



The UNIVERSITY of OKLAHOMA

College of Dentistry

35th Annual

Scientific Day

April 14, 2016

Embassy Suites
Norman, Oklahoma

Sponsored by:



35th Annual Scientific Day

The first Scientific Day was held in 1981 and consisted of table clinics in the hallways of OUCOD and a few dozen donuts in the Commons. The next year, the event became more sophisticated with the addition of orange juice and coffee. We then graduated to bagels, and quickly outgrew the confines of our building. As the student research program grew and corporate support became stronger, Scientific Day evolved into what it is today – **the 35th Annual Scientific Day!**

The evolution of Scientific Day is due to the dedication and support of everyone here today. To the students and their faculty mentors who complete meaningful research projects, to all of the faculty and staff who help plan and coordinate this event, and to the many sponsors who provide funding and show us how advances in research translate into better products and services for our patients, **We Thank You!** We are particularly grateful to Delta Dental of Oklahoma, the Delta Dental of Oklahoma Oral Health Foundation, and the J. Dean Robertson Society for their sponsorship of this event and our Student Research Program. We are also grateful to have Heartland Dental as a new sponsor this year.

Please enjoy the outstanding projects presented here today by our dental students, dental hygiene students, residents and graduate students. We hope that you will reflect on our humble beginnings, be proud of where we are today, and help us build an even better future.

Welcome to the University of Oklahoma College of Dentistry's 35th Scientific Day!

Corporate Exhibitors

The following companies have provided additional funding to support this year's Scientific Day and will be exhibiting their company's products in the foyer. Please spend some time visiting the corporate sponsors to learn about their products and to thank them for their generosity.

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**Special Thanks to the Following for Generous Support of
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Oklahoma County Dental Society

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Student American Dental Hygienists' Association Award by Johnson & Johnson

The Omicron Kappa Upsilon Robert T. Probst Award

**Thank You
to the Following Area Businesses
for Door Prize Donations**



Domino's Pizza
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The Uniform Shoppe
Whip Mix

(To win a door prize you have to be present at the luncheon)

Special Thanks to the Following Individuals

POSTER PRESENTATION JUDGES

Marc Arledge, D.D.S.	Michael Kennan, D.D.S.
Marsha Beatty, B.S., M.P.H.	James Kessler, D.D.S.
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Mr. Jeremy Bueckers	Dr. Sharukh Khajotia
Ms. Luellen Chenoweth	Ms. Megan Louk
Prof. Carolyn Hinckle	Ms. Sammie McCracken
Ms. Sharon Ingram	Mr. Scott Newhouse
Dr. Nancy Jacobsen	Ms. Ellen Ware

REGISTRATION

Ms. Liz Bennie	Ms. Heidi Martin
Ms. Sally Davenport	Ms. Jennifer Quan
	Ms. Diana Stone

University of Oklahoma College of Dentistry
35th Annual Scientific Day

Schedule of Events

9:00 - 9:30	Registration <i>East Entrance</i>
9:00 - 10:00	Continental Breakfast <i>East Entrance</i>
9:00 - 10:30	Poster Presentations <i>Oklahoma A, B & C Ballroom</i>
10:30	Poster Votes Due In Ballot Box <i>Oklahoma Foyer</i>
10:30 - 12:00	Ishmael Essay Presentations <i>Oklahoma E Ballroom</i>
12:00	CE Forms Available <i>Registration Desk</i>
12:00 - 1:30	Awards Luncheon <i>Oklahoma F Ballroom</i>

Ishmael Essay Contest Finalist Presentations

Oklahoma E Ballroom, 10:30 - 12:00

- 10:30 a.m. Sudha Lakhwani (DS3)
Variations in horizontal angulation and vertical measurements
with CBCT
- 10:45 a.m. Sarah Justus (DH2)
Oral Health Care in Alternative Care Facilities
- 11:00 a.m. Scott Street (DS3)
Wettability of Disinfected, Polymerized, and Unset Addition
Silicones
- 11:15 a.m. Callie Hollaway (DH2)
Dental Hygiene Faculty Perceptions of Web-Based Learning
- 11:30 a.m. Tristan Hudson (DS2)
Fluoride & Peroxide Toothpastes effect on Elastomeric
Tensile Strength

POSTER PRESENTATIONS

Poster #	Presenter Name(s) & Title
# 1	CALLIE HOLLOWAY (DH2) Dental Hygiene Faculty Perceptions of Web-Based Learning
# 2	SARAH JUSTUS (DH2) Oral Health Care In Alternative Care Facilities
# 3	TAYLOR MEEK (DH2) Oklahoma Dentists' Management of Anxious Dental Patients
# 4	TAELE PURDON (DH2) The Use of Social Media in Dental and Dental Hygiene Education
# 5	ROSHANAK ESMAEILI AHMADABADI (DS3) Relationship Between Dry Mouth and Oral Lesions
# 6	J. TRISTAN HUDSON (DS2) Peroxide/Fluoride Toothpaste Content on Elastomeric Tensile Strength
# 7	SUDHA LAKHWANI (DS3) Variations in horizontal angulation and vertical measurements with CBCT
# 8	SCOTT STREET (DS3) Wettability of Disinfected, Polymerized, and Unset Addition Silicones
# 9	CHAD SEUBERT (Postgraduate); DANIEL SZALAY (Postgraduate) Lateral lip length between affected vs non-affected side of cleft lips
# 10	NALLELY BEAN (DH2) SMS Text Messaging as an Emerging Form of Dental Education
# 11	SUZANNE CHAU (DH2) Think Before You Drink!
# 12	TEALA CORMIER (DH2); JADA HATHAWAY (DH2) Dental Erosion and Fluoride

POSTER PRESENTATIONS

Poster #	Presenter Name(s) & Title
# 13	KIMBERLY CRAIG (DH2); AMBER LEIST (DH2) Managing Oral Care for Children with Autism Spectrum Disorder
# 14	ALYVIA DEMETER (DH2) The Silver Fluoride Bullet
# 15	ZAIN DOUGLAS (DH2); EMILY MILLER (DH2) Prevention and Management of Dental Erosion
# 16	MARISA ESPARZA (DH2) BT + ONJ = BRONJ
# 17	DEBORAH FULTON (DH2) That Sucks!
# 18	JENNIFER GRAHAM (DH2); CARLY MINDEMANN (DH2) What Dental Professionals Need to Know about Cancer
# 19	KAITLYN HAAS (DH2) For the Record: Unconventional uses of dental records in Forensics
# 20	OLGA KHOMUTOVA (DH2) Salivary Diagnostics
# 21	LAUREN KING (DH2) Ankyloglossia, Maxillary Lip-Ties and Breastfeeding
# 22	SADEE LEWIS (DH2) Musculoskeletal Disorders Among Dental Professionals
# 23	MONTSE LINCKS (DH2) Dangerous Deficiency: An Approach to Periodontal and Systemic Health
# 24	HALEY MCDANIEL (DH2) Dual Roles of Clinicians: Moving Beyond the Scaler

POSTER PRESENTATIONS

Poster #	Presenter Name(s) & Title
# 25	KATIE MCLAUGHLIN (DH2); KELSEY FEATHERS (DH2) Role of Primary Care Providers in Prevention of Childhood Caries
# 26	LAURA MCNEAL (DH2) The Science of Smell: Olfactory Dysfunction and Oral Health
# 27	TRISTA MOSS (DH2); PAIGE RICHARDSON (DH2) Diabetes, Periodontitis, and Preterm Birth
# 28	MORGAN MUEGGE (DH2); TIFFANY YATES (DH2) Nutrition and Dental Neglect in Children
# 29	WHITNEY NICKEL (DH2) Invisalign: An Alternative to Traditional Orthodontics?
# 30	LAUREN O'BRIEN (DH2) Rheumatoid Arthritis and Oral Health
# 31	HANNAH OWENS (DH2); CASSIE WALLACE (DH2) Access to Dental Care for the Oklahoma Special Needs Patient
# 32	BRETLIE RICHARDSON (DH2); MYLA SPRABERY (DH2) Diabetes.....Type III?
# 33	LEAH RUSHING (DH2) Oral and Ocular Health: An Unexpected Relationship
# 34	EMILY SALDANA (DH2); SHERRY BLANKENSHIP (DH2) Tobacco Cessation and Early Diagnosis of Head and Neck Cancers
# 35	DAISY SALDIVAR (DH2) Don't Twist and Shout
# 36	HEATHER STECZKO (DH2) The Effects of Methamphetamine on the Oral Cavity
# 37	BROOKE VOTH (DH2) What Happens In The Mouth Does Not Stay In The Mouth

POSTER PRESENTATIONS

Poster #	Presenter Name(s) & Title
# 38	MEGAN WHITENER (DH2) Diseases of Poverty
# 39	JULIAN FIRMAN (DS3) Impact of Implant-Retained Overdentures on Bone Resorption
# 40	MARNI FULLER (DS3) Patients' Perspective of Implant Overdentures
# 41	CHANDANI RAGHA (DS4) Longitudinal Comparison of Growth and Development in Males and Females
# 42	CHRISTOPHER RAY (DS3) Longitudinal Body Growth and Development in Males
# 43	SYDNEY ROGERS (DS3) Pilot Assessment of the ENGAGE Kit for Care of the Geriatric Patient
# 44	BYRON SCHROEDER (DS2) Longitudinal Body Growth and Development in Females
# 45	MATTHIEU SULLIVAN (DS3) Prosthetic Complications of Patients Restored with Implant Overdentures
# 46	TAYLOR BARTON (Postgraduate); WILLIAM YEARY (Postgraduate) Ceramic Dental Implants: An Alternative to Titanium
# 47	LAUREN BOWERS (Postgraduate) Distal root amputation procedure: a predictable treatment option
# 48	TRACEY GERMAN (Postgraduate) Advanced Grafting Using rh-BMP2 for Implant Site Development
# 49	JENNA HUBACZ (Postgraduate); COURTNEY LAM (Postgraduate) Hybrid Prostheses: A Literature Based Treatment Sequence

POSTER PRESENTATIONS

Poster #	Presenter Name(s) & Title
# 50	EILEEN KWEE (Postgraduate); JARRED DEWBRE (Postgraduate) Management of adult dental trauma
# 51	ELISE WOODY (Postgraduate) Immediate Implant Placement and Provisionalization: A Case Report

Title: Dental Hygiene Faculty Perceptions of Web-Based Learning

Presenter(s): Callie Holloway, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this study was to examine full-time dental hygiene faculty's utilization and perceptions of web-based learning (WBL). The current use of e-learning and perception of its use will also be examined. This study intended to understand faculty outlook and hesitation regarding the implementation of web-based learning into curriculum.

