

PreDoc Group A Room 229

Faculty Judges: Drs. Hagner, Boryc, Meza

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM	Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.	
5:30 PM	Ryan McAfee	<p>Refuse to Reduce</p> <p>The purpose of this review is to address the problem of hypomineralized teeth. One goal is to raise awareness that microabrasion therapy is a more conservative approach than using, veneers, full coverage crowns, or even acid etching prior to bonding resin or no prep veneers to correct this problem.</p>
5:40 PM	Aanal Parikh, Savannah Smolinski, and Zohra Metalwala	<p>Oral Bisphosphonates and Osteonecrosis of the Jaw: A Literature Review</p> <p>Intravenous bisphosphonates (BP) are commonly associated with the occurrence of osteonecrosis of the jaw (ONJ,) while the association between oral BP and ONJ often gets less attention. Initial thought was that the probability of developing ONJ while taking oral BP was as low as .04 percent, but in 2009 a study found that it could be as high as 4 percent.¹ This study, although isolated, raises some safety concerns about ONJ and oral BP use. In addition, the newer oral BPs, which contain an amino side chain, cause added cellular effects and have been found to cause more cases of ONJ than the older (non-amino) BPs.² Currently the guidelines many dental clinicians follow when treating patients on oral BP are based on expert opinion and not scientific research. Thus, more research needs to be conducted to determine the prevalence of ONJ in patients taking oral BPs for an extended period of time.</p>
5:50 PM	Cole Stockheimer and Harshit Aggarwal BDS, MSD	<p>Full Coverage eMax Restorations in the Anterior Maxillary Dentition</p> <p>Restoration of dentition damaged by parafunction and attrition presents unique challenges regarding the choice of restorations, the sequence of treatment and restorative materials used. The clinical case shown illustrates one method of treatment, which included the use of a clinical mock-up to facilitate restoration of the dentition with lithium disilicate crowns cemented with a resin bonding system for an esthetically pleasing result.</p>

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<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:00 PM	Cathleen Raz	<p align="center">Combination Syndrome: Final Impression Technique for the Treatment of Patients with Mobile Tissue</p> <p>A 74-year-old male patient presented to our clinic with Combination Syndrome. He wore a full upper denture opposing his natural anterior mandibular teeth for almost 50 years. Our clinical findings included severe anterior maxillary resorption, mobile tissue, an ill fitting maxillary denture, and Epulis Fissuratum. After two surgeries were attempted to resect the tissue, mobile tissue still remained. We utilized an open tray technique and ultra light bodied Polyvinylsiloxane (PVS) to make a mucostatic impression to increase the retention of the final prosthesis.</p>
6:10 PM	Burger Brittany, Green H, Turani D, Preshaw PM, Hefti AF	<p align="center">Examiner Alignment and Assessment in Clinical Periodontal Research</p> <p>Objectives: To conduct a literature analysis on examiner alignment and assessment (EAA) information published in clinical periodontal studies, and how EAA has changed over time. Methods: Clinical studies/trials that used indices of gingivitis as outcome measures were analyzed. Search engines included PubMed, Medline, Embase, and Cochrane Library. Search terms focused on gingival indices. Search constraints were set for time period (1996 to 2009), research type, study participants, and language. Ten journals were also hand searched. Results: 1037 papers qualified. Of these, 288 (27.8%) included a statement on EAA, 434 (41.9%) offered no information, and 315 (30.4%) mentioned that one examiner executed all assessments, but no details were offered. Between 1996 and 2009, the percentage of publications that informed on EAA increased from 22.2% to 44.3%. Conclusion: Over the past decade, reporting on EAA in published periodontal studies has improved, however there is still room for improvement.</p>

