadership-infused courses within the dental hygiene degree completion curricula were conducted and a comparison of 19 programs providing course syllabi determined the differences in the extent of leadership content and experiences between a stand-alone leadership course and leadership-infused curriculum. A self-designed matrix was created by utilizing leadership skills found in the text, "Leadership for Health Professionals: Theories, Skills, and Applications" as a framework for which the leadership skills taught in either stand-alone leadership courses or leadership-infused curricula were measured.

Results: Of the 53 dental hygiene programs that offer degree completion programs, 49 met the inclusion criteria. Thirty-nine percent of the responding programs provided course syllabi. Thirty-three percent of the program directors or faculty members that teach either a stand-alone leadership course or leadership-infused curricular courses participated in the interview portion of this study. Competencies related to leadership were not clearly defined or measurable. Overcrowded curriculum, limited qualified faculty availability, and lack of resources were barriers identified with leadership-infused programs incorporating a stand-alone leadership course.

Conclusions: The findings of this study provide a synopsis of leadership content in degree completion programs and information to support the notion of incorporating leadership into the core competencies of degree completion programs. Results of this study identified gaps of leadership education in both leadership-infused curricula and hybrid programs offering a stand-alone leadership course. Suggested changes to degree completion program curricula included the need for leadership competencies and more opportunities for leadership development offered to dental hygiene educators.

Visible Tattoos in Clinical Practice as Perceived by Dental Hygiene Students

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Problem: Increasing numbers of persons in the workforce have tattoos as body art has become more prevalent among varying age groups, ethnicities and

professions, despite negative perceptions. Whether one agrees or disagrees, physical appearance influences the professional image of health care providers and tattoos have been reported to diminish professional image and credibility.

Objective: The purpose of this study was to determine perceptions of 39 junior dental hygiene students toward visible tattoos and professionalism in the clinical setting.

Method: The IRB approved survey was completed by thirty-nine junior dental hygiene students via Survey Monkey. The questionnaire consisted of 14 questions in three sections: A) demographics ; B) photographs of tattoo conditions displayed by the same individual in short sleeved scrubs: no visible tattoo, small tattoo on wrist, and large sleeve tattoo on the arm. C) number of tattoos participants had and their attitude toward visible tattoos in health-care. Participants rated each photograph on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) with regard to how ethical, responsible, hygienic, competent, professional and caring the individual appeared in the photographs.

Results: When comparing mean group scores the photo without a tattoo scored the highest (better) in all categories, whereas the intense sleeve tattoo, consistently scored the lowest. When comparing no tattoo to sleeve tattoo, there was a significant difference with regard to appearing ethical ($p < .05$, 3.95 and 3.67) and caring ($p = .05$, 4.10 and 3.85) respectively. Both the intensely and mildly tattooed individuals scored significantly lower compared to the individual without tattoos with regard to appearing responsible and professional. There was no statistically significant difference between tattoo conditions with regard to individuals appearing competent or hygienic. Data revealed 46% of the respondents believe tattoos should be covered in the workplace. Thirty-eight percent of the respondents had a tattoo; however, 87% reported that their tattoo was not visible while wearing short-sleeved attire and none were visible on the neck or hairline. Eighty percent self-reported between 1-3 tattoos and 13% had 7-10 tattoos.

Conclusions: Results suggest that dental hygiene students perceive small tattoos as acceptable in the clinical setting; however, larger sleeve tattoos are less accepted. Participants did not believe visible tattoos should be covered in the clinical setting although they indicated a clinician with a visible full sleeve tattoo appeared to be less professional. These findings provide insight for educators as they prepare individuals to enter the workforce and for students and others as they contemplate decisions about obtaining body art.

Enhance Pre-Clinical Lab with Self-Directed Learning Activities

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Problem: As a dental educator, understanding the adult learner is critical for teaching clinical skill development. Each instructor must realize that each student learns in different ways and at a different pace. This concept that adults learn differently has initiated a new form of teaching/learning where learning is self-directed, and the teacher is viewed as a facilitator of learning. Self-directed learning (SDL) allows the student to be a partner in the learning process and emphasize teaching the adult learner "how to learn." It challenges the student to be more engaged in the learning process and become an educational partner.

Objective:

- Employing a self-directed approach to learning.
- Developing clinical skills at one's own pace.
- Experience a positive environment for learning.
- Analyze one's skill development through self and peer evaluation.

Method: Pre-clinic lab has two sections. Section A is instructor guided skill development at a 1:3 instructor/student ratio. Section B is the SDL lab where students are given activities that are self-directed, skill-specific, and goal-oriented. These activities include instructional videos, skill sheet exercises, and self- and peer evaluation of clinical skills being developed in the lab sessions.

Results: SDL activities call for a student to demonstrate self-motivation, determination, and responsibility - the driving factors behind self-directed learning. Through the process of instructor, peer, and self-evaluation, students are provided the opportunity to become aware of their strengths and weaknesses. Students may learn better from their peers because they feel more comfortable. Also, students often want instant gratification; therefore, setting smaller, obtainable goals helps students focus on the task at hand.

Conclusions: Incorporating the SDL activities into pre-clinic has been a huge success thus far. Using the following SDL activities did enhance the pre-clinic lab as well as the learning environment.

Instructional Videos - Students watch instructional videos and completed skill sheet exercises at their own pace. This allowed each student to be self-directed and take responsibility in the learning process.

Peer Teaching and Evaluation - Students completed a detailed skill activity sheet with a student partner while teaching and evaluating the student's performance. This information gave each student immediate feedback and encouragement.

Cell Phone Recordings - Students record and evaluate a specific skill performed by a student partner. This recording is used for both peer and self-evaluation. This provided each student with an opportunity to become more aware of his or her own strengths and weaknesses.

Interprofessional Collaborative Approach to Screening, Brief Intervention, and Referral to Treatment (SBIRT)

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Problem: Teaching dental hygiene students interviewing techniques presents a challenge when the subject area is uncomfortable or unfamiliar, such as screening for alcohol, tobacco and other drug (ATOD) use/misuse.

Objective: The objective of the program was to increase educate dental hygiene students on how to work with patients presenting with ATOD use/misuse. Screening, Brief Intervention and Referral to Treatment Program (SBIRT) was utilized to teach students how to effectively screen, provide education and feedback on ATOD use and associated risks to patients being treated in the dental hygiene clinic.

Methodology and Statistics: The dental hygiene students (n=30) learned SBIRT skills during scheduled interprofessional standardized patient sessions. The simulated cases addressed alcohol ATOD use, with emphasis on oral manifestations and implications. Students completed the AAPPQ and DDPPQ, which are measures of attitudes and perceptions toward working with individuals with alcohol and other drug issues, at pre-training, post-training, and post-simulation. Data were analyzed using within-subjects, repeated-measures ANOVA. Students' SBIRT skills were rated using a Competency Rating Scale. This project was determined as exempt by the University of Pittsburgh Institutional Review Board.

Results: On both the alcohol and drug perception measures, role security scores increased significantly across pre-training baseline, post-training and post-simulation. For AAPPQ role security, $F(2,22)=14.38$, $p<0.01$, and for DDPPQ role security, $F(2,21)=7.0$, $p<0.01$. Overall therapeutic commitment scores did not increase significantly across the three time points on either the AAPPQ or DDPPQ. Increases in alcohol role security were accounted for by pre-training to post-training difference ($F(2,22)=19.1$, $p<0.01$), whereas increases in therapeutic commitment were due to increases from post-training to post-simulation ($F(2,21)=8.22$, $p<0.01$). Contrasts on the DDPPQ were not significant. Simulation competency ratings showed that students learned and applied SBIRT skills with standardized patients.

Conclusions: These results indicated that the SBIRT training and simulation contributed to improvements in role security and therapeutic commitment around working with patients with alcohol issues, respectively. SBIRT simulation was an important component of the overall program that contributed to solidifying skills and attitudes in students. Students demonstrated an increased willingness to interact with and show empathy toward patients who presented with a history of ATOD use. Students can now integrate the SBIRT model during the assessment phase of their dental hygiene care appointments. They also learned how to participate in an interprofessional approach to the delivery of patient care.

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Interdisciplinary "Senior Dental Toolkits" to Enhance Oral Health Education for Nursing and Dental Hygiene Students

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Purpose and Goals: Dental hygiene students learning in collaboration with nursing students has the potential of improving overall health outcomes for seniors/older adults. This project supports the National Dental Hygiene Research Agenda (NDHRA). The goal of this innovative oral health educational practice is to promote interprofessional health education (IPE) for dental hygiene and nursing students at Wichita State University in Wichita, Kansas, utilizing a senior dental toolkit.

Significance: Currently, there is a gap in Interprofessional education regarding preventive treatment, oral care techniques and tools for older adults, especially those who are frail. This project demonstrates two strategies to bridge the gap in education, prepare

future health professionals and impact the overall health of older adults. Utilization of the information and tools may benefit older adults and prevent future episodes of pneumonia. Studies show older adults who live in long term care facilities are more likely to die from pneumonia than from any other cause.