Methods: A survey and email of informed consent were sent to 324 accredited U.S. entry-level dental hygiene program directors. Program directors were asked to forward the survey to all full-time dental hygiene faculty members. A 16-item questionnaire was conducted using an online Qualtrics-created survey in which questions were qualitatively and quantitatively analyzed.

Results: There was a 24.7% ($N = 80$) return rate of the surveys. Over half of faculty members (58.4%, $n = 45$) were born in the Baby Boomer generation. Thirty-five percent ($n = 28$) faculty reported utilizing hybrid (online and traditional) teaching modalities. Significant differences between student and faculty perceptions of WBL, as reported by faculty, were barriers faced. Dental hygiene faculty reported lack of skill and training as the most common barrier for e-learning. Several faculties also reported that online methodology is not applicable for all courses or learning styles.

Conclusions: Online course development training for faculty is necessary to remove barriers of technology. Updating teaching methodologies is necessary to accommodate changes in the dental hygiene profession and learner needs, however, further research is needed to determine which courses lend themselves to be taught online and which do not.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Oral Health Care In Alternative Care Facilities

Presenter(s): Sarah Justus, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this research study was to examine the curriculum of accredited dental hygiene programs in the United States to determine how the programs educate and prepare their students didactically and clinically to become oral care providers in alternative care settings. These settings include geriatric and special needs facilities.

Methods: Participants were selected from a list of 328 program directors of accredited dental hygiene schools in the United States. A 22-item survey was e-mailed through Qualtrics to all 328 program directors. SAS v.9 PROC FREQ was used to calculate descriptive statistics for all questions, Fisher's Exact Tests were used to compare preparedness, and open-ended questions were qualitatively analyzed.

Results: Seventy-nine program directors returned the survey. Few dental hygiene programs offer specific courses in geriatric (14%) and pediatric dentistry (9%). Most offer a didactic course in special needs (63%). Fifty-five percent of programs require students to treat patients in one or more various alternative care facilities. Clinical experience was viewed as the most effective teaching method for student preparation. Seventy-six percent of program directors agreed that their students are adequately prepared to treat patients in alternative care settings, yet various barriers to treating patients in alternative settings were identified.

Conclusions: Approximately three in four program directors participating in this study agreed that their students are adequately prepared for working in alternative care facilities.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Oklahoma Dentists' Management of Anxious Dental Patients

Presenter(s): Taylor Meek, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Background: Dental anxiety is a common phenomenon that affects a large number of patients and often results in avoidance of necessary dental treatment. It is important for dentists and hygienists to be aware of and utilize different approaches to managing anxious patients.

Purpose: The purpose of this research study was to determine Oklahoma dentists' knowledge, use, and interest in emerging non-pharmacological techniques for managing anxious patients.

Methods: This study utilized a systematically chosen sample of dentists licensed in Oklahoma. An electronic was emailed to 350 of 2392 licensed dentists. The response rate was 17% ($N=53$). Participants were selected regardless of age, gender, or specialty, and only retired dentists and those practicing outside of Oklahoma were excluded. The questionnaire was administered using Qualtrics software and included 10 items to determine respondents' current use of anxiolytic techniques as well as their interest and knowledge of non-pharmacological approaches. Descriptive statistics were used to analyze the data. IRB approval was obtained from the OU Health Sciences Center.

Results: Very few dentists reported using non-pharmacological anxiolytic techniques often if at all. Respondents were most willing to incorporate distraction techniques (85%) followed by cognitive behavioral therapy (49%), aromatherapy (32%), hypnosis (11%), and acupuncture (9%). Lack of education was the second most commonly reported barrier to incorporating alternative anxiolytic techniques (35%) only behind time constraints in appointments (65%).

Conclusion: It is essential for dentists and hygienists to be educated on a range of traditional and non-traditional approaches to managing anxious patients in order to provide the highest level of care.

This study was supported by a grant from Delta Dental of Oklahoma Oral Health Foundation.

Title: The Use of Social Media in Dental and Dental Hygiene Education

Presenter(s): Taeler Purdon, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Background: Many members of today's society use at least one social media platform to connect with friends, family, coworkers, and colleagues. Facebook and YouTube are two well-known social media outlets. Facebook allows communication between users in an informal setting. YouTube is a platform that allows users to upload and view videos of any genre. Both Facebook and YouTube have the potential to be beneficial to the education of dental and dental hygiene students.

Methods: Three hundred twenty-nine dental and dental hygiene students enrolled in the 2015-2016 school year at the University of Oklahoma College of Dentistry were emailed a 21-item survey utilizing the OUHSC Qualtrics software. Questions pertained to their knowledge and personal or educational usage of social media. All responses remained anonymous and confidential.

Results: One hundred surveys were submitted resulting in a 30% return rate. Not every respondent answered every item in the survey. 100% ($N=99$) were aware of Facebook and YouTube. 96% ($N=100$) reported that their program had a private Facebook page that allowed the members to communicate outside of school. 68% ($N=100$) believed that incorporating social media into dental and dental hygiene education has the potential to be beneficial and 87% ($N=86$) reported that YouTube would be the most beneficial for viewing clinical procedures.

Conclusions: Based on this study, YouTube and Facebook are the two social media platforms that are already and will continue to be the most beneficial to the education of dental and dental hygiene students.

Educational Implications: By incorporating these social media platforms, students are likely to fully comprehend clinical procedures more quickly and understand material better.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Relationship Between Dry Mouth and Oral Lesions

Presenter(s): Roshanak Esmaeili Ahmadabadi, DS3

Advisor(s): Lida Radfar, Farah Masood

Abstract:

Objectives: Saliva is an important tool in oral health maintenance. Dry mouth could be a consequence of systemic diseases such as systemic lupus erythematosus, and Sjögren's syndrome (SS). The purpose of this study is to evaluate the relationship between dry mouth and oral findings.

Subjects and methods: Patients who presented with dry mouth and eyes to Oklahoma Medical Research Foundation Sjögren's Research Clinic (OMRF SRC) participated in this study. All patients had a history and physical examination, oral and ocular examination, and serology. Patients were categorized as primary SS, partial SS(had some, but not all criteria), and overlap group (met both SS and another autoimmune disease criteria). Oral findings were categorized as immune related, infection-induced, traumatic, and unknown groups. STATA v.12 was used to analyze the data for frequency of oral findings, and correlation between salivary flow rates and biopsy of minor salivary glands with different oral findings (Pearson chi-square test).

Results: A total of 432 patients participated in the study. Mean age \pm SD was 54.8 ± 14 , and female to male ratio was 9:1. Of the 432 patients, 178 had 209 oral lesions. The findings included immune related {salivary gland enlargement (72), lichen planus (15)}, infection {oral candidiasis (19), recession (25), traumatic lesions (27)}, and unknown group {geographic and fissured tongue (48)}. Oral lesions did not correlate with stimulated and unstimulated salivary flow rate, biopsy of minor salivary gland and diagnosis of SS. Parotid gland enlargement was the most common finding that correlated with diagnosis of Sjögren's syndrome. Oral candidiasis and candida carriage did not correlate with objective dry mouth.

Conclusion: Parotid gland enlargement as an immune-related finding was the most common finding and the only feature that was statistically significant finding in patients with dry mouth. There were no statistical significant differences between having dry mouth and developing oral lesions.

This study was supported by a grant from the J. Dean Robertson Society. This study was presented at the American Association for Dental Research 2016 General Session.

Title: Peroxide/Fluoride Toothpaste Content on Elastomeric Tensile Strength

Presenter(s): J. Tristan Hudson, DS2

Advisor(s): Sharukh Khajotia, Fräns Currier, Onur Kadioglu

Abstract:

Objectives: A previous study by our laboratory (Buttar et al., 2015) showed decreases in mean tensile strength of orthodontic elastomers that differed by brand of fluoride- or peroxide-containing toothpaste and duration of exposure. The objective of this study was to determine the effect of fluoride/peroxide content on the tensile strengths of selected elastomer chains after twice-daily immersions in toothpastes for four days.

Methods: Grey closed-loop elastomer products Dentsply GAC Silver Super Elastic Chain (GAC), Ormco Generation II Power Chain (ORM), and RMO Energy Chain (RMO) were tested. Ten specimens per group were immersed twice daily (15min/immersion) in 650mL of water (control; CTL) or in 400mL water containing 250g of either Arm & Hammer Peroxicare (AHP), Aquafresh Cavity Protection (AQC), Colgate Optic White (COW), or Tom's of Maine Fluoride Free (TOM) toothpastes. Specimens were rinsed after immersions, and stored in water ($37\pm 1^\circ\text{C}$) between immersions. Tensile forces were measured initially (F0), then daily for four days (F1 - F4), at an extension of 3x original length. Toothpastes were categorized by fluoride/peroxide content as follows: Control (CTL), no fluoride/peroxide (TOM), containing fluoride only (AQF), and containing both fluoride and peroxide (COW, AHP). Tensile strength data were analyzed using multivariate ANOVA ($\alpha=0.05$).

Results: Statistically significant interactions were observed between fluoride/peroxide content and duration in elastomers GAC ($p=0.0066$) and ORM ($p<0.0001$), but not in RMO ($p=0.1431$). Interactions were also observed between product and duration in all toothpastes ($p<0.0001$) and the control group CTL ($p=0.0342$).

Conclusions: All of the elastomeric chain products tested showed significant decreases in mean tensile strength over time after twice-daily exposure to the various toothpastes. Decrease in mean tensile strength differed based upon the elastomeric product, fluoride- or peroxide-content, and duration of exposure.

This study was supported by a grant from Delta Dental of Oklahoma Oral Health Foundation. Statistical analysis was supported via funding provided by National Institutes of Health / National Institute of General Medical Sciences grant 1U54GM104938. Orthodontic elastomeric chains were graciously provided by the respective manufacturers. This study was presented at the American Association for Dental Research 2016 General Session.