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:20 PM	<p>Kyle Menne MS, Kelly Jones, Brian Hodgson DDS, Ellen Buchman, Brendan Quirk PhD, Harry T. Whelan MD Mentor: Dr. Brian Hodgson DDS</p>	<p>Phototherapy's Effect on Lactate Dehydrogenase in Vinblastine-Poisoned Hertwig's Epithelial Root Sheath Cells</p> <p>Objectives: Hertwig's epithelial root sheath (HERS) cells are responsible for the formation of the roots of teeth, and are known to halt proliferation when children undergo chemotherapy. Phototherapy is a non-invasive treatment in which cells are irradiated with a light at certain wavelengths in the far-red to near-infrared spectrum (630-1000 nm) using low energy lasers or light-emitting diodes (LEDs), and has been proven to aid in wound healing and treatment of oral mucositis. Lactate dehydrogenase (LDH) is a cellular enzyme that when elevated, indicates cellular apoptosis. This study aims to investigate phototherapy's potential to improve chemotherapeutic damage to the HERS cells by assessing levels of LDH between test groups.</p> <p>Methods: Murine HERS cells in tissue cultures were subjected to 0, 10 or 20 ng/mL of vinblastine (VB). The test groups were treated with the light source: 670nm at approximately 50 mW/cm² for 300 seconds, totaling a dose of 12 Joules (J). The assays were run at 12, 16, and 24 hours after vinblastine exposure. LDH was assessed using the Roche Cytotoxicity Detection kit, and total protein concentrations were found using the DC Protein Assay and were used to calculate LDH levels.</p> <p>Results: LED treatment had a significant effect on decreased LDH production. After 12 hours, light increased cytotoxicity slightly in control cultures and at 10 VB, yet no effect was visible at 20 VB. A substantial protective effect was visible after 16 hrs, and very strong protective effects were observed after 24 hours in cultures that were previously exposed to 10 or 20 VB. Overall, it takes up to 24 hours to achieve cellular protection in its full strength.</p> <p>Conclusion: LED therapy has a positive effect on decreasing apoptosis of HERS cells treated with vinblastine. Future tests will investigate cellular proliferation by assessing glutathione and β-tubulin.</p>
6:30 PM	<p>Vy Le, Erin Clemens, Caitlin Miller, Alex White</p>	<p>A Clinical Case Study on the Treatment of TMD</p> <p>The patient is a 68 yr. old Caucasian male who presented to the clinic as an emergency with a chief complaint of pain that shoots up towards his left ear every time he chews. He has had pain on his left side for the past three days and came to the dental school after being referred by the VA hospital. He had no previous history of pain on his left side or in any other orofacial area and his medical history is non-contributory. Physical examination revealed disocclusion of the left posterior teeth and normal occlusion on the right side. Differential diagnosis of possible TMJ disorders that would cause malocclusion was constructed and tested. A diagnosis of capsulitis was made clinically through a bite load test, palpation, and functional manipulation of his muscles. The patient was treated with pharmacotherapy, self-care management and mandibular rest position exercises.</p>

PreDoc Group B Room 188

Faculty Judges: Drs. Berzins, Tabachnick, Thompson

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM	Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.	
5:30 PM	Brandon Reddinger & Christopher Streff	<p>Surgically Assisted Rapid Palatal Expansion (SARPE)</p> <p>The purpose of this study was to evaluate Surgically Assisted Rapid Palatal Expansion as a reasonable solution for patients with transverse maxillary hypoplasia. Various surgical procedures and intraoral appliances were reviewed and it was found that although the type of palatal expander used was inconsequential, the additional step of separating the pterygomaxillary junction in the surgical procedure was of high importance in avoiding post operative complications. SARPE is very successful in treating patients with maxillary hypoplasia who have either failed orthodontic treatment or reached skeletal maturity.</p>
5:40 PM	Brad DeGroot and Jared Robertson	<p>A Retrospective Review of Clinical INR (PT) Results at Marquette University School of Dentistry and Their Implications: POC Delivery</p> <p>Warfarin (Coumadin) is a key element in therapy for cardiac valve replacement, deep venous thrombosis, atrial fibrillation and stroke (cerebrovascular accident). Often patients are not tightly controlled with regards to accepted therapeutic ranges. A review of dental patients at Marquette University School of Dentistry found that, regardless of the reason for warfarin therapy, 43.3% of patients were not within therapeutic range. Only 50% of the patients treated for atrial fibrillation presented themselves for treatment while being in tight control.</p>
5:50 PM	Francisco Alencar Jr., DDS, MS, PhD; Gretchen Faile ; Stephen Syrjamaki	<p>Occlusal Appliances in Modern TMD Treatment</p> <p>Initially, occlusal appliances (OAs) were thought to be a temporary measure that would help dentists to diagnose or analyze improper dental relationships.¹ However, it is now understood that the proper role of OAs is to protect the teeth and hopefully decrease the painful effects of overloading the muscles, nerves, and TMJs due to sleep bruxism.³ The aims of this study were to compare different OAs based on scientific evidence in the literature, discuss possible mechanisms of action, and address the need for facebow use and occlusal record selection when mounting casts.</p>
6:00 PM	Jose A. Bosio, BDS MS; Carolyn Gardiner ; Amanda Olejniczak	<p>Systematic Review of Facial Soft Tissue Measurements in Orthodontics</p> <p>NO ABSTRACT PRESENT ON POSTER</p>