Key Features: Utilization of an oral health education toolkit will better equip students in their chosen careers to provide and promote oral health care for older adults. A power point presentation entitled "Senior Smiles 2012-A Survey of the Oral Health of Kansas Seniors Living in Nursing Facilities," was presented to both dental hygiene and nursing students. Following the presentation, dental toolkit contents were described and demonstrated for future use in the dental hygiene clinic and/or at a long term care facility. Toolkit contents included: 1) Surround toothbrush, 2) mouth prop, 3) denture care items, 4) pen light, 5) disposable mirror, and 6) fluoride varnish.

Evaluation Plan: Following the interdisciplinary presentation, nursing students completed a pilot questionnaire. The evaluation plan involved a reflective questionnaire including: 1) information learned, 2) feelings about brushing another's teeth, 3) performing an oral screening, 4) challenges that might occur, 5) recognizing healthy teeth, gingiva and structures, 6) suggestions about additions to the kit and 7) the interdisciplinary learning experience. The reflective questionnaire to evaluate the effectiveness of this IPE presentation will be completed for 36 dental hygiene students together with 28 nursing students in spring 2015.

Funding for this grant was provided by Patterson Dental Supply, Wichita, Kansas.

Valuing Dental Hygiene Students in an Interprofessional Education Event

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Problem: Dental hygienists (DH) are underutilized in interdisciplinary collaboration, and what utilization that does take place is not well studied. In addition, oral health is not seen as part of total general health care by other health care professionals. As interprofessional education (IPE) becomes an important tool in developing a collaborative health care model for patients, the importance of oral health should be recognized as a vital component.

Objective: The primary goal of this study was to evaluate an IPE event at a Midwest university to determine if the concept of oral health was valued by other health care students.

Method: Students (n=180) from seven disciplines participated in an IPE simulated case study. Faculty from each discipline developed standardized patients with appropriate symptomatology to engage each discipline. The case centered on a patient with oral human papilloma virus (HPV). Teams were comprised of students who were in their program's final academic year including dental hygiene (DH), physician assistant (PA), physical therapy (PT), speech language pathology (SLP), health services management & community development (HSMCD), and doctor of nursing practice (DNP). The evaluation tool of this learning activity included both quantitative and qualitative responses. The responses to the open-ended evaluative questions were analyzed by constant comparative analysis. This process entailed using open coding followed by selective coding to conceptualize the data.

Results: The following three themes emerged: (1) Valuing others roles was a common theme as stated by comments such as, "I had a lack of knowledge regarding HPV and no one in my group understood the disease or prognosis except DH students", and "I learned more about how oral health relates to other fields and can apply it to medical situations." (2) Working as a team emerged with statements such as "I learned the importance of healthcare teams to increase patient health is essential." (3) Lacking knowledge was seen as a barrier that was overcome with others expertise; "I know my strengths and weaknesses as a profession and how other professions can contribute, and not hesitate to ask for others help/input."

Conclusions: In this setting, the DH students were viewed as a valuable resource in guiding the IPE team towards oral health care decisions. It is important to include oral health as part of overall health assessment of patients, and the DH students were perceived as an integral part of the healthcare team.

Effect of Yoga on Musculoskeletal Pain in Dental Hygiene Students

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Problem: Musculoskeletal pain has been associated with work stress and a shortened career in the dental hygiene profession. Finding effective strate-

gies for dental hygiene students to incorporate into their daily or weekly routine to prevent and manage musculoskeletal pain is important to support a long and satisfying career.

Objective: The purpose of this study was to determine if participating in two yoga sessions per week would impact the musculoskeletal pain reported by dental hygiene students.

Method: This study used a convenience sample of 83 dental hygiene students divided between a yoga treatment group and a control group. Students in the yoga group participated in bi-weekly, 60-minute yoga sessions for 13 consecutive weeks. Students completed a questionnaire and a Comparative Pain Scale evaluation prior to and immediately following the study to assess their musculoskeletal pain. Additionally, the Omron HBF-514C Full Body Composition Sensing Monitor and Scale was used to measure body mass index (BMI), body fat, and muscle prior to and upon completion of the study. Paired sample t-tests and independent t-tests were used to analyze the quantitative data.

Results: Thirty-seven dental hygiene students participated in the yoga group and 38 were assigned to the control group, with an average age of 23.8 years. Most participants were female (91.5%), with 36.6% non-Caucasian. Students reported experiencing musculoskeletal pain in their lower back (32.9%), hands/fingers (31.8%), and neck (28.3%). An independent sample t-test revealed there was no significant difference on the pre-study Comparative Pain Scale between the yoga group and the control group (p=.393). The treatment group reported a significant decrease in musculoskeletal pain after participating in the yoga sessions (p=0.001), while the control group had no significant decrease (p=0.881). The average pre-study BMI score was 23.7, with 73.6% of participants within the normal BMI range. There was no significant difference between pre- and post-study BMI scores for the yoga treatment group (p=.984) and the control group (p=.901). Additionally, there was no significant difference in reported outside exercise activity between the yoga treatment group and the control group (p=.782).

Conclusions: This research supports that bi-weekly yoga sessions are beneficial in decreasing musculoskeletal pain in dental hygiene students, and statistical analysis supports this change independent of outside exercise activity. This study concludes that yoga is a viable complementary health approach to incorporate into a student's routine to increase the health and longevity of a dental hygiene career.

Disaster Preparedness and Response: A Survey of U.S. Dental Hygienists

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Problem Statement: Disaster preparedness and response is achieved through multidisciplinary efforts; yet, challenges exist with identifying and organizing trained responders. A review of the literature related to this specialty area indicates that dental hygienists' involvement is limited in consideration of the estimated 150,000 hygienists across the U.S.

Objective: The purpose of this study was to determine dental hygienists' interests, formal education, views, comfort levels, and intentions for becoming involved in disaster preparedness and response efforts during mass fatality incidents (MFIs), which is currently unknown.

Methods: A convenience sample (N = 400) was recruited for an online 21-item, researcher-designed survey. IRB approval was obtained to conduct the survey, which was pilot tested by 10 dental hygiene faculty members at Old Dominion University (ODU). The sample included dental hygienists who attended the 2014 ODU continuing education conference and hygienists belonging to four closed groups on the social media website, Facebook.

Results: A response rate of 83.5% (N = 334) was attained. Regardless of years of work experience, 85.6% of respondents were significantly interested in disaster preparedness and response ($p=.000$), and the majority (91.6%) of those who indicated interest have intentions of becoming involved ($p=.000$). A significant number of respondents (92.8%) had not received formal education in disaster preparedness and response ($p=.000$), yet an overwhelming 94.9% shared the view that dental hygienists could have a vital role in this specialty area ($p=.000$). When dental hygienists were questioned about comfort levels with disaster victim identification (DVI) activities, mean perceived comfort levels with activities that involved no contact with human remains were 9% higher than mean comfort levels related to activities requiring contact. Still, most respondents indicated perceived comfort with DVI activities requiring physical contact such as: taking photographs (76.2%, $n=254$), taking radiographs (83%, $n=273$), resecting the mandible (55.1%, $n=184$), and cleaning skeletonized remains (66.8%, $n=221$).

Conclusion: Dental hygienists view themselves as professionals who could have a vital role in this specialty area and are comfortable with DVI related

tasks. Dental hygienists are interested in disaster preparedness and response. More training opportunities are needed to learn about and to participate in disaster preparedness and response. Competency training should be more readily available to create educational opportunities for dental hygienists who choose to serve their communities.

Bridging the Theory-Practice Gap with Dental Hygiene Instrumentation Videos

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Problem: Dental hygiene educators are challenged to bridge the theory-practice gap with innovative teaching strategies to enhance the educational experience and meet diverse learning needs of students. Instrumentation videos are a relatively new adjunct to teaching dental hygiene skills to students and there is a lack of evidence concerning the use of videos in dental hygiene education.

Objective: The purpose was to explore current student use of and satisfaction regarding instrumentation videos in dental hygiene education to improve student learning in the clinical environment.

Method: A quantitative, descriptive, survey research design was employed using a convenience sample of first year dental hygiene students ($n=143$). The instrument used contained 26 questions regarding demographics, effectiveness of instructional aids, appeal of instructional aids, general satisfaction with instructional aids, and two open-ended questions about value and benefit to the student. The anonymous survey was administered electronically online. Data was analyzed using descriptive statistics and nonparametric Spearman correlation tests at an alpha threshold of 0.05. Qualitative data from open-ended questions was analyzed using thematic analysis to identify common themes. IRB approval was obtained.

Results: The majority of participants were Caucasian (58%) females (91%) between the ages of 18-24 years (67%), pursuing an accelerated baccalaureate degree in dental hygiene (72%), and reported having access to technology outside of the educational environment (97%). Roughly one-third of participants listed English as their second language (35%). The most prevalent response to all 5-point Likert scale questions regarding the effectiveness, positive appeal, and general positive satisfaction of the instructional aids was "Agree" (range 37% - 55%). The majority of participants used the instructional aids while practic-

ing (83%). Correlation tests showed participants who listed English as a second language were less likely to feel the instructional aids were effective, found the aids less appealing, and were left less satisfied ($p < 0.05$). Additionally, participants who practiced while using the aids were more likely to list the aids were effective, had appeal, and were left satisfied than participants who watched the aids but did not practice with them ($p < 0.05$). Thematic analysis of the data identified recurring themes in student responses suggesting dental hygiene instrumentation videos are beneficial to student learning. Common themes that emerged were helpfulness in outside practice to clarify, reinforce, and visualize skills learned in the clinical setting.