Title: Variations in horizontal angulation and vertical measurements with CBCT

Presenter(s): Sudha Lakhwani, DS3

Advisor(s): Farah Masood, Sixia Chen

Abstract:

Aim: The purpose of this in-vitro study was to determine the effect of variations in horizontal mandibular angulation on vertical measurements with Cone beam computed tomography (CBCT). Methods: We used four foam edentulous mandibles and in each mandible five tooth locations were identified. Premeasured gutta percha sticks were attached on buccal, central and lingual positions at each tooth location and measurements were made. Using Iluma CBCT machine we imaged each mandible with different horizontal angulations: 0, 5, 10 degree angulations. Total 60 locations were used and 12 scans were done. The 0 degree angulation was considered as the “gold standard” position. Images were reconstructed using the Iluma vision software. Data were analyzed using multiple-t test. Results: Statistical analysis revealed a significant interaction between the locations ($P < 0.005$) and interaction between the angulations 0 vs 10 ($p \text{ value} < 0.0001$), 5 vs 10 ($p \text{ value} < 0.0001$). However, statistical analysis failed to yield any significant interaction between the location and angulation or location and region. Conclusion: Head orientation could lead to significant variation on vertical measurements.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Wettability of Disinfected, Polymerized, and Unset Addition Silicones**Presenter(s):** Scott Street, DS3**Advisor(s):** Sharukh Khajotia, Fernando Esteban Florez

Abstract:

Objectives: To compare wettability of selected light body fast set addition silicone products during and after polymerization, and after disinfection. **Methods:** Ten specimens (approximately 55.0x25.0x1.5mm) of each addition silicone [Aquasil Ultra (AU), Take 1 Advance (TO), and Virtual XD (VX)] were fabricated by sliding a Teflon mold over extruded impression material on a glass slide. A 5 μ L drop of distilled water was dispensed onto the surface of each specimen in a contact angle goniometer (OCA15-Plus, Future Digital Scientific Corp.) within 45s after the start of mixing (unpolymerized state, U). High-resolution digital images of the axisymmetric sessile drop were recorded (5frames/s, 1min, 37 \pm 1 $^{\circ}$ C). Specimens were cut in half, then one half was disinfected in Dispatch (30mL; 15min immersion; disinfected state, D), whereas the other half was not (polymerized state, P). Subsequent contact angle measurements were made at 25 \pm 1 $^{\circ}$ C on both halves after 30 minutes. SCA-20 software was used to analyze drop profiles and calculate contact angle values over time. The following exponential function was used to describe the relation between contact angle y and time t : $y = \alpha + (\theta - \alpha) \exp(-t/\beta)$, where θ is contact angle at time 0, α is contact angle at time infinity, and β is exponential decay rate. **Results:** Pairwise comparisons with Bonferroni correction showed statistically significant differences among states and among products ($p < 0.05$).

State	θ (degrees)			α (degrees)			β (degrees/s)		
	U	D	P	U	D	P	U	D	P
AU	97.1(0.3)	107.6(0.4)	108.9(0.4)	14.9(0.8)	37.5(0.2)	14.2(0.2)	166.1(3.5)	70.2(0.9)	62.9(0.6)
TO	117.9(0.8)	114.4(0.4)	112.6(0.4)	76.4(0.1)	58.3(0.2)	48.7(0.2)	18.4(0.5)	75.3(1.3)	60.7(0.8)
VX	81.2(0.6)	91.5(0.8)	74.3(1.1)	29.9(0.2)	16.3(0.1)	9.0(0.1)	48.2(1.0)	25.4(0.4)	14.4(0.3)

Conclusions: Initial contact angle values and decay rates differed among the products between the unpolymerized versus the polymerized and disinfected states, with smaller differences between the latter two states.

This study was supported by a grant from the J. Dean Robertson Society. Statistical analysis was supported via funding provided by National Institutes of Health, National Institute of General Medical Sciences grant 1U54GM104938. Materials for this study were graciously provided by Ivoclar Vivadent, Inc. This study was presented at the American Association for Dental Research 2016 General Session.

Title: Lateral lip length between affected vs non-affected side of cleft lips

Presenter(s): Chad Seubert, Postgraduate; Daniel Szalay, Postgraduate

Advisor(s): Kevin Smith

Abstract:

Cleft lip is one of the most common congenital anomalies, with a prevalence of 1 in every 700 live births. Multiple surgical approaches have been described to repair the unilateral cleft lip, with no one technique consistently producing ideal functional or esthetic results. One of the most popular techniques involves a rotational-advancement flap, initially described by Millard, and modified by numerous surgeons since, including Asensio. An important aspect of this technique, as previously described, is that cleft and non-cleft vermilion lengths are equidistant. This study aimed to investigate the equality of these vermilion length measurements. A total of forty-eight patients who underwent unilateral cleft lip repair within a three year time frame were included in this study. The non-cleft side vermilion was marked along the 3 points of cupid's bow as usual, and the cleft side marked at the level of the attenuation of the red line. The lengths to these points from the corresponding labial commissure were then measured. A significant difference was observed between vermilion lengths of cleft versus non-cleft sides. This was in contrast to previous reports in the literature of equal measurements. Surgeons must become aware of inherent asymmetries during pre-surgical planning of cleft lip repair. Techniques employed by such surgeons need to account for such difference to produce more superior outcomes.

Title: SMS Text Messaging as an Emerging Form of Dental Education

Presenter(s): Nallely Bean, DH2

Advisor(s): Tina Tuck

Abstract:

Goal/Objective: The goal of this community health project was to determine the effectiveness of using an SMS text messaging system to deliver oral health education in comparison to other health initiatives such as tobacco cessation and diabetes. The objectives for the project were focused on the improvement of oral health knowledge in parents with children enrolled in the Head Start Program. Specifically, childhood caries and childhood nutrition would be the focus of educational materials.

Methods and Materials:

The parents of 28 children attending a Head start program were surveyed to determine interest in an oral health program conducted primarily through text messaging.

Two face-to-face meetings were held.

- 1) The initial meeting set up the program and recruited participants.
- 2) The final meeting was utilized to follow up on the program and evaluate program outcomes.

A questionnaire to determine the parent's knowledge about oral health practices and issues of toddlers was distributed as a pre/post evaluation. 10 total messages were sent to parents over a 2 week period using an automated texting program to implement the oral health program titled Text4Smiles.

Results:

-25 % of the parents with children attending the Head Start program participated in Text4Smiles

-50% scored below average on dental knowledge before implementation of the program

-At the end of the program, 16% scored average and 83% scored above average on dental knowledge

-Overall, there was a 57% increase in knowledge of children's oral health by the end of the program

Conclusion/Considerations:

Outcomes of the program demonstrate utilization of SMS text messaging is as effective for oral health initiatives as it is for other health initiatives. The program used for this project limited the number of characters to 160 per text so multiple texts were often needed to convey the message. A program designed to deliver larger messages should be considered for this type of educational project.

Title: Think Before You Drink!

Presenter(s): Suzanne Chau, DH2

Advisor(s): Donna Wood

Abstract:

Purpose: This literature review highlights adverse effects of alcohol consumption in the oral cavity in comparison to infrequent drinkers or non-consumers.

Background: In 2010, the Centers for Disease Control reported \$249 billion were spent on public alcohol consumption.

Alcoholism:

- Ranks among the top preventable causes of disease, systemic cancers, and mortality in the United States
- Reduces an average of 30 years from life expectancy and contributes to:
 - Roughly 4% of deaths
 - 4.6% of diseases and injuries
 - 30% of costs for health care worldwide

Excessive alcohol users are classified into several groups:

	Binge drinkers	Heavy drinkers	Light/Non-alcohol Drinkers
Male	Consume > 5 drinks occasionally	Consume >15 drinks occasionally	Consume < binge or heavy drinkers
Female	Consume > 4 drinks occasionally	Consume > 8 drinks/week or drink while pregnant or under aged	Consume < binge or heavy drinkers

Conclusion: With various factors interacting with our biochemistry and environment, it is difficult to ascertain alcohol as the primary culprit for these diseases and cancers. This prompts further research to identify the true causes of oral manifestations. Nevertheless, it is imperative that we, as dental hygienists, be competent in recognizing the effects that alcohol has on the oral cavity and address necessary steps to the patient being treated.

Title: Dental Erosion and Fluoride

Presenter(s): Teala Cormier, DH2; Jada Hathaway, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the benefits of fluoride when used in the treatment of tooth erosion.

Background: On average Americans consume 44.7 gallons of carbonated drinks per person per year exposing the oral cavity to a pH level of 3 with every sip. Erosion is a chemical wearing away of tooth structure in response to acidic challenges such as these. The most important phase of managing patients with dental erosion is diagnosis and prevention of further progression and destruction of tooth tissue. Fluoride is one of the best-known preventive and restorative agents. Fluoride not only plays a role in remineralization after initial breakdown has occurred, but it also can protect teeth before any damage has been done by bacteria present in the oral flora.

Clinical Implications: Erosion can range in severity of demineralization as well as fluoride can range in concentration and efficiency in the remineralization process. It is important that dental professionals stay up to date on the techniques and products available to help arrest dental erosion. Fluoride can be applied professionally by a dental provider or personally with OTC or prescription fluoride products.

Conclusion: Early detection and diagnosis of dental erosion is critical in the process of arresting tooth destruction. Dental professionals should stay abreast of new fluoride guidelines and products.

Title: Managing Oral Care for Children with Autism Spectrum Disorder

Presenter(s): Kimberly Craig, DS2; Amber Leist, DH2

Advisor(s): Tammie Golden

Abstract:

Purpose: The purpose of this literature review is to examine methods in the dental office that might enhance management of oral care for children with Autism Spectrum Disorder (ASD).

Background: A visit to the dental office can often be a distressing experience for a child suffering with ASD. These patients often experience atypical responses to stimulatory sensations leading to tantrums, outburst, and physical withdrawal. Medications and/or restraints have been utilized to control adverse outcomes from ASD patients but are not without risk. The study of Sensory Adapted Dental Environments (SADE) is a revolutionary approach for providing dental care to children with ASD. This approach aims to reduce physiological anxiety and negative responses, and increase comfort for the child during routine dental treatment. Simple changes such as softer colored lighting, soothing music, and butterfly wraps have been implemented to provide a more pleasurable dental experience for children with autism.