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:10 PM	David F. Gundersen, MPH	<p>Can Spending Time with Third Graders Make You A Better Dentist? Assessing the Impact of the Milwaukee Public School Rotation on Dental Student Self-Efficacy, Cultural Competence, and Intent to Treat Low Income Populations</p>
		<p>This study explored first year dental students' self efficacy, cultural competence and readiness to provide care to the underserved population following their participation in a mandatory community based oral health educational program at the Marquette University School of Dentistry (MUSoD). Pre/post questionnaire survey on self efficacy, cultural competence, and intent to provide care administered online to first year dental students at MUSoD. Response rates were 75% and 70% for pre/post survey. Dental students' participation in a mandatory Community Based Dental Education (CBDE) program led to increases in self efficacy and cultural competence, but not to their intention to provide dental care to underserved populations in the future.</p>
6:20 PM	David F. Gundersen, MPH and Harold Hilbert BS	<p>Are You Smarter Than A Third Grader? An Evaluation of the Milwaukee Public School Rotation Lesson Plan</p>
		<p>The Milwaukee Public School (MPS) rotation lesson plan was evaluated to improve the lesson and maximize student learning. Based on pre-test and post-test true and false questions, the evaluation assesses the improvements in student knowledge of oral anatomy, oral hygiene practices, and oral-friendly nutrition.</p>
6:30 PM	K. Jones, K. Menne, B.D. Hodgson, E. Buchmann, B. Quirk, And H. Whelan	<p>Phototherapy's Effect on the ATP Levels of Vinblastine-Poisoned HERS Cells</p>
		<p>Objectives: Tooth root development relies on proper functioning of Hertwig's Epithelial Root Sheath (HERS) cells. Chemotherapy can injure these cells, resulting in root deformation. Hence, investigating near-infrared light effects on ATP levels ([ATP]) in HERS cells subjected to vinblastine was the objective of this in-vitro study.</p> <p>Methods: Murine HERS cells were grown to confluence, subjected to 0, 10 or 20 ng/ml of vinblastine, and 1 hour later were exposed for 300 sec to a 670 nm Ga-Al-As LED (16 J/cm²). [ATP] were measured at 12, 16, and 24 hours after LED exposure. ANOVA was used to analyze results statistically.</p> <p>Results: [ATP] decreased as a function of time (P<0.0001) and in response to vinblastine (P<0.0001). Light treatment mitigated the time effect on [ATP] (P<0.0001). The finding was observed only after 24 hours and was drug independent.</p> <p>Conclusion: LED-induced phototherapy in HERS cells showed a time-dependent, non-specific and perhaps protective effect on [ATP].</p>