Conclusions: Instrumentation videos can be a valuable resource to aid in closing the theory-practice gap in dental hygiene education. Further research is warranted.

Root Caries Lesions in Geriatric Patients Reveal a Surprising Collection of Disease-Associated Bacteria

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Problem: The microbiology of root caries has been an ongoing area of study for several decades. As the frequency of elderly patients keeping their natural teeth increases so does the incidence of root caries in this population, in part due to the increased exposure of roots upon gingival recession.

Objective: The aim of this study is to identify the bacteria associated with root caries in geriatric patients and compare them with the bacteria associated with healthy exposed roots in the sample patient pool to determine whether certain bacterial species are more prominent in root caries of geriatric patients.

Method: In this ongoing study four patients, 65 years of age and older, with a total of 11 root caries lesions were enlisted. Dental plaque was obtained using a sterile curette and removing supragingival plaque from root surfaces. Within each patient we obtained a plaque sample from the diseased tooth and the contralateral healthy tooth (22 plaque samples) to compare the microbiota within the same patient. Plaque samples were placed in a sterile tube containing 2 ml PBS buffer with 10% glycerol as a cryoprotective agent and the sample was stored at -80°C . Upon thawing, 0.5 ml of sample was subjected to lysis and chromosomal DNA purification. Purified DNA was quantified and used as a template for PCR analysis with primers designed to detect specific organisms of interest, including: *Streptococcus mutans*, and *Actinomyces* species. In addition, plaque samples were diluted in PBS and plated

for isolation of single colonies after growth for 3-7 days in an anaerobic chamber in order to assess microbial diversity and observe any caries-specific microbes based on colony morphology. Any such caries-specific microbes will be isolated and sequenced to identify the bacterial species.

Results: Initial results indicate that only one of the diseased teeth had detectable *S. mutans* colonization, while three were positive for *Actinomyces*. However, there was no difference in the presence of *Actinomyces* between carious and healthy teeth (3 carious teeth were positive and 3 healthy teeth were positive). Based on colony morphologies the carious teeth showed at least three unique disease-associated strains. Future analyses will identify these species by DNA analysis.

Conclusions: Our initial analyses show root caries lesions were no more highly associated with *S. mutans* or *Actinomyces* species than non-carious plaque samples. Some unique caries-specific bacterial strains were observed by colony morphology and their identity will be determined by DNA analysis.

Oral Health of Elderly Residents in Long-Term Care Facilities: A Qualitative Study Examining Barriers, Solutions, Policies, Rules, and Regulations

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Problem: The population with the poorest oral health is older individuals living in long-term care facilities. It is anticipated the population of those 65 and older will double in the next 40 years due to the aging of the baby boomer generation. The major growth of this population will affect the amount of elderly residents needing long-term care in nursing homes and other facilities. Because many of the residents of long-term care facilities rely on the staff for oral care, it is important for key staff members to know the administrative policies regarding oral care and the state and government regulations that exist regarding the oral health of residents.

Objective: The purpose of this study was to identify barriers, propose solutions, and address the policies, rules, and regulations that influence the conduct of oral health care in long-term care facilities.

Method: This study employed a qualitative design

consisting of semi-structured interviews conducted among key staff members of three long-term care facilities. Participants were selected using a convenience sample and included three administrators, three nursing directors, one registered nurse, and five nursing aids. Interview items were generated based on the literature. Approval was first granted by the Human Subjects Committee (#4076) and consent was obtained by the administrators of the facilities. All participants provided their signed informed consent. Interviews were recorded, transcribed, and analyzed using a general inductive analysis approach.

Results: Five main themes emerged through this research: the oral health of residents, oral care provided to residents, barriers to care, solutions to improving oral care, and knowledge of administrative policies and state and federal rules and regulations. Most staff members, including facility administrators, were not aware of the administrative policies and state and federal rules and regulations concerning the management of oral health care in long-term care settings. This study pointed to the need for greater attention to protocols, rules and regulations for providing oral health care.

Conclusions: Inconsistencies were evident among the knowledge of staff members regarding state, federal, and facility policies, rules, and regulations. Given the lack of knowledge about oral health care for residents in long term settings, a logic model was proposed. This model can provide improved collaboration and support among caregivers. Improvement in the oral health of elderly residents in long-term care facilities requires the efforts of all caregivers, administrators, and oral health professionals.

Silver Diamine Fluoride, Ag (NH₃)₂F on Root Caries: A Review

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Objective: The aim of this study was to systematically review the present literature on the effect of Silver diamine fluoride on root caries.

Materials and Methods: The MEDLINE-PubMed, the ProQuest, and the Japan Medical Abstracts Society (JMAS) Web databases were searched through January 2015 to identify any appropriate studies. Silver diamine fluoride (SDF) and root/dentin caries were selected as search words.

Results: An independent screening of 19 MEDLINE-PubMed, 22 ProQuest, and 6 JMAS Web papers resulted in 8 publications that met the eligibility criteria. We

choice JMAS since SDF was developed in 1966 and it has been used in Japan for long periods. Two of six were randomized controlled clinical trials. Data extraction of two clinical trials provided a little evidence that the application of SDF was effective in elderly patients when annual application of SDF together with biannual oral hygiene instruction, and SDF as well as NaF and CHX were more effective in preventing new root caries than giving OHI alone. Three of six were in vitro studies showed the efficacy of SDF as an antibacterial agent and gaining re-mineralization. Three of six were reviews that evidence for the effectiveness of SDF in preventing dentin caries was weak.

Conclusion: Within the limitations of this review, it may be concluded that SDF may provide a beneficial effect on the root surface. We need more and better designed and reported interventions to fully assess the impact of SDF on the root surface and understand the appropriate uses of SDF clinical interventions.

Utilizing the Modified Mallampati Score System to Evaluate Patients for Risk of Airway Complications in a Dental Clinic Setting

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Problem: A life threatening medical emergency occurred with a patient diagnosed with Treacher Collins Syndrome. The non-sedated patient has a severe laryngeal spasm which totally occluded the airway.

Objective: A quality improvement project is proposed to implement the Modified Mallampati Score System for patients with craniofacial anomalies. By identifying individuals at risk for airway obstructions, appropriate precautions are incorporated in the treatment to eliminate potentially life threatening outcomes associated with a difficult airway.

Method: During the initial encounter of a patient with a craniofacial anomaly, a simple visual exam will be performed to identify a patient at risk. To perform the exam the patient will sit upright and be asked to open his/her mouth and protrude the tongue as far as they can. This will allow visualization and assessment of the position of the base of the uvula, faucial pillars (the arches in front of and behind the tonsils) and the soft palate. The patient will then be scored using the Modified Mallampati Score System as described below.

- Class I: Soft Palate, Uvula, Faucial Pillars visible.
- Class II: Soft Palate, most of the Uvula visible.
- Class III: Soft Palate, base of Uvula visible
- Class IV: Only Hard Palate visible.

Results: Once the classification is complete and

documented, the clinician will discuss with the patient and family the best and safest treatment option based on the Modified Mallampati Score of the patient. In most clinical settings, Class I and II are associated with the ease of treatment. Class III and IV demonstrate a potential difficulty with maintenance of the airway in a supine position. Precautions and treatment modifications are discussed with the patient and family in order to provide care in the safest manner possible. Since implementation of the program, no adverse outcomes or respiratory emergencies have occurred.

Conclusions: Implementation of the screening tool to identify patients at risk for medical emergencies has proven successful with our patient population. This screening tool can easily be incorporated into clinical practice. It can be performed rapidly by dental personnel after a simple demonstration. We recommend that patients with craniofacial anomalies or individuals with compromised airways undergo this screening prior to any dental care. The results should be incorporated in the dental record and reviewed at the start of every dental appointment.

UAMS Collaborative Care Pilot Program

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Problem: As the lowest tier of states meeting national dental health criteria, Arkansas is in the bottom quartile. Preparing dental hygiene students for collaborative community settings requires much more than didactic education. Students require a basic threshold of clinical skills to work in a collaborative setting. Producing technically competent graduates, who possess good communication skills, cultural competency, cultural sensitivity, and health literacy, is challenging for the traditional dental hygiene school curriculum.

Objective: Develop a collaborative care practice model for dentists and hygienists in Arkansas. Provide training to support oral health providers practicing in advanced dental roles. Additional objectives: improve oral health care for vulnerable under-served populations; increase the number of children receiving oral health education, oral prophylaxis, dental sealants, and fluoride varnish therapy; increase the number of elderly in long term care facilities receiving oral health education, oral prophylaxis, head and neck cancer exams, and fluoride varnish therapy; promote a collaborative care model to the students in the dental hygiene program as well as licensed dentists and dental hygienists in Arkansas; and promote the dental hygiene profession as a career opportunity to a diverse popula-

tion when providing treatment to elementary school children.

Method: UAMS faculty, three hygienists and one dentist licensed by the Arkansas State Board of Dental Examiners (ASBDE), will enter into a collaborative agreement established with the ASBDE. Upon the development and delivery of the collaborative care curriculum, collaborative care clinical rotations will be incorporated during the fall, spring and summer semesters. Underserved and vulnerable populations will be the target for the clinical rotations.