Significance: In dentistry, children with autism are at higher risk for exhibiting inadequate oral health and hygiene. Autism is not considered a direct cause of a dental deficit, but is linked to poor oral health, periodontal disease and an increased rate of dental caries. Impairment of the autistic child's sensory processing may contribute to their inability to maintain proper oral hygiene habits.

Conclusion: Children with ASD require special accommodations when receiving dental treatment. There are multiple approaches to dental treatment in children with ASD including: restraints, medications, and a soothing environment. SADE is a new and radical approach to routine dental treatment in children with ASD and has the potential to improve child comfort, safety and efficiency as well as reduce cost of treatment.

Title: The Silver Fluoride Bullet

Presenter(s): Alyvia Demeter, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of the literature review is to educate dental professionals on the use of silver diamine fluoride in dentistry today.

Background: Silver diamine fluoride (SDF) is colorless solution that encloses 44,800ppm fluoride that has been used in many countries to arrest dental caries as well as dentinal hypersensitivity. SDF is FDA approved for the treatment of dentinal hypersensitivity as well as caries prevention. The FDA will approve SDF for the treatment of active dental decay in 2016.

Significance: Silver diamine fluoride prevents and arrests dentinal caries in primary and permanent teeth. This fluoride has the ability to block dentinal tubules, which can give a feeling of relief to dentinal hypersensitivity. SDF is established in significantly higher concentrations in tooth enamel when compared to sodium fluoride varnish and acidulated phosphate fluoride gel when used as a preventive treatment. Silver diamine fluoride is the only topical application that can arrest active dentinal decay in a noninvasive procedure. This treatment is faster and more cost effective than a traditional dental restoration. The downside is the inevitable black stain left on the tooth surface.

Conclusion: Silver diamine fluoride can successfully be used in the treatment of dentinal hypersensitivity, dentinal caries, and for the prevention of carious lesions. The new CDT code, D1354, states interim caries arresting medicament application includes conservative treatment of an active non-symptomatic carious lesion by topical application of a caries arresting or inhibiting drug without mechanical removal of sound tooth structure. SDF is a suitable alternative to traditional caries management for certain populations that do not have access to care or lack of finances. This solution is a cost effective, non-invasive alternative that could potentially save the teeth of children and elderly who may not be able to afford or access a restoration.

Title: Prevention and Management of Dental Erosion

Presenter(s): Zain Douglas, DH2; Emily Miller, DH2

Advisor(s): Marla Holt

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the significant factors and prevention of dental erosion.

Background: Erosion is a progressive irreversible loss of tooth structure that is carried out through a chemical process, which is initiated through an acid exposure. An intrinsic acid exposure, which is initiated from within the body, can be seen in people with gastro esophageal reflux disease (GERD) and eating disorders, such as bulimia. Extrinsic dental erosion is initiated from outside the body. A few common causes of extrinsic dental erosion are acidic foods and carbonated beverages. The mouth has a pH of 7, which is considered a neutral environment and is above the critical level. The critical level is reached when the pH of the oral cavity drops below a 5.5. At a 5.5 pH or below, saliva no longer supplies an adequate amount of calcium and phosphate to tooth structures, therefore allowing the structures in dental enamel to become weak. Effective management of a condition, such as dental erosion, relies heavily on understanding why it happens, whom it affects, impact on the body, and preventive measures.

Clinical implications: If dental erosion is not managed effectively it can lead to irreversible tooth loss, tooth pain, tooth deformity, inadequate tooth function, and esthetic problems.

Conclusion: With an increasing prevalence in all ages, dental erosion is an emerging health issue that needs to be understood and addressed before the condition is able to make a permanent and negative effect on the oral cavity. Early diagnosis from dental professionals plays a significant role in the prevention and treatment.

Title: BT + ONJ = BRONJ

Presenter(s): Marisa Esparza, DH2

Advisor(s): Donna Wood

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the importance of emphasizing proper oral hygiene to patients who have been exposed to Bisphosphonate Therapy (BT), while lacking radiotherapy to the craniofacial region.

Background: Bisphosphonate-related osteonecrosis of the jaw (BRONJ) is present in approximately 1-12% of cancer patients treated with bisphosphonates. According to the Journal of Clinical and Experimental Dentistry, bisphosphonate-related osteonecrosis of the jaw develops in patients who have received bisphosphonates, and have not had radiotherapy in the head or neck region. The involvement of inflammatory cytokines in periodontal disease has been known to trigger bisphosphonate-induced osteonecrosis of the jaw. Therefore, the lack of proper oral hygiene may contribute to this condition.

Clinical Implications: Dental professionals are expected to be knowledgeable concerning the risk factors associated with the development of BRONJ. A significant increase in the number of Actinomyces has been noted in patients treated with bisphosphonates, which plays a critical role in the development of ONJ. Dental professionals must educate patients receiving bisphosphonate treatment about the importance of proper oral hygiene.

Conclusion: Osteonecrosis of the jaw is a serious condition that may lead to morbidity. Proper oral hygiene helps to prevent oral infections that may contribute to BRONJ. Dental hygienists should take action to ensure all patients receiving bisphosphonates are well informed about this condition.

Title: That Sucks!

Presenter(s): Deborah Fulton, DH2

Advisor(s): Melissa Stutzman

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on ways non-nutritive sucking affects occlusion.

Background: An estimated 10-34% of children living in developed countries will habitually suck their thumb or finger during the first year of life. An estimated 45-60% will use a pacifier. Non-nutritive sucking habits often contribute to malocclusions such as anterior open bite, posterior crossbite, and Class II division I molar relationships.

Clinical Significance: Dental professionals should recognize signs of non-nutritive sucking habits in order to recommend effective cessation techniques and optimal treatment options.

Conclusion: Malocclusions often require surgical or orthodontic treatments. Without intervention, malocclusions due to non-nutritive sucking habits may result in temporomandibular joint disorders or asymmetry of facial structures.

Title: What Dental Professionals Need to Know about Cancer

Presenter(s): Jennifer Graham, DH2; Carly Mindemann, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to emphasize dental professionals' role in treatment and education for cancer patients.

Background: The Center for Disease Control ranks cancer as the second leading cause of death in America. It is estimated that in 2016, 1,630 people will die every day because of some form of cancer. More than 1.6 million Americans are expected to be diagnosed with cancer. Oral and oropharyngeal cancer is the 8th most common cancer type but is often undetected until late stages, leading to an even more unfavorable prognosis. Countless research has shown that cancer detected in early stages has a more favorable prognosis and fewer side effects from cancer treatment. Dental professionals have a unique opportunity to identify abnormalities of the head and neck before symptoms are recognizable to the patient.

Significance to Dentistry: Often times, patients will visit a dental office more frequently than their primary care physician's office. Thus, clinical implications of cancer detection and cancer treatment can be provided at subsequent dental appointments. There are various cancer treatment regimens used for the treatment of cancer, along with numerous oral implications that are associated with cancer treatment to the head and neck. These side effects include, xerostomia, oral mucositis, candidiasis, rampant decay, taste alteration, and numerous others.

Conclusion: Dental professionals play a critical role in the prevention, detection, and education needed for oral cancer patients. Dental professionals have an ethical responsibility to recommend and provide needed treatment for all patients in order to improve their quality of life. Oral health care education about the prevention and early detection methods as well as patient compliance is imperative for patients' longevity.

Title: For the Record: Unconventional uses of dental records in Forensics

Presenter(s): Kaitlyn Haas, DH2

Advisor(s): Melissa Stutzman

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the importance of maintaining accurate dental records and the unconventional use of records in forensic odontology.

Background: Forensic odontology is an internationally recognized forensic specialty. Dental professionals play a vital role in identification of Mass Fatality Incident (MFI) victims. In recent years, these have included hurricanes, floods, earthquakes, and the September 11, 2001 attacks on the World Trade Centers and The Pentagon. Dental records are also valuable resources in the prosecution of criminal cases involving abuse, neglect, assault, battery, and homicide.

Significance: Dental records and charts may be used for identification of deceased persons and in legal cases for abuse and neglect.

Conclusions: It is essential for dental professionals to maintain thorough, accurate dental records that can be used for forensic purposes if necessary. The American Board of Forensic Odontology recommends increased forensic training in dental education programs to keep up with advancements in the forensic field.

Title: Salivary Diagnostics

Presenter(s): Olga Khomutova, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on salivary diagnostics and their potential in use in the practice of dentistry.

Background: In the most recent years, dentistry has been shifting its focus from being a surgical and reparative profession to a profession that focuses on preventive measures and more importantly, patient education and health. Research shows that a well-established oral-systemic link has been made with the emphasis on the oral cavity representing one's overall health, and saliva commonly termed as the "Mirror of the body". The continuing advances in salivary diagnostics have made it possible for microbial pathogens that are associated with systemic, oral diseases, noninfectious systemic and oral conditions to be discovered in the collected samples, however there are still many barriers that limit the use of this diagnostic tool in dentistry.

Clinical implications: Dental professionals have an obligation to their patients to stay informed on any current developments in research of salivary diagnostics. Communication is key to a successful patient-health care provider relationship; therefore it is crucial for dentists and dental hygienists to be able to educate the patients on the oral-systemic link.

Conclusion: Early detection of disease plays an important role in the treatment and the outcome of it. Many studies have shown that salivary diagnostics can potentially detect biomarkers that are related to various forms of disease. As the popularity for salivary diagnostics in dental offices increases, it will be important for dental professionals to educate our patients on the capabilities and reliability of saliva testing in relation to oral and systemic health.

Title: Ankyloglossia, Maxillary Lip-Ties and Breastfeeding

Presenter(s): Lauren King, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on ankyloglossia and maxillary lip-ties, how they affect breastfeeding, and explain how frenectomy may improve breastfeeding outcomes.

Background: Ankyloglossia, more commonly known as a “tongue-tie”, refers to the short, tight, and/or thick attachment of the lingual frenulum from the tongue to the base of the mouth. A maxillary lip-tie occurs when the superior labial frenum is extra tight and doesn’t allow the upper lip to flange out to achieve a proper latch to the nipple. Severe cases of ankyloglossia and maxillary lip-ties in newborns can result in breastfeeding difficulties for the mother such as pain while nursing, nipple damage, mastitis, blocked ducts, and a sense of failure if unable to breastfeed successfully. Problems for the infant include failure to thrive due to poor milk intake and poor bonding between infant and mother.