PreDoc Group C Room 199

Faculty Judges: Drs. Liu, Schelkun, Bosio

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM	Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.	
5:30 PM	F. Caputo, M. Harriman	<p align="center">Peri-Implant Disease</p> <p>Objectives: To review literature about peri-implant diseases to provide a clearer picture of what a clinician should look for post-implant placement.</p> <p>Methods and Materials: A PubMed search and book reviews were paired down to six articles and one textbook Chapter that provided relevant material.</p> <p>Results: The diagnosis of peri-implant mucositis is determined by the presence of inflammation and BOP. Bone loss is indicative of peri-implantitis. Prevalence of peri-implant mucositis per implant site was 50% and peri-implantitis 12% and 43% in two different studies. The average 10-year survival rate in patients without a history of periodontitis is about 91%.</p> <p>Conclusions: Peri-implant mucositis: inflammation around an implant. Peri-implantitis: loss of bone around an implant. Risk factors: poor oral hygiene, periodontitis, and smoking. Implant survival rates decrease in patients with a history of periodontitis. Survival rates of implants are 91%, this is not equivalent to the success of the implant. Peri-implant mucositis can be treated with chlorhexidine irrigation. Animal studies have shown successful surgical treatment with access and debridement of the implant.</p>
5:40 PM	William Pope	<p align="center">Tinnitus and TMD: A Case Report</p> <p>Background: Tinnitus is a common chronic health condition that has many different possible etiologies. It is often referred to as a ringing in the ears of a patient. Tinnitus has been found to be associated with temporomandibular disorders, muscle pain, and headaches.</p> <p>Methods: An occlusal guard and self care management routine were used to treat the symptoms of myofascial pain with associated tinnitus.</p> <p>Results: After one year of treatment the patient reported an 80% reduction in tinnitus and TMD symptoms.</p> <p>Conclusion: TMD and associated tinnitus symptoms can be reduced with proper self-care management and an occlusal guard. It is important for patients to understand that tinnitus is usually a symptom and treatments are used to control, not eliminate the condition.</p>

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:50 PM	Lanny Cortez, Chris Ludden, Keith Simons , Andrew Thorsen	Recognizing and Treating Methamphetamine Abuse and Soda Overconsumption
		The increased prevalence of methamphetamine abuse (MA) and soda overconsumption is becoming a greater concern to dental professionals. It is important to recognize the clinical signs and symptoms of such habits. Treatment consists of a thorough dental and medical exam, patient education, and preventative therapy. Once patient commitment has been established, definitive treatment can begin. Treatment should also include referral for MA addiction and dietary counseling.
6:00 PM	Martin Walsh	Replication of Human Bite Marks in Porcine Skin - A Pilot Study
		A pilot study is a feasibility experiment on a small scale. It can expose deficiencies in a study's design before conducting it on a larger scale where it would require more time and resources. This pilot study was performed to refine and expose deficiencies in the process of creating and recording human bite marks in porcine, or pig skin. The major deficiencies we uncovered during this pilot study pertained to logistical issues such as: 1) Materials for model construction 2) Equipment design and reliability 3) Calibration of Flexiforce™ detectors 4) Determining actual anterior bite force in pounds force 5) Archiving patterned injury results via digital photography and scaling. Once these problems have been addressed, the final study can be conducted, with the ultimate aim of standardizing the recording and analysis of human bite marks for use in the forensic arena.
6:10 PM	Himanshu Sharma , Michael Brown, Anushree Mehrotra	Root Canal Irrigant Agitation Techniques and Devices
		Introduction: Removal of vital and necrotic remnants of pulp tissue, microorganism and microbial toxin from the root canal system is essential for endodontic success.1 Intricate nature of the root canal anatomy 2 makes impossible to clean canal fins, isthmi and cul-de-sac untouched after completion of the preparation.3 Therefore effective irrigant delivery is a prerequisite for successful endodontic therapy because it allows for cleaning and disinfection beyond what might be achieved by root canal instrumentation alone. Methods: This poster presents an overview of the irrigant agitation methods currently available and their debridement efficacy. Results: Technological advances during the last decade have introduced new agitation devices that allow better removal of residual canal debris. These devices can be divided into the manual or machine assisted agitation system. Conclusion: Overall they appear to have resulted in improved canal cleanliness as compared with conventional syringe needle irrigation only.