Results/Measurable Outcome(s): Measurements will consist of: number of patients treated; number and type of services provided; dates and number of Collaborative Care CE courses given; number of attendees for the Collaborative Care CE courses; pre-test and post-test scores for students in DHY 3334 and DHY 3245 Community Dentistry I and II; number of graduates from the program each year after the implementation of the curriculum; number and year of Collaborative Care I and II permits issued by the ASBDE.

Conclusions: Benefits from dental hygiene students' participation in collaborative care community-based settings includes evidence-based instructional methods allowing students to become adept in their ability to deliver cross-cultural care in alternative practice settings. Students are likely to enter into a collaborative care practice model if exposed to all aspects of that model as part of the dental hygiene curriculum.

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Recognition of the Anatomy of Airway Space as a Screening Tool for Obstructive Sleep Apnea

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Problem: Obstructive sleep apnea (OSA) is a common disorder that involves frequent, partial, or complete occurrences of upper airway obstruction affecting 15-24% of the population. However 70-80% of the cases are undiagnosed with the majority of individuals unaware of their condition. Dental professionals have the potential to identify factors in detecting this condition. In 1990, the cost of healthcare in the United States, linked to patients diagnosed with OSA was 275 million dollars.

Objective: Investigate the plausibility of utilizing the Mallampati Airway Classification as a screening tool for OSA to aid in the screening and diagnosis of OSA/OSAS.

Methods: The study was conducted by thirty two dental hygiene students and eight clinical faculty trained for the correct determination of Mallampati Airway Classification. Upon patient consent, a voluntary paper survey requested the following patient information: self-reported weight, age, gender, neck circumference (measured by students or faculty), history of snoring, sleep patterns, daytime sleepiness, xerostomia, previous OSA diagnosis, and previous sleep study conducted. Patients were classed as Mallampati Class I, II, III or IV. Surveys were coded, and entered into the SPSS for statistical analyses. Four questions were yes, no, not sure; three questions were seldom, often, daily; and one question quantified how often the patient awakened during the night; 1 time, 1-2 times, 3-4 times, 5-6 times, or more than 6 times.

Results: N = 270 completed surveys (10 surveys were incomplete). Gender participation was: 17 (64%) female; 98 (36%) male. Average weight was 168.4 (min = 96; max = 319 lbs.). Average neck-circumference was 14.9 (min 11.5; max 22). Thirty-four participants (12.6%) were previously diagnosed with OSA and 236 (87.4%) were not. Twenty-seven (79.4%) previously diagnosed patients had a Mallampati Class of III or IV, compared to only 7 (20.6%) who had Mallampati Class II and II ($p < .05$). Participants in Mallampati Class III and IV had statistically significant higher neck circumference ($M = 15.37$ $SD = 1.88$) and weight ($M = 15.37$ $SD = 1.88$) than participants with class I and II ($p < 0.01$). Ninety-seven (36%) participants in class III and IV reported snoring as compared to 39 (14%) who were in class II and II reporting snoring. Chi-square test of independence showed that snoring and class III and IV were dependent on each other, chi-square (2) = 16.78 ($p < .01$).

Conclusion: Mallampati Airway Classification and/or neck circumference may be a simple useful screening tool to identify potential OSA patients.

Determination of the Cleaning Ability, Relative Dentin Abrasion Level and Fluoride Uptake of Hello Fluoride Toothpaste

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Problem: Many products marketed as alternative toothpastes without artificial sweeteners and dyes lack clinical evidence supporting safety and efficacy of the products.

Objective: The purpose of this series of studies was to determine the in vitro stain removal effectiveness, abrasivity and fluoride uptake of an ADA-accepted dentifrice, Hello Fluoride Toothpaste.

Method: Stain removal and cleaning ability were measured using the Pellicle Cleaning Ratio (PCR) method and the Relative Dentin Abrasivity (RDA) method was used to measure abrasivity. The Enamel Fluoride Uptake (EFU) method was used to determine the effect of the test toothpaste on promoting fluoride uptake into incipient enamel lesions. For the PCR method, the ability of the test toothpaste to remove stain from stained human enamel specimens was measured photometrically. In the RDA test, 32P-labeled human dentin specimens were subject to brushing treatments and the loss of dentin was measured as compared to the ADA reference material. In the EFU test, fluoride uptake was measured in incipient enamel lesions after treatment with the test toothpaste.

Results: The PCR test demonstrated that Hello Fluoride Toothpaste was effective at removing extrinsic stain with a value of $95.14 + 3.77$. In addition, the RDA for Hello Anticavity Toothpaste at $90.69 + 1.88$ is well within the safety limit as suggested by the International Organization for Standardization ($RDA < 250$). The fluoride uptake for Hello Fluoride Toothpaste was 889.09 and was higher than the ADA standard which had a fluoride uptake of 756.48.

Conclusions: Hello Fluoride Toothpaste demonstrated effective stain removal and was shown to be safe for the enamel in terms of abrasivity. In addition, Hello Fluoride Toothpaste was effective in promoting fluoride uptake. For consumers looking for a fluoride-containing toothpaste free from artificial sweeteners, triclosan, microbeads, preservatives, dyes or animal-testing, Hello would provide a safe and effective alternative.

Student Perceptions of Emotional Intelligence in Clinical Dental Hygiene Faculty

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Problem: The academic performance of students in higher education who are taught by emotionally intelligent faculty is likely to result in improved learning outcomes. A lack of study exists regarding the level of emotional intelligence (EI) present in health professions faculty and its impact on student clinical learning experiences. The few studies available have investigated and measured the presence of EI in health profession students themselves, but did not provide any insight into the level of EI present in their educators.

Objective: The overall aim of this project was to understand student perceptions of EI in dental hygiene clinical faculty and to provide baseline information for further study on the presence of EI in these faculty and its impact on dental hygiene students.

Method: The qualitative study, which examined the student perspective on the presence of EI in dental hygiene faculty, utilized an online voluntary anonymous survey via Survey Monkey© and was comprised of five open-ended questions that queried dental hygiene students' regarding their view of their instructor's EI. A thematic analysis was developed from recurring themes identified from student responses to the survey. Student participation (n=52) was solicited at the end of a fourteen (14) week semester with students participating while in the final year of their program.

Results: Recurring themes identified in the students' responses suggested an educator's emotional skills impacted students' performance during clinical sessions. The transferal of the instructor's emotional state was passed on to students, and was reflected in student comments, i.e., an instructor's stress created an environment that in turn amplified stress in students. A positive transferal of emotions also occurred when instructors who expressed empathy during challenging sessions were perceived by students to have provided help and support that assisted in improving their patient care experiences.

Conclusion: The thematic analysis produced from the survey outcomes suggests the level of EI present in dental hygiene instructors impacts students' learning experiences and clinical performance.

Dental Hygienists Attitudes Toward Chairside Medical Screening in the Dental Setting

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Problem: In previous work we found that dentists, patients, and physicians have a favorable attitude towards point-of-care screening for medical conditions in a dental setting. Dental hygienists are likely to participate in or actually conduct the screening tests.

Objectives: To understand attitudes and perceived barriers among practicing dental hygienists on the implementation of chairside medical screening in the dental setting.

Methods: An eight question survey with a 5-point

Likert-scale (1=very important/willing, 5=very unimportant/unwilling) response scale was mailed to practicing dental hygienists in the U.S. The survey asked about attitudes towards chairside screening in a dental setting for specified conditions, willingness to collect the necessary samples/data, willingness to participate in these activities; and concerns around implementation of chairside medical screening. Descriptive statistics are presented.

Results: Of 1687 respondents, 99% were female, 60% were 41-60 years old, and 72% were practicing >10 years. The majority felt it was important for oral health care providers to conduct chairside screening for cardiovascular disease (86%), hypertension (94%), diabetes mellitus (90%), HIV infection (79%), and hepatitis (80%). Respondents were willing to conduct chairside screening that yields immediate results (86%), discuss results immediately with the patient (75%), and refer patients for medical follow up (94%). The majority were willing to collect oral fluids (90%) and blood pressure (95%), but less willing to collect finger stick blood (59%) and height and weight (62%). The overwhelming majority considered all of the following important factors for implementation: time (98%), cost (94%), insurance coverage (88%), patient willingness to participate (98%), liability (95%), support from the dentist, (98%), and training (98%).

Conclusions: Practicing dental hygienists felt it was important to conduct chairside medical screening in a dental setting, were willing to discuss results immediately with the patient, refer patients for medical follow up, and collect the necessary samples. Several considerations regarding implementation were important to almost all respondents. Incorporating dental hygienists into chairside screening strategies will require adequate training along with support from the dentists and an indication of patient willingness to participate.

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Students' Knowledge, Attitude, and Perceptions of an International Service Learning Experience in Belize

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Problem: Access to oral health care is a global issue. Integration of international service learning into dental hygiene curricula could potentially improve access to care in diverse cultures, in addition to fostering graduates who have an increased understanding of access to care issues who feel they can make a difference in the oral health of diverse populations.

Objective: The objective of this study was to explore the knowledge, attitude, and perceptions of dental hygiene students who participated in an international service learning experience in Belize, with respect to providing dental care to a culturally diverse population.