Clinical Implications: Dental professionals should be trained on how to diagnose ankyloglossia and lip-ties in infants, children and adults. Frenectomy services provided by dental professionals would be a great service for infants whose mothers have a strong desire to breastfeed. Although frenulum procedures are becoming more in demand by new mothers for their infants, not many providers currently offer these procedures due to lack of knowledge on the subject.

Conclusions: Research has shown that lingual frenotomy procedures help improve milk intake by the infant, increases milk production in the mother, decreases nipple pain, and overall contributes to breastfeeding for a longer period of time. Maxillary frenum procedures can help the infant latch correctly. Spreading awareness about this subject among all healthcare disciplines would greatly help breastfeeding mothers and their infants.

Title: Musculoskeletal Disorders Among Dental Professionals

Presenter(s): Sadee Lewis, DH2

Advisor(s): Tina Tuck

Abstract:

Purpose: The purpose of this literature review is to inform dental professionals on the etiology and prevention of musculoskeletal disorders.

Background: Musculoskeletal disorders (MSDs) are one of the most significant occupational health issues affecting dental professionals. Factors increasing the prevalence of MSDs include: poor posture, stress, increase in age, and work environment. Musculoskeletal disorders can debilitate a person by affecting the joints, bones, nerves, and muscles in the upper and lower extremities. Trauma to the supporting structures of the upper and lower limbs, neck, and lower back are precipitated by sudden exertion, prolonged or repeated exposure to physical factors such as repetition, force, vibration or awkward posture.

Clinical Implications: Musculoskeletal pain affects a numerous amount of dental professionals throughout their careers and can often go unrecognized or undiagnosed. It is imperative for dentists, dental hygienist, and dental assistants to be aware of the risks that can induce musculoskeletal disorders and the preventive measures that can be taken to avoid this issue.

Conclusion: A variety of safeguards can be taken to prevent an individual from encountering musculoskeletal pain. Proper ergonomics, tailored dental units, exercising and stretching and magnification safety glasses such as loupes can decrease one's risk for developing a musculoskeletal disorder. When a clinician experiences no pain or fatigue while performing procedures it allows for an increase in their efficiency, productivity, and career longevity that can ultimately lead to a healthier workplace and healthier lifestyle.

Title: Dangerous Deficiency: An Approach to Periodontal and Systemic Health

Presenter(s): Montse Lincks, DH2

Advisor(s): Lindsey Hays

Abstract:

Purpose: To educate dental professionals on current scientific findings relating vitamin D levels to periodontal and systemic health.

Background: Vitamin D is a key player in calcium homeostasis and a vital component of periodontal health. Given the importance of vitamin D during intestinal calcium uptake, modern medicine is increasingly aware of widespread results concerning deficiencies. Ongoing research relates vitamin D deficiencies to inflammatory processes, cardiovascular risks, cancer, diabetes, and Sjögren's Syndrome. Studies also suggest a direct correlation of multiple antibacterial properties of vitamin D in protecting the body.

Clinical Significance: Periodontal health is specifically affected by the presence, or absence, of adequate vitamin D. In deficient levels, low density bone mass is linked to overall bone loss, osteoporosis, and periodontitis. Vitamin D may also aid immune response by stimulating antimicrobial peptides. Reduction of pro-inflammatory cytokines, combined with simultaneous anti-inflammatory cytokine production in vitamin D-sufficient conditions, appear to stabilize alveolar attachment. Gingival inflammation, high bleeding index, and deeper probing depths are quite common in vitamin D depleted conditions. Additionally, post-periodontal therapy healing may be optimized with normalized vitamin D levels present during new bone formation.

Conclusion: Vitamin D provides a multitude of protective mechanisms in the human body. Anti-inflammatory properties reduce the likelihood of many illnesses, and research studies continue to indicate the importance of adequate vitamin D as an adjunct in therapy, illness intervention, and overall wellbeing. In vitamin D deficiencies, inflammatory processes of tissues lead to deteriorating health, opening the way for a variety of diseases or systemic conditions. Cancers, hypertension, diabetes, osteoporosis, and a vast number of periodontal health concerns arise when serum levels are insufficient.

Title: Dual Roles of Clinicians: Moving Beyond the Scaler

Presenter(s): Haley McDaniel, DH2

Advisor(s): Melissa Stutzman

Abstract:

Purpose: The purpose of this literature review is to highlight three effective educational techniques for the pediatric patient caregiver.

Background: Early childhood caries (ECC) is defined as an infection of one or more teeth in children up to five years of age. ECC that go untreated cause significant pain, reduced overall health, possible developmental concerns, poor eating/sleeping habits, and even feelings of low self-worth.

Significance: ECC is the most common chronic disease among young children. Research indicates that increased dental knowledge of parents and caregivers significantly lowers the risk of ECC.

Conclusions: Dental professionals have the opportunity to cause positive behavioral changes by educating parents and caregivers. Technology, hands-on demonstrations, and counseling provide a foundation for effective educational intervention.

Title: Role of Primary Care Providers in Prevention of Childhood Caries

Presenter(s): Katie McLaughlin, DH2; Kelsey Feathers, DH2

Advisor(s): Tammie Golden

Abstract:

Purpose: The purpose of this literature review is to investigate the role of pediatric primary health care providers and benefits of collaborating with dental health care professionals to reduce prevalence of early childhood caries.

Background:

The caries process can begin the moment the first tooth is erupted and is a factor in determining future decay in permanent dentition. Children from low income and minority groups are most affected by caries, especially those under three years of age. Although many factors such as social, economic, environmental and biological are to blame, the role of reducing early childhood caries can be greatly improved with the collaboration of dental professionals, pediatric family physicians and primary care providers.

Clinical Significance:

American Academy of Pediatric Dentistry and American Dental Association recommend infants receive oral evaluations within 6 months of eruption of first tooth, but no later than 12 months. In spite of national recommendations from dental and pediatric groups on importance of routine and early dental care a significant proportion of children do not receive any routine dental visits.

Primary care providers such as pediatricians, family physicians, nurse practitioners, pediatric nurses and physician assistants receive minimal training on oral health but remain an important access point for preventive care.

Conclusion:

Oral health professionals collaborating with pediatric primary care providers have shown to be helpful in identifying and treating at risk children much earlier. Combined with childhood education programs, community partnerships and early intervention, the potential for adult caries and oral health problems can be minimized.

Title: The Science of Smell: Olfactory Dysfunction and Oral Health

Presenter(s): Laura McNeal, DH2

Advisor(s): Lindsey Hays

Abstract:

Purpose: To update dental professionals about the science behind olfactory dysfunction, as it pertains to the sense of taste and smell, and how it affects a patient's oral hygiene and quality of life.

Background: There are many causes of olfactory dysfunction, including chronic allergies, nasal polyps, head trauma, neurodegenerative disorders and age. More than ten million people suffer from chronic allergies and loss of olfactory function. In the elderly population, it is estimated that approximately 50 million people over the age of 65 have decreased olfactory function.

Clinical Significance: Patients suffering from olfactory dysfunction can have a multitude of health and dental considerations including: xerostomia, halitosis, increased plaque retention, tooth decay, periodontal disease, and depression. Among healthcare professionals, olfactory dysfunction is often overlooked as a significant factor in overall health. Treatment options are limited and cannot be generalized to the population.

Conclusion: Awareness of symptoms and proper education for patients as well as dental professionals, can assist in living healthy and fulfilled lives. Research suggests that olfactory dysfunction has a direct link to the quality of oral health, making this disorder a top concern for dental professionals. With increasing numbers of patients dramatically affected by this condition, dental hygienists can play a key role in detection and management of the disorder. It is vital for dental professionals to recognize symptoms of olfactory dysfunction, as well as educate themselves and patients about the loss of these senses.

Title: Diabetes, Periodontitis, and Preterm Birth

Presenter(s): Trista Moss, DH2; Paige Richardson, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the correlation between diabetes, periodontitis and preterm birth.

Background Information: According to the CDC the statistics regarding adults aged 18-79 being diagnosed with diabetes has become astronomical in number from 1980-2011. From 1980 there were 493,000 diagnosed to 1.5 Million in 2011. Also according to the CDC nearly 50% of adults ages 30 years and older have some form of periodontal disease. Up to 10% or more of pregnant women experience lack of tolerance of glucose during later stages of pregnancy. Due to lack of dental knowledge most pregnant women do not go to the dentist out of fear of harming their unborn child but are unknowingly doing the opposite. The CDC recorded that in 2014 1 in every 10 infants in the United States were born preterm. Worldwide pre-term births are currently the second most common cause of death in children under the age of 5.

Clinical Significance: A dental professional's role is not limited to only the oral cavity but their overall systemic health. Numerous pregnant patients are treated in dental offices. It is important for dental professionals to be knowledgeable regarding new research and possible practices. Incorporating glucometer testing into the assessment of vitals could allow for dental professionals to detect gestational diabetes in women at an earlier time in their pregnancy. Diabetes can contribute to increased periodontal disease. Both of these things have been linked to pre-term birth.

Conclusion: Dental professionals need to stay a breast of the ever-changing research of the oral systemic link and oral disease.

Title: Nutrition and Dental Neglect in Children

Presenter(s): Morgan Muegge, DH2; Tiffany Yates, DH2

Advisor(s): Abbie Gustafson

Abstract:

Purpose: The purpose of this literature review is to examine the nature and condition of Early Childhood Caries (ECC) as a form of neglect and elucidate the need for routine nutritional counseling during dental visits.

Background: ECC is the most common chronic infectious disease in children worldwide and is largely affected by nutrition. The American Academy of Pediatric Dentistry states that in the United States, 33% of children 2 to 5 years have ECC with numbers increasing, especially in minority and low socioeconomic status families. Unintentional neglect is often due to lack of education. Educating pregnant women, parents and caregivers about nutrition in relation to oral health can help reduce the risk of caries in infants and children.

Clinical Implications: Dental professionals have the responsibility to communicate to patients the significance of nutrition in oral health. Ignorance contributing to ECC can be avoided by teaching patients about early childhood caries, vertical transmission, the intake, frequency and consistency of foods, as well as, implementing proper oral hygiene practices. Every child has the potential to be cavity free with the combined help from parents and dental professionals.

Conclusion: By incorporating regular nutritional counseling into practice, dental professionals can provide an important preventive measure against ECC. With the knowledge gained, parents will be better equipped to avoid child negligence, ultimately providing better oral health to their families.

Title: Invisalign: An Alternative to Traditional Orthodontics?

Presenter(s): Whitney Nickel, DH2

Advisor(s): Tammie Golden

Abstract:

Purpose: The purpose of this literature review is to compare and contrast the efficacy of Invisalign® retainers versus traditional facial-bracketed orthodontia.

Background: Orthodontics were introduced into the United States in the late 1700's and have developed into the traditional braces that we use today. With the development of the traditional facial-bracketed orthodontics came the use of different materials to produce tooth alignment. In 1999 Invisalign® was introduced as an esthetic alternative to traditional orthodontics. These clear aligners utilize a two-week replacing retainer system to move teeth to an acceptable occlusion.

Significance:

- Some malocclusions are not accepted for Invisalign®
- Traditional may be more efficient
- Invisalign® does not require an orthodontic specialist

Conclusions:

While traditional braces have been the gold standard for many years, the invisible aesthetics of Invisalign have been steadily gaining in popularity. Only certain malocclusions can be altered with Invisalign® therefore it cannot be considered a guaranteed alternative. Studies that were completed regarding post retention 5 years after alignment completion, show Invisalign® patients and their occlusions, deteriorated more than patients who wore traditional braces. A positive finding from the studies regarding Invisalign® retainers show that Invisalign® is less harmful to the gingival tissue than traditional orthodontics. The rationale for this finding is due to patient's ability to perform more effective oral hygiene care at home. Future long term studies need to be conducted to determine the reliability of Invisalign.

Title: Rheumatoid Arthritis and Oral Health

Presenter(s): Lauren O'Brien, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals about the correlation between rheumatoid arthritis and a person's oral health.

Background: Rheumatoid arthritis is a chronic inflammatory disease that primarily affects the small joints in the hand and feet. It is an autoimmune disease, meaning that the body's immune system attacks itself and kills healthy body tissue unintentionally. Although many ordinarily do not start to see symptoms of rheumatoid arthritis until after the age of 40, persons of any age can be affected by this disorder.

Significance: The physical disabilities associated with rheumatoid arthritis can leave a person incapable of performing daily activities such as accomplishing good oral health care. There are also many evidence-based studies that specifically look at the likenesses between rheumatoid arthritis and periodontal disease. This is demonstrated in the similarity between rheumatoid arthritis and periodontal disease's pathological mediators and oral bacterium. Rheumatoid arthritis has also been shown to have an impact on salivary flow and lysozyme content in the mouth.

Conclusion: It is imperative that people with rheumatoid arthritis maintain excellent oral care both at home and by visiting their dental hygienist regularly. Evidence shows that people with rheumatoid arthritis are at an increased risk for developing periodontal disease and vice versa, but with proper oral health care, this risk can be reduced.

Title: Access to Dental Care for the Oklahoma Special Needs Patient

Presenter(s): Hannah Owens, DH2; Cassie Wallace, DH2

Advisor(s): Lydia Snyder

Abstract:

In Oklahoma, 14.9% of children ages 0-20 present with some sort of mental or physical disability. These disabilities include: visual, hearing, ambulatory, cognitive, self-care, and independent living. These physical and mental disabilities affect the special needs patients' daily life in many ways. The prevalence of oral complications in these patients that present with special needs is higher than in a non-medically compromised patient; they are at much higher risk for caries, periodontal disease, malocclusion, and bruxism. It is important that these patients have a dental home and are watched closely so these complications can be kept to a minimum. Providing adequate coverage for specialized needs of these individuals can be costly. Having dental insurance can greatly improve quality of care and reduce future oral complications. The purpose of this literature review is to investigate access to care issues for special needs and research what types of dental coverage are available to those living in Oklahoma.

Title: Diabetes.....Type III?

Presenter(s): Bretlie Richardson, DH2; Myla Sprabery, DH2

Advisor(s): Lindsey Hays

Abstract:

Purpose: To inform healthcare professionals about the growing epidemic of Alzheimer's disease and the newfound diagnosis of Type III Diabetes.

Introduction: Type II Diabetes is at epidemic proportions in the United States. Causes are multifactorial with major factors being lifestyle and heredity. Research has yet to find a cure, however has suggested a strong link to Alzheimer's disease as an end result. Insulin resistance has led to increased insulin levels which compete with the enzymes that breakdown plaque formation in the brain. This process is so significant that it has led researchers to officially term Alzheimer's disease as Type III Diabetes.

Significance: It is well established that Diabetes Mellitus has multiple oral effects including: an increased prevalence of periodontal disease, decreased healing and susceptibility to infection. Furthermore, oral health can impact the severity of diabetes and systemic inflammation. With millions of patients affected and a direct link to dental complications, it is likely that dental professionals will be on the forefront of patient care. Dental therapies can have a significant impact on the maintenance of the disease as well.

Conclusion: With Type II Diabetes and Alzheimer's disease increasing at similar rates, researchers have discovered a direct link. Until proven otherwise, it should be assumed that Diabetes Mellitus is a precursor to Alzheimer's disease, now termed Type III Diabetes. Dental professionals should understand this link in great detail in order to educate patients not only about their oral health, but the importance of diabetes management.

Title: Oral and Ocular Health: An Unexpected Relationship

Presenter(s): Leah Rushing, DH2

Advisor(s): Lindsey Hays

Abstract:

Purpose: To educate healthcare professionals on the link between ocular and oral health as well as upcoming treatment options.

Introduction: Considering many eye diseases are age-related, recent increases in life expectancy are determined to have a substantial impact on the prevalence of visual impairment. Many risk factors associated with age-related macular degeneration (AMD) are also linked to periodontal disease. It has been suggested that specific inflammatory mediators are connected to AMD, periodontal disease, and diabetes. Furthermore, diabetic retinopathy frequently accompanies diabetic periodontal patients and if periodontitis is left untreated it may transform retinopathy into AMD.

Significance: Noting that periodontal treatment can diminish the presence of circulating inflammatory mediators, dental clinicians should be aware of this association and take an aggressive approach in treating periodontal disease. On the opposite end, stem cell therapies with the use of dental pulp stem cells (DPSCs) are being extensively explored as treatment options for degenerative eye diseases. In general, stem cells have the ability to differentiate into numerous types of cells, which can be useful in cellular regeneration within the eye. This innovative treatment option is making positive strides to have DPSCs readily available from teeth verses intense procedures from bone marrow stem cell harvesting. Thus providing less invasive benefits to the patient.

Conclusion: Identifying patients with periodontal risks may also prevent future development of eye disorders. With AMD being the leading cause of blindness over age 60 and an increasingly aging population, it is probable that dental professionals will encounter affected patients. Dental professionals may also assist physicians in the harvesting of DPSCs as a form of therapy. Dental professionals need to be aware of the commonalities between degenerative eye diseases and periodontal disease and know how to refer patients accordingly.

Title: Tobacco Cessation and Early Diagnosis of Head and Neck Cancers

Presenter(s): Emily Saldana, DH2; Sherry Blankenship, DH2

Advisor(s): Marla Holt

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals about tobacco cessation and the significance of early diagnosis of head and neck cancer

Background: A study done by the Department of Dermatology and Medicine at the Weill Cornell Medical College, showed that 30% of all cancer related deaths in the United States are due to tobacco smoke and other tobacco related products. Tobacco use is in direct response to up to 90% of the cases of oral squamous cell carcinoma. Oral cancers found in cigarette smokers develop in the floor of the mouth, ventral lateral surface of the tongue, and the soft palate, the incidence rate is 97%. Early diagnosis and tobacco cessation is the key to help stop cancer related deaths due to tobacco products.

Clinical significance: Dental professionals should perform proper extra oral and intra oral cancer screenings for each patient and provide options for tobacco cessation for each individual. Tobacco can also affect the hard palate and salivary glands increasing the risk of periodontal disease.

Conclusion: Dental professionals play an important role in tobacco cessation and recognizing early signs of head and neck cancers.

Title: Don't Twist and Shout

Presenter(s): Daisy Saldivar, DH2

Advisor(s): Donna Wood

Abstract:

Purpose: The purpose of this literature review is to heighten the awareness of dental health professionals regarding current prevention recommendations for work-related musculoskeletal disorders (WRMSD) in the dental field.

Background: The identified work environment for WRMSD can be exemplified in the dental profession. Clinicians often employ prolonged, static and awkward postures coupled with repetitive movements as they provide oral care for their patients. These factors enhance the risk of acquiring a WRMSD.

Clinical Significance: Work-related musculoskeletal disorders can affect the dental professionals in numerous ways. Examples include clinician work absence, loss of productivity, and an impaired team atmosphere. Dental professionals strive to provide quality care to their patients, maintain productivity, remain satisfied, and prolong their career when they avoid acquiring a WRMSD.

Conclusion: Literature has shown that training in optimal ergonomics, stretching and exercise, correct operator-patient positioning, rest breaks, decreasing workload, and the use of assistive equipment, all aid in reducing the risk for WRMSD. Implementation of the recommendations could lead to improved physical health for the clinician, resulting in productive work, occupational satisfaction, and quality patient care. However, more research is currently needed in order to further determine the benefits of the recommendations.

Title: The Effects of Methamphetamine on the Oral Cavity

Presenter(s): Heather Steczko, DH2

Advisor(s): Carolyn Hinckle

Abstract:

Purpose: The purpose of this literature review is to educate dental professionals on the devastating effects that methamphetamine use has on the oral cavity and how to treat these individuals in the dental office.

Background: Due to high availability and low cost, methamphetamine has begun to replace marijuana and cocaine as the drug of choice for many recreational drug abusers. WHO has estimated that 10.4 million people in the United States aged 14 and over have used methamphetamine at least once in their lifetime. Methamphetamine abuse can destroy the overall health of the user and leads to extreme tooth wear and decay.