Method: The design of this study included qualitative and quantitative research using a cohort, convenience sample of seventeen senior dental hygiene students who provided dental hygiene services in Belize. Prior to leaving, and immediately upon their return, students (n=17) completed a thirteen-question, Likert-type survey that explored their knowledge, attitude, and perceptions of providing care to an underserved population in a diverse culture. Survey data was analyzed using a paired sample t-test at a significance level of $p < 0.05$ utilizing SPSS Statistics version 20. Qualitative data was also collected from daily journals written while in Belize and a comprehensive reflection paper upon their return, detailing their thoughts, attitudes, and perceptions of the service learning experience.

Results: Data revealed that by agreeing or strongly agreeing with the survey questions, all students, n=17, (100%) had a positive attitude towards their service learning experience in Belize. There was a statistically significant increase ($p < 0.01$) in all thirteen areas, n=13, (100%) surveyed concerning their perceptions, attitude, and knowledge pertaining to this experience. Students indicated that their experiences led to perceptions of growth as a health care professional, and they perceived they were able to apply the knowledge and skills learned in their academic program to the service learning experience in Belize. They also felt they were able to make a difference in the oral health of the people of Belize, and after witnessing the disparities apparent in a diverse culture, had a greater appreciation of their personal standard of living upon their return home.

Conclusions: Dental hygiene students perceived their experience gained in international service learning can foster professional growth as a health care provider, heighten awareness of health care disparities in diverse cultures, and create a desire to engage in future service learning as a health care professional.

A Pilot Dental Teamwork Course Focused on Interprofessional Competencies

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Problem: Interprofessional teamwork skills are essential for all future healthcare professionals. In clinical dental practice, communication and collaboration

between dental team members are imperative for safe and effective patient care. The future integration of newly emerging dental team roles, such as advanced practice dental hygienists and dental therapists, will require that all future oral health practitioners to have adequate training in interprofessional competencies.

Objective: The purpose of this study was to introduce intra-professional clinical collaboration and small group learning sessions to dental and dental hygiene students to evaluate teamwork and communication skills based on interprofessional competencies. The goal was to pilot a replicable curriculum to encourage students of both disciplines to learn clinical skills with and from one another, recognize one another's clinical roles and responsibilities, and practice transferrable skills for effective teamwork and communication.

Method: Quantitative and qualitative data was collected utilizing validated pre-test/post-test questionnaires; Readiness for Interprofessional Learning Scale (RIPLS) and Dental Roles and Responsibilities, along with self-assessment evaluation. Third and fourth year dental student participants (n=16) were volunteers; dental hygiene participants (n=7) in their final year were assigned. The control groups (47, n=32 dental, n=15 dental hygiene) were students who did not take the course.

Results: Quantitative data: Participant and control groups were similar; non-significance was found for the following factors using Pearson Chi-Square test at $\alpha = 0.05$ and Independent t-test at $\alpha = 0.05$: gender, age, education level, prior professional training, future professional plans, and prior exposure to IPE. Study participants' total RIPLS scores at pre-test were higher than controls' (approaching significance at $p < 0.1$). Statistically significant ($p < .05$) results for pre-test to post-test changes were found for the total RIPLS and the team collaboration subscale only.

Qualitative Data: Students self-assessed addressing the value and impact of each session. Overall, both disciplines (84%) valued the interactive, small group format, clinical collaboration and teamwork skills training as additions to professional education.

Conclusions: This study revealed evidence that this pilot course holds promise as an innovative model for teaching dental and dental hygiene students the foundational concepts and skills for collaborative interprofessional practice, both within and beyond the dental team. Additionally, the finding from this study suggest dental and dental hygiene students have divergent opinions about one another's responsibilities. Future studies should explore understanding student's role perceptions as well as research on effective interprofessional teaching methods to assist in developing effective teaching materials and approaches to foster safe and effective teamwork.

Caries Risk Assessment, Management, and Prevention: A Look into US Dental Hygiene Programs Cariologic Curriculum

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Problem: Recent international efforts have developed guidelines and recommendations for what should be taught in cariologic education. However, little is known regarding cariologic education in United States (US) dental hygiene programs (DHP).

Objective: The aim of this study was to explore how DHPs are teaching cariology in their entry-level curriculum. Specifically: (a) have US DHPs adopted specific cariology curriculum, (b) what components of cariology are being addressed, (c) how are caries management strategies taught, (d) what products are being recommended /taught regarding caries management, and (e) in what years do DH students receive caries risk assessment, management, and prevention education.

Method: The quantitative study utilized a convenience sample of 335 US dental hygiene program directors (DHPDs). The electronic survey consisted of four parts: (1) demographics of the DHP, (2) components of the cariology curriculum taught in their DH program, (3) when in the curriculum caries risk assessment, management, and prevention are being taught, and (4) questions regarding preclinical activities. Additionally, an open-ended question asked how cariology knowledge and competency are measured in their programs. Data were collected from 150 US DHPDs.

Results: The study resulted with a response rate of 45% (n=150). Sixty-six percent (n=90) of DHPDs indicated their program had adopted a specific cariology curriculum. In no other semester other than year one, semester two, did more than half of the programs teach any one component of cariology. Of the 66% of DHPDs indicating a specific cariology curriculum was adopted, topics identified included evidence-based caries management (96% n=130), considerations for root caries (95%, n=128), and the histological appearance of carious lesions (95%, n=128). Around 68% of DHPDs indicated that cariology is taught as part of multiple courses instead of through a stand-alone cariology course. Fifty-three percent of DHPs teach cariology using case-based or evidence-based education strategies and 63% teach cariology through clinical education. With regard to non-surgical caries management strategies DHPs identified their programs are still addressing the importance of professional and self-care plaque removal (97%, and 98%), while many are also focusing on diet modification (98%), fluoride treatments (99%), and sealant placement (97%).

Additional research is warranted comparing DHP data with dental school curriculum to assess alignment of educational standards in the teaching of cariology in US dental/dental hygiene schools.

Conclusions: International efforts have developed guidelines and recommendations for which components of cariology should be taught in dental education. Results indicated that cariology is an important element in the DH curriculum. This information will allow educators to compare DHP data with dental school curriculum data allowing a more cohesive alignment of educational standards in the teaching of cariology in US dental/dental hygiene schools.

Work-related Musculoskeletal Disorder (MSKD) and Complementary and Alternative Medicine (CAM) Utilization: The Beliefs, Attitudes, and Most Sought after Therapies by Registered Dental Hygienists (RDH)

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Problem: Dental Hygienists have higher risk factors for the development of work-related musculoskeletal disorders that are associated with the profession. It is imperative for the dental hygienist to gain an understanding of Complementary and Alternative Medicine and therapy's as it is the initial choice for maintenance of work-related musculoskeletal disorders.¹

Objective: The purpose of this study was to determine the most utilized and sought after therapies. Another aspect was to establish a baseline of the beliefs and attitudes towards the preferred therapy.

Method: This single-blind study utilized a sample of 520 Illinois Dental Hygiene Association members to complete a survey about Complementary and Alternative Medicine (CAM) utilization with a focus on the beliefs, attitudes, and therapies utilized for work-related musculoskeletal discomfort management. The instrument utilized in the study included 31 open and closed ended questions. Prior to dissemination of the survey five peer reviewers tested the instrument for reliability and validity. The research instrument was obtained through the use of an electronic online mailing, establishing confidentiality for both researcher and sample population. Descriptive statistics were then employed to analyze the data. IRB approval was obtained from the UB Fones School of Dental Hygiene.

Results: The returned sample collected was 79 (15.2%) prior to the inclusion criteria yielding a total generated sample size of 57 (11%). Anatomical areas most affected by sample population included the neck at 61.4% then the lower back at 49.1%. The most common utilized Complementary and Alternative Medicine (CAM) therapy was massage at 73.7%. The distributed response of 75.4%

indicated that massage produced a more positive attitude and belief in that it helped with the management of musculoskeletal discomfort over chiropractic care at 42.1%. Another 36.8% strongly agreed that Complementary and Alternative Medicine (CAM) therapies were effective in the management of work-related musculoskeletal discomfort.

Conclusion: The majority of the respondents agreed that massage and chiropractic care were the preferred therapies for the treatment of both upper and lower extremity work-related musculoskeletal discomfort. And in turn, produced positive beliefs and attitudes towards Complementary and Alternative Medicine (CAM) utilization for management of work-related musculoskeletal discomfort.

New Teaching Tool Aims to Improve Student's Clinical Diagnosis of Oral Lesions

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Problem: Dental hygiene students are challenged with formulating a clinical diagnosis when presented with a case study in the oral pathology class. The research project was initiated to assist dental hygiene students organize the information in a way that will facilitate self-efficacy, critical thinking and recall of information. A search of the literature revealed medical students processed information by forming mental scripts of many details that eventually led to an accurate diagnosis. Beginner clinicians when faced with a diagnosis take more time going over their mental scripts to arrive at the diagnosis. Experienced clinicians use the same process but arrive at an accurate diagnosis in much less time.

Objective: The research project is to provide a learner-centered tool that will help students to methodically identify and document visual findings and research information that will begin the process of establishing scripts that they can draw upon when faced with identifying and documenting oral lesions. It is expected that the CSAT will improve the accuracy by which dental hygiene students identify oral lesions.