Clinical Implications: Due to increased use, the frequency of patients presenting in the dental office with problems associated with methamphetamine will increase as well. Dental professionals have a responsibility to recognize the oral manifestations of methamphetamine abuse and to provide proper dental treatment. Educating the patient on the harmful health effects should be considered an aspect of treatment, as well as a referral to a treatment facility.

Conclusion: Methamphetamine has detrimental effects on the oral cavity and dental professionals need to be able to recognize and treat these unique manifestations of drug abuse.

Title: What Happens In The Mouth Does Not Stay In The Mouth

Presenter(s): Brooke Voth, DH2

Advisor(s): Laurie Cunningham

Abstract:

Purpose: The purpose of this literature review is to research the relationship between periodontal disease and cardiovascular disease.

Background: Periodontal disease is the most common global, non-communicable inflammatory disease. Both gram-negative and gram-positive bacteria including *Porphyromonas gingivalis*, *Prevotella intermedia*, *Tannerella forsythensis*, *Aggregatibacter actinomycetemcomitans*, *Peptostreptococcus micros* and *Streptococcus intermediu* contribute to the inflammatory response of this disease. C reactive protein is the body's inflammatory response to the bacterial invasion of the periodontal structures. The elevated C reactive protein level creates a constant state of infection that may lead to cardiovascular disease. Cardiovascular disease is the leading cause of death in the industrialized world. Oral activity such as chewing, brushing and flossing may lead to an oral bacteremia that can travel to the heart and create a secondary infection as well as atherosclerotic plaques.

Clinical Implication: There is a direct correlation to the increase of the severity of periodontal disease with the risk of cardiovascular disease. It is vital that dental professionals are familiar with cardiovascular disease risk factors, along with the link to periodontal disease. The dentists and hygienists should educate the patient on the risk factors associated with both diseases. Patient specific periodontal therapy should be implemented along with a tailored home care regimen to combat an elevated inflammatory response.

Conclusion: There has yet to be a study to show a direct causal relationship between the two diseases, due to the fact they share many of the same risk factors. Inflammation is the largest association between the diseases. More research and studies need to be preformed in regards to this topic.

Title: Diseases of Poverty

Presenter(s): Megan Whitener, DH2

Advisor(s): Lindsey Hays

Abstract:

Purpose: To investigate the relationship of poverty and common childhood diseases leading to an increase in dental professionals' awareness of these associations.

Background: Poverty has high prevalence in the United States and poverty rates continue to rise. Early childhood caries, obesity, and asthma are three chronic diseases that are commonly seen in individuals of low socioeconomic status. Research has suggested a direct link, putting impoverished children at greater risk for the development of chronic disease by means of environmental factors.

Significance: Early childhood caries, obesity, and asthma can affect overall health and can have a negative effect on oral health as well. In severe cases, these diseases can significantly impact quality of life. Therefore, it is imperative that dental professionals are knowledgeable on the management of these diseases as well as identification of risk factors.

Conclusion: Childhood diseases are at epidemic proportions in the United States with a majority arising from impoverished conditions. Dental professionals may be able to make an impact with improved Access to Care and public health education. Awareness of disease rates arising from low socio-economic conditions may help dental professionals be a modality of prevention in underserved populations.

Title: Impact of Implant-Retained Overdentures on Bone Resorption

Presenter(s): Julian Firman, DS3

Advisor(s): Yacoub Al Sakka, Nancy Jacobsen

Abstract:

For edentulous patients, getting accustomed to wearing lower dentures can be extremely challenging, due to the complex anatomy and less surface area of the lower ridge. With the introduction of dental implant retained prosthesis (IOD), many problems regarding denture retention and stability have improved. Patient's have an increased ability to function, socialize, and enjoy a better quality of life. There remains, however, the reality of bone loss that occurs under IODs. Few studies have investigated the amount of bone resorption in patients wearing IODs. The aim of this study was to investigate the patterns of resorption caused by IODs. A Pubmed search was conducted. Observational studies, clinical trials were identified and incorporated based on inclusion and exclusion criteria. Results among IOD wearers and conventional denture wearers were mixed, however, the majority reported a slower rate of resorption in the IOD group. There also seemed to be a strong correlation between amount of bone resorption and different clinical factors such as type of attachments, number of implants and opposing arch prosthesis. In conclusion, more research is needed to investigate how the resorption pattern changes in edentulous patients utilizing the newer attachment systems available to see if there are increased benefits from one system over another in terms of ridge preservation in posterior regions of the mandible. Knowing the amount of bone resorption of different systems is very critical in treatment planning, patients' communications and expectations.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Patients' Perspective of Implant Overdentures

Presenter(s): Marni Fuller, DS3

Advisor(s): Yacoub Al Sakka, Nancy Jacobsen

Abstract:

Despite increasing awareness of the importance of oral health, dental professionals are seeing steady or increasing numbers of edentulous patients, or patients who have lost all their natural teeth. The World Health Organization even classifies full edentulism as a physical disability. Complete dentures are the classic solution to edentulism, but they are often unsatisfactory to patients because of the lack of retention. Fortunately, with the widespread use of endosseous dental implants for implant-supported prostheses, that satisfaction can be improved. Existing studies use a variety of surveys and methods to assess patient satisfaction with implant-supported overdentures (IODs). The goal of this study was to review the literature on patient satisfaction with IODs and conclude which surveys were the simplest and most effective for assessing that satisfaction and oral health-related quality of life. Information utilized will be used to design a survey to conduct a retrospective study to evaluate patient satisfaction with IOD treatment at the University of Oklahoma College of Dentistry. Fourteen articles studying patient satisfaction with various prostheses, number of implants, and outcomes of treatment were included. Of all the surveys used, the most demonstrative and informative results was OHIP-14 (Oral Health-Related Profile) survey and a 7-question semantic differential scale questionnaire. Other surveys did not accurately reflect oral health-related quality of life, or they had so many questions that participants felt overwhelmed. These two surveys are relevant to oral health-related quality of life, are simple for patients to complete, and they accurately reflect all the concerning areas of IOD treatment such as chewing ability, speaking ability, and esthetics.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Longitudinal Comparison of Growth and Development in Males and Females

Presenter(s): Chandani Ragha, DS4

Advisor(s): Fräns Currier, Onur Kadioglu

Abstract:

Objective: To compare body images for males and females from childhood through adolescence.

Methods: All images were filed numerically by case number and were separated by gender and the nature of the image (full body or scaled drawing). The background information, such as the subject's case number, chronologic age, height (cm), scale, and anatomical position, was recorded in an Excel spreadsheet for all scaled drawings and full body photographs. Using a photo scanner, the images were then scanned into the computer. All scaled drawings and full body photographs were saved under the subject's gender-case number-age for that entry and placed into a labeled folder. Control subjects were selected based on the most available data in six age range subsets.

Results: Analysis of the relative head, trunk, and leg proportion contributing to total height revealed a decreasing percentage of head length, a consistent percentage of trunk length, and an increasing percentage of leg length to the total height for both male and female subjects. Tanner stage II was used to classify the onset of puberty in both sexes. Observation of testes growth sans phallus growth for each male subject revealed a mean age onset of 12.2 years. Observation of the elevation of breast and papilla combined with the enlargement of the areola for each female subject revealed a mean age onset of 11.7 years. The appearance of pubic hair averaged 11.8 years in females, and averaged 14.2 years in males. Peak height velocity was calculated to be at age 13 years for females and 14 years for males. Growth plateaued in females around age 14 years and age 16 years for males.

Conclusions: The purpose of this study was not to test any one hypothesis but to give an insight into the kind of information can be gleaned from such an extensive collection of data that is the Denver Growth Study.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Longitudinal Body Growth and Development in Males

Presenter(s): Christopher Ray, DS3

Advisor(s): Fräns Currier, Onur Kadioglu

Abstract:

The Denver Growth Study (DGS) remains one of the most complete databases of human growth and development in the world. In this study, the digitalization of the DGS database was completed by the conversion of original, hard copy body photographs and scaled body drawings into digital files. The purpose of this study was twofold: first to analyze various aspects of the photographs and scaled images, and second to explore the vast array of comprehensive comparisons in the study of growth and development now available with the digitalized DGS. The first purpose was accomplished by examining 12 male subjects to report on three foci of growth and development that can be observed and quantified in the photographs and scaled drawings: (1) changing head-trunk-leg proportions at four, seven, 10 and 13 years of age, (2) changing heights at the same ages, and (3) selected Tanner staging at 13-16 years of age. The goal was not an extensive analysis of the selected subjects within the given parameters, but rather use of these data sets as a concise profile to represent the inexhaustible array of information that may be compared instantaneously through the now completely digitalized DGS database, thus accomplishing the second purpose of this study. A brief exploration of such comparisons is introduced. Overall, it serves as a succinct profile of a much more expansive, comprehensive wealth of future growth and development studies that may be based on the DGS digital database, which now includes lateral cephalometrics, posteroanterior cephalometrics, and hand wrist radiographic images; facial profile and full body photographs; orthodontic study models, scaled drawings, and heights of subjects ranging from 5 months to 44 years of age.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Pilot Assessment of the ENGAGE Kit for Care of the Geriatric Patient

Presenter(s): Sydney Rogers, DS3

Advisor(s): Kay Beavers

Abstract:

The overall project aims to evaluate the impact of an educational program on the knowledge of and attitudes towards age-related challenges in delivering oral healthcare to geriatric patients. Program participants will include OUHSC College of Dentistry dental students, dental hygiene students, and dental faculty, as well as healthcare providers at area nursing homes. Participants will complete a pre-intervention assessment of knowledge and attitudes and a post-intervention assessment of knowledge and attitudes. The program will be approximately three hours in length. A PowerPoint presentation will be presented at the conclusion of the pre-intervention survey administration. The presentation will highlight common age-related challenges facing adults aged 65 and older. It will highlight the importance of maintaining optimal oral health in old age and some of the complications that arise from neglecting the oral cavity. The training session will continue with participants being divided into small groups and rotating through five stations, each of which simulates age-related challenges: Mobility and Dexterity, Vision Loss and Medication Management, Hearing Loss, Language Impairment, and Neuropathy and Dexterity. The session continues with an exercise in the humanities. Each section includes three to four reflection questions at the end to facilitate reflection on the activities the participants have just performed. At the conclusion of the training session, participants are issued a post-session survey. Using a brief survey instrument, knowledge of and attitudes towards age-related challenges will be assessed.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Longitudinal Body Growth and Development in Females

Presenter(s): Byron Schroeder, DS2

Advisor(s): Fräns Currier, Onur Kadioglu

Abstract:

Growth and Development remains one of the most important topics in medical and dental research. Within the realm of human growth and development research, the Denver Growth Study remains one of the most complete and comprehensive longitudinal human growth studies ever performed. This study focused on finalizing the conversion of the data into a digital format. Posture photographs and scaled body drawings were scanned into a digital format and utilized to analyze different aspects of growth and development. A total of 21 female subjects were selected for the analysis of body proportions and height changes over time. Annual growth data over 6 time points were considered in the analysis (1-2, 3-5, 6-8, 9-11, 12-14, and 15-17 years of age). The focus was not to present statistics but to explore the vast array of materials available within the Denver Growth Study's database via growth rates and proportions. With the Denver Growth data now compiled in a digital format, there are endless possibilities for what can be investigated in future studies.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Prosthetic Complications of Patients Restored with Implant Overdentures

Presenter(s): Matthieu Sullivan, DS3

Advisor(s): Yacoub Al Sakka, Nancy Jacobsen

Abstract:

The aim of this study was to investigate the literature for the types and frequency of prosthetic or mechanical complications in patients with implant-retained overdentures. The PubMed database was used to search peer-reviewed journals for randomized-controlled trials, prospective trials, and retrospective trials. Both mandibular and maxillary arches restored with implant-retained overdentures were included in the search. Exclusion criteria were immediately-loaded implants and case reports. Key words used in the searches included “implant”, “overdenture”, “prosthetic”, “maintenance”, “mandibular”, “maxillary”, and “complications”. The most frequent prosthetic complications encountered with implant-retained overdentures were related to the retentive elements of the attachment system, followed by loosening of the abutment screws. Other reported complications included fracture of acrylic teeth, fracture of the denture base, implant failure, fracture of bars, denture relines, fracture of denture framework, and abutment loosening/fracture. These results will help dentists recognize complications and repair implant-retained overdentures at recall appointments. This will also provide dentists with pertinent information regarding biologic and mechanical complications, which they can subsequently discuss with their patients chairside.

This study was supported by a grant from the J. Dean Robertson Society.

Title: Ceramic Dental Implants: An Alternative to Titanium

Presenter(s): Taylor Barton, Postgraduate; William Yeary, Postgraduate

Advisor(s): Shannon Griffin

Abstract:

Anterior implant placement requires a tremendous amount of pre-prosthetic planning to achieve and optimal esthetic result. Some criteria for predicting esthetically successful anterior dental implant placement with titanium dental implants included having 2mm of bone facial to the final implant placement position and basing case selection on gingival biotype. Esthetically successful dental implant placement has still been achievable in patients with thin facial bone and thin gingival biotype; however, these patients often required additional bone and soft tissue grafting to achieve the desired outcomes. Ceramic dental implants now offer an esthetically acceptable solution in many cases where titanium dental implants would require additional surgeries to be placed. They also give the patient and practitioner an alternative to metal. A review of current literature demonstrates successful case outcomes and limitations of ceramic dental implants. Some factors such as: success rate, bacterial adhesion, healing time, rate of bone loss, and modes of failure were looked at in comparison to the traditional titanium implant.

Title: Distal root amputation procedure: a predictable treatment option

Presenter(s): Lauren Bowers, Postgraduate

Advisor(s): Tapan Koticha

Abstract:

Treatment of a defect in the furcation area of a multi-rooted tooth is multifaceted, aiming at eliminating the microbial plaque from the root surface and establishing anatomy that can facilitate self-performed plaque control. The method of therapy is determined based on the degree of furcation involvement, ranging from scaling and root planning and furcation plasty to tunnel preparation, root resection, or extraction. In fit cases where conservative treatment is in the best interest and desire of the patient, a root resection procedure is a predictable option.

A 65-year-old female presents with a periodontally involved upper left 1st molar. Clinically, there were Hamp F2 furcations in all entrances, visible signs of inflammation, and severe recession on the DB root. Radiographically, the tooth was endodontically treated, had greater than 50% bone loss on the distobuccal root, and a pneumatized sinus. After discussing viable options and morbidities with the patient, a distobuccal root amputation procedure was planned.

The procedure was an interdisciplinary effort with an AEGD resident. Prior to the surgery, the AEGD resident removed the existing crown and placed a new provisional restoration. During surgery, the amalgam core was removed, the canals were countersunk 3-4 mm down the mesiobuccal and palatal roots, and FluoroCore was placed. A full-thickness flap was elevated and the distobuccal root was atraumatically sectioned from the root trunk and extracted. The patient was followed for several months, taking meticulous care to verify the patient could adequately maintain the furcation area through the use of interdental brushes, before the final restoration was delivered.

This case report outlines the utilization of a distal root amputation procedure to maintain an otherwise periodontally unfavorable tooth.

Title: Advanced Grafting Using rh-BMP2 for Implant Site Development

Presenter(s): Tracey German, Postgraduate

Advisor(s): Tapan Koticha

Abstract:

For implants to be placed in a prosthetically driven position, advanced bone grafting is often necessary. Bone morphogenetic proteins (BMP) are multi-focal growth factors belonging to Transforming growth factor-B superfamily. BMPs play a pivotal role in regulation of bone induction, maintenance and repair.

A 30-year-old male presents with an atrophic maxillary anterior right ridge. Decoronation of hopeless #7 and 10 was performed to gain keratinized tissue prior to extraction and ridge augmentation. A 3D model was printed from a CBCT scan of the area to pre-form a customized titanium mesh. On the day of treatment, a full thickness mucoperiosteal flap was reflected. Retained roots of #7 and 10 were extracted and cortical perforations were made to ensure adequate blood supply before the grafting the site. The titanium mesh was filled with BMP soaked absorbable collagen sponges (BMP-ABS) and Bio-Oss bone graft material and fixed to the recipient site using 3 tacking screws. Additional BMP-ABS were used to cover the Ti-Mesh. A periosteal releasing incision was made to ensure tension free primary closure. The patient was seen initially at 2 weeks postop, and then on weekly intervals for then next 5 weeks, and monthly there after. A CBCT scan taken with a radiographic guide after 4.5 months shows adequate alveolar bone volume for implant placement.

This case report outlines the use of root submergence and rh-BMP2 for guided bone regeneration during a maxillary ridge augmentation surgery.

Title: Hybrid Prostheses: A Literature Based Treatment Sequence

Presenter(s): Jenna Hubacz, Postgraduate; Courtney Lam, Postgraduate

Advisor(s): Shannon Griffin

Abstract:

With the advent of osseointegration and the dental implant, an entirely new set of restorative options for the edentulous patient has come into existence in the last 35 years. Selecting which variation of prosthetic to use is dependent on a variety of factors including, but not limited to, spacial constraints, esthetic demands, functional parameters, and patient goals. The hybrid prosthesis is one such restorative option which has great potential for success and patient satisfaction; however, knowledge regarding the process to fabricate a "hybrid" is not currently a standard part of predoctoral dental education. As a result, the prosthesis, it's indications, and its limitations are not often well understood by many practitioners, and thus its fabrication may be prone to failure in inexperienced hands. The objective of this research was to utilize evidence-based literature in order to better explain the purpose of a hybrid, its specific indications, and the many factors involved in sound fabrication. Through analysis of currently available dental text, a flowchart has been made which may aid the dental practitioner to not only assess a patient's candidacy for a hybrid prosthesis but also to highlight the considerations needed to systematically treatment plan a successful final prosthetic.

Title: Management of adult dental trauma

Presenter(s): Eileen Kwee, Postgraduate; Jarred Dewbre, Postgraduate

Advisor(s): Shannon Griffin

Abstract:

Treatment for dental trauma requires knowledge and skills from all fields of dentistry. Quick diagnosis and decision-making are necessary to not only provide the best chance at saving the teeth affected but to also alleviate the patient's discomfort. Most published guidelines and studies focus on managing pediatric dental trauma or more severe injuries involving fractures of the jaw. Few guidelines address cases solely with trauma to permanent dentition in adults. For permanent teeth that have not been completely avulsed or fractured, recommended treatment usually involves re-positioning, stabilization, determination of viability, endodontic therapy, and final restorations. Treatment suggestions vary in the length of time for stabilization and in the length of time advised to observe and determine viability. This ongoing case study follows an adult dental trauma of the maxillary anterior dentition, causing lateral luxation without fracture of the jaws, and the treatment performed to manage and restore the affected dentition.

Title: Immediate Implant Placement and Provisionalization: A Case Report

Presenter(s): Elise Woody, Postgraduate

Advisor(s): Tapan Koticha

Abstract:

Introduction: The placement of dental implants immediately following tooth extraction has become a common procedure. Although immediate implant placement is not indicated in all situations, when possible, there are decided benefits over delayed implant placement. There are additional benefits that occur as a result of immediate implant provisionalization following immediate implant placement. Immediate implant placement and provisionalization can result in reduced treatment time and improved soft tissues esthetics.

Case Summary: The following case demonstrates a single tooth extraction, immediate implant placement, and immediate implant provisionalization. A patient presented to the Graduate Periodontics clinic requesting extraction of a hopeless tooth and replacement with a dental implant.

A comprehensive examination was completed and extraction with immediate implant placement and provisionalization was planned. The tooth was extracted atraumatically. The osteotomy was prepared and the final implant was placed with the implant platform 3 mm apical to the adjacent CEJs with good primary stability. A screw retained provisional was fabricated using a denture tooth retained onto a temporary abutment using temporary acrylic resin. The provisional was finished and polished to obtain ideal contours and facilitate good oral hygiene. Bone graft was placed in the extraction socket, the provisional was screwed into place, and occlusion was adjusted. The patient healed without complication. The soft tissues underwent minimal change throughout the healing process. Papillae were maintained and minimal facial gingival recession occurred.

Conclusion: Immediate implant placement and provisionalization can serve as a predictable method for tooth replacement. Immediate implant placement and provisionalization reduces treatment time and minimizes soft tissue changes which normally occur following tooth extraction.