Method: A Case Study Assessment Tool (CSAT) was created containing a step by step process purposefully organized to guide the student to describe and identify lesions which will assist with the formation of mental scripts. A mixed methods study design was employed to address the research question. A convenient sample question survey was developed to assess the efficacy of the CSAT. Ninety current and past oral pathology dental hygiene students were recruited for the study. Twenty students volunteered to participate. Nine participants completed the project. There were two phases to the project. In the first phase students were asked to solve a

case study describing and identifying an oral lesion without the CSAT. In the second phase the students were asked to solve the same case study with the CSAT. After both phases were completed, each student kept their initial response. A qualitative survey was also prepared. Nine students were interviewed and responses were recorded and transcribed to determine themes and codes.

Results: Four students had the correct descriptions and identification of the lesion. Nine students agreed the CSAT guided them in their ability to describe and identify a lesion and researching the topic assisted to expand their learning about the lesion. Eight of the nine students answered yes when asked if the CSAT helped them retain information. Four students felt there were sufficient questions on the tool to guide the process and four felt there were not enough. Seven students indicated that they would continue to use the CSAT in their clinical practice.

Conclusions: Themes are yet to be determined and codes assigned. The initial sample size was very small and a definitive conclusion cannot be made at this time.

Musculoskeletal Disorders – Does Operator Positioning or Use of Ergonomic Devices Matter?

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Problem: Problem Statement: Results of worldwide studies indicate that musculoskeletal disorders (MSDs) are highly prevalent and remain a potential occupational health hazard to practicing dental hygienists. It is unknown how current recommendations for operator positioning and use of ergonomic devices impact development of MSDs and workforce issues among dental hygiene practitioners.

Objective: The purpose of this study was threefold: to determine if self-reported operator positioning was correlated with development of MSDs; to assess whether use of ergonomic devices helped reduce risk for occupational injury; and to measure the impact of MSDs dental hygiene workforce issues in Mississippi.

Method: Methodology and Statistics: A 47 item questionnaire was developed and pilot-tested for face and content validity. The online survey was sent to all licensed Mississippi dental hygienists (N=1553). This IRB-approved study utilized a correlational design examining relationships between operator positioning and development and time to onset of MSDs, and impact of MSDs on practice behaviors and workforce retention. Data analysis consisted of Pearson chi-square correlation and Kaplan Meier survival analysis.

Results: Three hundred thirty-eight (22%) practitioners responded to the survey. There was no significant difference in prevalence of MSDs between those sitting in front of or behind the patient ($\chi^2 (1) = 1.67, p=0.196$), although those who sat behind the patient developed MSDs sooner ($\chi^2 (1) = 3.92, p=0.048$). Regardless of operator position, by 16+ years in practice, $n=271$ (80%) of dental hygienists developed MSDs. Having MSDs did not impact ability to work, need to take time off from work, reduce work hours or reduce patient load. Ergonomic devices were used by only $n=73$ (21.6%) of study participants.

Conclusions: The majority of practicing dental hygienists develop MSDs regardless of operator position. Sitting behind the patient resulted in earlier development of MSDs. Few practitioners use ergonomic devices. Dental hygiene workforce issues were not negatively impacted by MSDs.

Dental Hygiene at the Crossroads of Change: An African American Perspective

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Problem Statement: Dental Hygiene is at a crossroads of change. Numerous studies have reported lack of access to oral health care in the United States within the last decade. One of the major challenges is how to effectively address dental health access and disparities among various ethnic and racial groups and within the underserved communities. Various work force models have been proposed to answer this need. In several of these models dental hygienists have been suggested as the health care provider. Scientific literature reports limited data on perceptions of African American registered dental hygienists to these challenges.

Purpose: The purpose of this study was to assess the perceptions of African American dental hygienists on their willingness to perform limited restorative procedures and if the current scope of dental hygiene practice is expanded, do they think it will improve access to care.

Methods: A twenty question survey was sent to members of the National Dental Hygienists' Association ($n=364$). The survey was conducted to investigate the perceptions of African American dental hygienist regarding their interest in gaining restorative, limited extractions and advanced preventative capabilities. Survey information was obtained through the use of an electronic online tool, and all responses remained confidential. Descriptive statistics were used to analyze the data.

Results: Seventy-one (71) surveys were completed for a response rate of 20%. Data indicated 94% of African American dental hygienists believe that increasing the scope of practice of dental hygienists will have a posi-

tive impact on access to care. Over 50% of respondents felt the following procedures should be included in the dental hygiene scope of practice: placing retraction cord, taking a final impression, placing bases and liners, placing composites and resins and placing and carving amalgams. A minimum of thirty percent reported they would like hygienist to be able to prep the tooth prior to placement of the composite, resin or amalgam and the ability to perform simple extractions. Results showed 32% believe if the scope of practice was changed to include these procedures that additional continuing education either during or after completing the dental hygiene curriculum should be the minimal educational requirement while 36% felt it should be a Bachelor's degree.

Conclusion: Respondents see the need for access to care; however, they did not want to be limited to underserved populations only. Results indicated regardless of age or previous dental assisting experience, the majority of the participants surveyed were interested in performing additional duties and were willing to take further education to allow them to do so. The majority of the African American dental hygienist in this survey perceive themselves as one the health care providers who could address dental health care disparities if current scope of dental hygiene practice is expanded.

The Effectiveness of Prophylactic Application of Mouthwashes on Microflora of the Oral Cavity

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Problem: The majority of gingivitis is caused by bacteria, which attaches to the tooth surface and forms the basis of bacterial plaque. One of methods to remove bacterial plaque and to prevent it's formation is use of antibacterial agents.

Objective: The aim of this study was to learn the effectiveness of antiseptic mouthwashes on the microflora of the oral cavity when used prophylactically.

Method: Fifty eight (58) patients with intact gingiva were randomized into 3 groups. Group 1 (20 people) used 0.2% chlorhexidine mouthrinse, group 2 (20 people) used 0.2% triclosan mouthrinse and group 3 (control group) did not use a mouthrinse. All subjects used a manual toothbrush during the study. Rinsing was carried out for 4 weeks, 2 times a day according to instruction. Microbiological investigation of the plaque was performed before and after 4 weeks of rinse application and long-term results were studied after 3 months. Count of microflora was provided by percentage distribution among participants.

Results: After 4 weeks of application *Staphylococcus* sp. decreased in group 1 by 10% and in group 2 by 30% from baseline. *Streptococcus* sp. in group 1 was less by 20% than the original detection, in group 2 - by 30%. *Candida albicans* were reduced by 5-10% compared to baseline in both groups. Also normal flora was inhibited - *Corynebacterium*, *Lactobacillus* were not detected, what can be considered as dysbacteriosis. The reductions in pathogenic microorganisms persisted up to 3 months.

Conclusions: This study demonstrated the potential to reduce normal oral flora along with pathogenic bacterial organisms when subjects used 0,2% chlorhexidine and triclosan twice daily for 4 weeks and persisted up to 3 months. The development of a dysbacteriosis may occur when recommending these agents used prophylactically.

Exploration of Critical Thinking in Dental Hygiene Education

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Problem: While it is generally agreed that instruction in dental hygiene programs must incorporate critical thinking and decision making skills, there is an absence of research on the cognitive components of clinical decision making, which includes concepts of critical thinking. As a result, it is difficult to chart a course for such change in dental hygiene programs without examining the current status of faculty regarding their understanding and practice of teaching critical thinking skills in their discipline.

Objective: The goal of this research was to examine dental hygiene faculty perceptions and thinking surrounding critical thinking issues within their accredited associate degree dental hygiene programs. The focus was on faculty who teach or have taught first and/or second year clinical theory courses within their dental hygiene program. For the purposes of this study, critical thinking is defined as an art of analyzing and evaluating thinking by self-discipline, self-correction and self-monitoring within a framework to improve one's thinking.

Method: Twenty faculty participated in the study, as drawn from 11 accredited associate degree dental hygiene programs in one Mid-west state. As a qualitative study, multiple sources of data were collected, including email questionnaires, individual follow-up phone interviews and artifacts. Interpretive analysis was conducted.

Results: Data analysis revealed that 15 of the 20 faculty generally understood critical thinking, but interpretations varied. Most do not use varied teaching strategies to promote critical thinking skills, and focus on one

particular strategy – that of case studies. 18 of the 20 participants learned of critical thinking through faculty development workshops and identified the need for allied health-focused faculty development opportunities, and noted that calibration of instruction was needed. Despite challenges, all 20 faculty felt responsible for teaching critical thinking skills, and identified the need for time to build critical thinking skills into the curriculum.

Conclusions: Findings revealed a strong desire among the dental hygiene faculty in this study to incorporate critical thinking into their work. They want to do what they believe is the right thing, but their actual knowledge of the definition and application theories about critical thinking is still in the early stages of development. Regular and targeted faculty development opportunities are needed.

Main Tasks of Clinical Dental Hygienists in South Korea

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Problem: Due to varying reasons and circumstances, main tasks of clinical dental hygienists in different countries tend to be slightly distinctive. Clinical dental hygienists in South Korea often engage in various dental services and office management tasks on top of their inherent dental hygiene tasks. This study aimed at clearly recognizing such distinctive characteristics of tasks performed by clinical dental hygienists in South Korea and how they differ from tasks typically done by dental hygienists in other countries.

Objective: Ultimately, this study focused on identifying main tasks performed by dental hygienists working at dental clinics in South Korea. Main tasks of Korean dental hygienists were divided into 8 categories and participation rates of each task were investigated.

Method: Dental hygienists working at dental clinics all over South Korea were sampled randomly and then 1200 copies of a questionnaire were mailed to dental clinics all over South Korea or handed out at academic conferences from January 12th to 30th, 2015. In order to identify main tasks of dental hygienists with respect to their working experience and working condition, frequency analysis and chi-square test were performed.

Results: Out of the 1200 questionnaire copies sent out, a total of 610 copies were returned for further analysis which demonstrated an overall response rate of 50.8%. Results showed that the participated dental hygienists' 8 main tasks consisted of chair-side assistance (93.2%), oral health education (92.9%), appointment schedul-

ing(84.6%), scaling (83.9%), quality insurance activity (82.9%), safety management (60.6%), hospital administration (44.5%), , and hospital management (20.6%), and these categories all showed statistically significant differences regarding the dental hygienists' work experience and the sizes of their dental clinics ($p < 0.05$).

Conclusions: Regardless of differences in terms of Korean dental hygienists' working experience or the sizes of dental clinics they work at, most dental hygienists in South Korea are actively participating in various tasks required to maintain effective management of their dental clinics and to enhance the quality of dental services. This situation is quite distinctive compared to the fact that main tasks performed by most dental hygienists in the states are highly professionalized and are focused on tasks related to the dental hygiene care process.

This study was approved by the Public Institutional Bioethics Committee designated by the MOHW (Approval No. : P01-201412-SB-05).

Effects of Aromatase Inhibitors on the Periodontium Among Postmenopausal Women with Breast Cancer

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Problem: Aromatase inhibitors (AIs) are the standard of treatment for women with estrogen receptor positive breast cancer due to their ability to lower the risk of tumor recurrence. AI use results in estrogen depletion increasing the risk of osteoporosis and low skeletal bone mineral density and may impact alveolar bone and periodontium.

Objective: The objective of this investigation was to determine the impact of AI use on the periodontium through the use of clinical parameters, salivary bone biomarkers, and the supplemental use of bisphosphonates, vitamin D, and calcium in postmenopausal women on AIs.

Method: An 18 month prospective cohort pilot study of periodontal health in postmenopausal women (29 receiving AI therapy; 29 controls) was conducted between August 2009 and September 2013 at University of Michigan. Periodontal examinations including clinical attachment loss (CAL), periodontal probing depths (PD), and bleeding on probing were conducted. Linear measurements between the CEJ/restoration margin, and the alveolar crest of first molars were taken on baseline, 12, and 18 month radiographs. Bisphosphonate, vitamin D and calcium supplementation was collected via chart review. The study was approved by the UM IRB.

Results: AI users had significantly more bleeding sites, deeper PD, and greater CAL loss as compared to those not on AIs at the 6, 12, and 18 month study visit. A linear mixed model was constructed to investigate bone height as a function of time, AI, calcium, vitamin D and bisphosphonate status, along with an interaction between AI and calcium status. A significant effect of time was found along with a significant AI status by calcium use interaction. Those on AI and calcium had a significantly lower bone height value (Mean=2.509, SE=.137) than those not on calcium (Mean=3.325, SE=.231) ($p = .005$).

Conclusions: AI therapy has an impact on the oral health of postmenopausal women. Data suggests a positive relationship between alveolar bone loss and the use of calcium supplementation among postmenopausal women. The knowledge about the prolonged use of AI will lead to an improved risk assessment of oral and overall health care of these patients and ultimately may lead to a better standard of care for future patients.

The Multiple Mini Interview as Admission Criteria into a Dental Hygiene Program

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Problem: One of the challenges of admissions committees for health science education is to develop and implement admissions tools with the goal of predicting academic and clinical success. Cognitive considerations such as Grade Point Averages and admissions tests have been shown to be predictive of future performance. Personal interviews, however, may be a poor indicator of future performance in health care professions. In Medical Education, the interview has been identified as one of the most subjective aspects of the admissions process. The Multiple Mini Interview (MMI) is an interview format that uses multiple, timed interview stations designed to obtain an aggregate score of each candidate's non-cognitive skills such as communication, ethical decision making, critical thinking and empathy. The MMI has consistently shown to have a positive correlation with future performance.

Objective: The University of Texas School of Dentistry at Houston Dental Hygiene Program began using the MMI as a part of the admissions process in 2010 in an effort to accept students that possessed qualities that would help them to be successful in the rigorous program. The purpose of this small focus group study is to determine participants' perceptions of the MMI as a part of a comprehensive admissions process.

Method: The focus of the MMI's was to evaluate an applicant's ability to reason through scenarios. Approval was obtained from the institutional review board at The University of Texas School of Dentistry. First year dental hygiene students were invited to participate in one focus

group interview session for one 60 minute visit. During the recruitment process, students were asked to contact study personnel or return participation slips to indicate their interest in participating. The interviewees were assigned a speaker number to indicate which person (unidentified) was speaking. Audio recording was used and were transcribed using the constant comparative method for data analysis. The audio recordings were destroyed and the transcripts are locked in file cabinet in a locked office.

Results: The analysis identified three major themes pertaining to the participants' experiences of the MMI. The first theme found was format of the one-to-one interview. Candidates perceived that the MMI format enhanced the building of rapport and created an environment in which the 'interviewers made them feel comfortable.' 'They were friendly and explained everything.' 'I liked being one-to-one since I could converse and express myself'. The second theme was the candidates having the opportunity to have multiple assessment opportunities. 'The process gave me the chance on how I would react to different situations'. I appreciate the process since sometimes you connect with a person, sometimes not.' 'As a collective, it shows a better glance of the overall person'. The third theme was the candidates' comments on the use of standardized scenario-based interviews. Overall, most of them felt that scenarios were fair and it gave insight into the genuine ability of the candidate to synthesize the scenario. 'I liked that you didn't have to know specific information'. 'Glad it was not just dental topics'. 'There were a broad range of questions and real-life scenarios'. 'The process allows for more movement between questions...good conversational setting as opposed to a panel interview.'

Conclusions: Students were satisfied with the MMI as a fair and accurate interview method. They felt that the MMI was preferable to a traditional interview in that it provided the interviewers a multidimensional view of the applicants.

Trends in Academic Preparation Regarding Workplace-related Musculoskeletal Disorders – Training, Equipment and Adoption in Clinical Practice

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Problem: Neck, shoulder and back disorders among dental hygienists are well documented. Little is known about the academic curriculum regarding workplace-related musculoskeletal disorders (WRMSDs) or how students implement training concepts into the workplace.

Objective: To examine academic trends in training and post-graduation practices.

- Determine WRMSD risks discussed in school
- Identify specific devices or accommodations intro-

duced during training

- Investigate relationships between training and post-graduation work practices
- Explore correlations between self-reported WRMSDs and academic training

Method: Hygienists were invited, via multiple social media sites, to participate in the voluntary, convenience poll. Data was collected using an online, internet-based convenience sample over a three-week period in November 2012. The survey instrument contained 22 close-ended, pilot-tested questions including: basic demographics, academic training about WRMSD and ergonomic strategies, self-reported injuries and post-graduation injury-minimizing strategies. Responses were confidential. Data was analyzed using descriptive statistics.

Results: A total of 1,217 licensed dental hygienists representing 47 states and 6 Canadian provinces responded. 64% with 11+ years of practice reported WRMSDs risk training while in school in contrast to >85% who had practiced less than ten years. Academic training varied significantly between practice cohorts ($p < 0.01$). Over the past ten years students received more WRMSD risk training than earlier graduates ($p < 0.00$).

Dental hygiene educators were the WRMSDs information sources for 63% of survey respondents. Other sources included course research/required activity/table clinic (23%) and continuing education courses (19%).

Clinicians in practice for 11+ years reported no specific equipment training (37%). Nine out of ten respondents perceived magnification, headlight and stools options were not available during academic training.

Over 70% of clinicians in practice for more than 1-5 years reported learning about magnification loupes and purchasing personal equipment, while around one third learned about alternative stools and headlights.

Following academic exposure, 71% adopted magnification loupes and one third adopted headlights and alternative seating. Post-graduation use of magnification, headlights and alternative stools is significantly higher for clinicians exposed to concepts in school ($p < 0.01$).

Hygienists with no academic training about equipment report a higher incidence of neck injuries ($p < 0.05$).

Hygienists practicing ten years or less, who received seating information, report fewer neck injuries ($p < 0.05$).

Hygienists practicing ten years or less, with a history

of mid/upper back injuries, more likely to use magnification to possibly avoid further injuries. ($p < 0.01$).

Conclusions: While there was significant variation in training, those with greater knowledge of practice ergonomics reported fewer injuries.

Further research focusing on academic training and strategies to reduce WRMDs is needed to empower hygienists to seek solutions.

Dental Hygiene Workforce and Education Programs in Iowa

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Problem: In 2012, a workgroup of Iowa stakeholders convened to investigate factors related to the labor market environment for dental hygienists. Participants noted a paucity of information about hygienist workforce in the state, as well as anecdotal evidence of a workforce surplus affecting employment.

Objective: To examine the current dental hygiene workforce in Iowa, including temporal and geographic trends related to dental hygiene education programs.

Method: We compiled several cross-sectional data sources to examine Iowa's dental hygiene workforce and education programs. These included: Iowa DHA 2012 survey of all licensed Iowa dental hygienists, 2013 Iowa Dental Board relicensure data, and American Dental Association Survey of Allied Dental Education Annual Reports from 1999-2011. Our study included descriptive and bivariate analyses including cross-tabulation using SPSS and descriptive geographic mapping using ArcGIS.

Results: In 2013, 87% of Iowa's 2074 licensed hygienists were actively practicing in Iowa; that is, they reported working more than zero hours/week. Of those not actively practicing in the state, 7% worked outside of Iowa and 6% reported zero hours per week and considered inactive. Analyses include only those actively practicing in Iowa.

Iowa's practicing hygienists work a mean of 27 hours (SD=11) per week, and 51% work full time (≥ 32 hours/week). One quarter of Iowa's 99 counties have two or fewer practicing hygienists. Regarding educational at-

tainment, a significantly lower proportion of younger dental hygienists had baccalaureate or higher degrees compared to older dental hygienists.

Dental hygienists tended to work in close proximity to their education institution; almost half of hygienists who graduated from an Iowa program work within 30 miles of their alma mater. Temporal changes in market share of dental hygiene education programs show an increase in the proportion of Iowa hygienists from out-of-state programs.

Conclusions: This study identified several important factors to consider as part of future dental hygiene workforce and education program planning in Iowa: full- vs. part-time status, trends in educational attainment, location of dental hygiene shortage areas, and geographic clustering near education programs.

The trend for fewer younger dental hygienists to attain baccalaureate degrees has implications for Iowa's future dental hygiene educator workforce. Dental hygiene workforce and education programs in Iowa revealed that only 6% of licensed dental hygienists are not actively practicing, and a majority work full time. In this study we were not able to determine whether hygienists who worked part-time desired additional hours.

Assessing the Validity and Utility of the ADHA's Hyposalivation with Xerostomia Screening Tool (HXST)

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Problem: The ADHA HXST was designed to assist with assessment of patient factors that increase risk for hyposalivation with xerostomia and resultant complications. Although endorsed by ADHA and available publically for use, the tool has not been validated nor has its usefulness in guiding dental hygienists' practice behaviors been evaluated.

Objective: First, to test validity of the ADHA HXST to detect hyposalivation as compared to standard salivary flow rate measures. Second, to test utility of the ADHA HXST in dental hygiene practice. Third, to determine how use of the tool influenced dental hygienists' practice behaviors.

Method: This IRB-approved study was divided into two phases. (Phase I) Phase I was a correlational study that involved a clinical trial. A convenience sample of ten volunteers, ages 21 to 59, provided both unstimulated and stimulated saliva samples according to standard guidelines. Volunteers received a clinical examination and findings were used to calcu-

late a risk assessment score using the ADHA HXST. Correlation analysis was used to compare subjects' flow rates with risk assessment scores. Phase II was a descriptive study. Thirty recruited, volunteer dental hygienists were given the tool to use on one workday in their practice settings. Afterwards, they completed a validated online survey to rate the utility of the tool, and to determine how use of the tool influenced their practice behaviors. Descriptive statistics were used to report utility measures and practice behaviors.

Results: For Phase I, there was no significant correlation between unstimulated salivary flow rate and total risk score (Spearman's $\rho = 0.0$, $p > 0.05$) or between stimulated flow rate and total risk score (Spearman's $\rho = 0.32$, $p=0.36$). For Phase II, 20 hygienists reported using the screening tool with their patients. Time was noted as the biggest barrier for use ($n=9$, 45%). Nineteen (90%) felt that patients benefitted from use; however, only 12 (60%) felt that results matched patient self-awareness of dry mouth. Fifteen (71%) felt that it should be shorter. Most felt that the tool was well-organized, easy to understand and score, and added new insight to assessing dry mouth. Thirteen participants (65%) would consider future use of the screening tool. Findings are limited by sample size, and by the large variance in what is considered normal saliva flow.

Conclusions: The ADHA HXST was not a valid tool for detecting hyposalivation with xerostomia as compared to salivary collection. Additional testing of the validity and utility of the tool is needed using larger sample sizes and with different patient populations.

Method: A pilot of the course ran in the Spring 2014 semester and the students who participated in that course were surveyed. Response rate to the survey was 100%. The survey included questions regarding the effectiveness of specific teaching tools as well as open ended questions seeking suggestions for course improvement. IRB exemption was provided by the University of New England Institution Review Board.

Results: The study showed that all teaching tools were perceived as valuable with an average level of agreement of 3 or greater on a 4-point Likert Scale where 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree. Participation in the Dental Hygiene Outreach Program was by far seen as the most valuable teaching tool with an average level of agreement of 4. 100% of respondents expressed a feeling of greater preparation for their career as a result of this course and felt the course had a "great impact" on their career outlook. Suggestions for course improvement included: less reflective writing, offering the course in the fall rather than the spring and increasing the involvement with the Outreach Program.

Conclusions: As the profession of dental hygiene education evolves, we as educators have a duty to keep pace with the changing paradigm. With the rapid expansion of career opportunities available to the dental hygienist brought forth by the advent of things such as public health supervision and independent practice, curriculum must adjust to prepare students for ALL opportunities in their profession. This course is aimed at meeting that goal and this study identifies a successful approach.

Evaluation of a New Dental Hygiene Elective Course

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Problem: Following a 2014 study a course was developed at the University of New England to address suggestions made by independent practice dental hygienists for inclusions in dental hygiene education. The course was designed to create greater awareness of viable career paths available to the hygienist and provide skills to be successful in an alternative career path.

Objective: The purpose of this study was to evaluate the new elective course and determine the teaching tools most effective at meeting the courses objectives. Teaching tools utilized in this course included: Dental Hygiene Outreach Program rotations (extramural clinical experience in an interdisciplinary, patient-centered medical home), guest speakers, professional interviews, a case study, reflective writing, and creation of a business plan as a final project.

Building the Evidence to Inform Dental Public Health Policy in Mississippi

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Problem: Mississippi suffers from population health problems with poor oral health being one of the worst. Policy changes to allow increased public health interventions such as primary preventive measures could prevent oral disease. However, policy change is multifaceted, difficult, and requires many components to converge simultaneously. Policy change begins with awareness.

Objective: The aim of this project is to communicate the status of oral health in Mississippi in order to inform Mississippi policy makers of the need for changes to or the creation of dental public health policy. The purpose of the project is to utilize available oral health data to create an insightful, high-impact infographic for dissemination to lay audiences in Mississippi.

Undergraduate Support for Socializing Dental Hygiene Students to Conduct Research

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Methods: Data was requested or collected from the following surveillance systems: The National Health & Nutrition Examination Survey; the National Survey of Children's Health; the Surveillance, Epidemiology and End Results Program; the National Health Interview Survey; the Pregnancy Risk and Monitoring Survey; the Medical Expenditure Panel Survey; the National Oral Health Surveillance System; the Behavioral Risk Factor Surveillance System; the Mississippi Board of Dental Examiners; and the Mississippi Department of Health. Geographic information systems (GIS) software by ESRI© and data visualization software by Tableau© were utilized to create an easy to understand infographic demonstrating important oral health indicators across Mississippi. The OPT-In framework of factors to consider when selecting and presenting data to lay audiences was used to guide the implementation and evaluation of the infographic.

Results: An infographic was created using Tableau© software that displayed a map of Mississippi overlaid with results from available oral health surveillance. Some data was not accessible and there were inadequate sample sizes for small area estimation across the state of Mississippi. This forced researchers to present data across the state as a whole rather than by small area. Using the OPT-In framework, researchers developed an implementation and evaluation plan to disseminate the infographic across traditional and digital manners. Stakeholders were identified and asked to present the infographic on websites and in their digital communications. An additional evaluation is scheduled after dissemination to ascertain if policy changes result.

Conclusions: Change in public oral health policy will not occur without relevant targeted information communicated to a wide array of stakeholders. Creating an easy to understand infographic which highlights the need for change to improve dental public health of Mississippians could help to prompt policy change.

Purpose & Goals: Typically, research is thought to occur during the educational experience at the graduate level in education, specifically in Master's or PhD level programs. For over a decade, various agencies have recommended higher education provide greater opportunities for authentic learning, including faculty mentored, hands-on research for undergraduates. Our knowledge of how undergraduate research might be integrated in the dental hygiene curriculum and its benefits is limited. This presentation is designed to outline some of the essential features and outcomes of research activities, including the completion of small research projects, in one undergraduate Dental Hygiene Program. Given the need for well-prepared faculty with graduate degrees and research experiences.

Key Features: This presentation describes one institution's efforts in integrating undergraduate research projects in the dental hygiene curriculum. More than a course description about research, this presentation is intended to describe how faculty and students work collaboratively to implement and complete research projects, including successes and fiascoes. Highlights include essential features of undergraduate research such as helping students learn to conduct a literature search and prepare meaningful research questions. Institutional support and outcomes of these undergraduate research efforts will also be described including student grant writing for research support and dissemination of results beyond the university.

Evaluation Plan: Short-term evaluation of these undergraduate research efforts includes; data on project completion, examples of research topics, successful student undergraduate research presentations, funding received for undergraduate research projects and travel grant support. Long-term evaluation plans include alumni surveys to evaluate the impact on graduate school attendance as well as the potential impact of undergraduate research experiences on students' personal and professional practices.