PreDoc Group C Room 199

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<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:20 PM	Daniel Fornetti , Andrew Eichholz, Mark Erickson, Chad Seubert	Alveolar Ridge Augmentation Techniques Prior to Implant Placement: Systematic Literature Review
		The purpose of our research was to provide the dental practitioner with a comprehensive review of available techniques for alveolar ridge augmentation in vertically and/or horizontally deficient ridges prior to, or in conjunction with, implant placement. The techniques reviewed include distraction osteogenesis (DO), ridge splitting, block grafting, and guided bone regeneration (GBR). Searches were conducted through PubMed and reference lists of relevant review publications were manually examined. In DO, up to 15mm of vertical and 4-6mm of horizontal grafting can be expected. Ridge splitting is used to augment width on ridges that are severely resorbed but a minimum of 3mm wide. GBR is used primarily to correct dehiscences by 3-10mm and fully cover fenestrations after implant placement. When used for vertical grafting, GBR can gain 2.5-7mm in height. Block grafting can be used to gain 4-5mm horizontally and 2-5mm vertically.
6:30 PM	Jared Robertson	Mandibular Anterior Implant and Restoration
		Several treatment options were discussed with the patient, but he ultimately decided upon an implant. A NobelActive narrow platform (3.5mm) implant was chosen, which was placed immediately following atraumatic extraction utilizing a Benex Root Extraction system. A healing abutment was placed for 2 months, although a primary impression was taken late into the osseointegration phase to start the temporization process. A custom abutment (UCLA type) was used with a light-cured resin to create the temporary. At 8 weeks post-op, the temporary was delivered and it was kept in place for 2 weeks to allow proper tissue adaptation, after which the final impression was taken with the temporary serving as the impression coping. The final restoration is a screw retained custom abutment, milled in zirconium, with porcelain stacked to include root and crown form which mimics the adjacent teeth.

Postdoc Group A Room 109

Faculty Judges: Drs. Toth, Abena, Aggarwal

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM		Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.
5:30 PM	Brian Kleinman DDS, David Berzins PhD	<p><i>In Vitro</i> Comparison of The Push-Out Bond Strength of three Endodontic Sealers With and Without Amoxicillin</p> <p>INTRODUCTION: The purpose of this in vitro study was to compare the push-out bond strengths of three endodontic sealers with and without amoxicillin. METHODS: Thirty single-rooted extracted human teeth were used for this study. Each tooth was instrumented and irrigated with 5.25% NaOCl and 17% EDTA. The teeth were then divided into six test groups. Group 1-gutta percha (GP)/AH Plus®, group 1a-GP/AH Plus® with 10% by weight amoxicillin, group 2-GP/Pulp canal sealer EWTTM, group 2a-GP/Pulp canal sealer EWTTM with amoxicillin, group 3-Resilon® /RealSeal SETM, and group 3a-Resilon® /RealSeal SETM with amoxicillin. After the sealer was set the entire root was sectioned into 1mm thick slices. A push-out bond strength test was performed using a universal testing machine. The Mann Whiney and Student's t-test were used to compare the sealer bond strength within the specific sealer test groups overall and within each sealer at apical, middle and coronal root levels. RESULTS: There was no significant difference between test groups within each sealer, Group 1 vs. Group 1a (p=.85), Group 2 vs. Group 2a (p=.59) or Group 3 vs. Group 3a (p=.52). There was no significant difference (p>.05) in push-out bond strength within each sealer with or without amoxicillin at the same root level. CONCLUSION: The addition of 10% by weight of amoxicillin does not significantly (p>.05) change the overall push-out bond strength of GP/AH Plus®, GP/Pulp canal sealer EWTTM and Resilon® /RealSeal SETM or when compared at the apical, middle and coronal tooth level.</p>
5:40 PM	Jess T. Thomas, DDS; Howard W. Roberts, DMD, MS; Lindsay Diaz, DDS; Thomas Gerard Bradley, BDS, MS; David W. Berzins, PhD	<p>The effect of light-cure initiation time on polymerization efficiency and orthodontic bond strength with a resin-modified glass-ionomer</p> <p>Introduction: The polymerization and acid-base reactions in resin-modified glass-ionomers (RMGI) are thought to compete with and inhibit one another. The objective was to examine the effect of visible light-cure (VLC) delay on the polymerization efficiency and orthodontic bond strength of a RMGI. Methods: An RMGI light-cured immediately, 2.5, 5, or 10-minutes after mixing was analyzed with differential scanning calorimetry (DSC) to determine extents of VLC polymerization and acid-base reaction exotherms. Human premolars (n=18/group) were bonded and shear bond strength was determined. Results: DSC showed the 10-minute delay RMGI group experienced significantly (P<0.05) lower VLC polymerization compared to the other groups. Acid-base reaction exotherms were undetected in all groups except the 10-minute delay group. No significant differences (P>0.05) were noted for mean shear bond strength. Conclusions: Delay in light-curing may reduce polymerization efficiency and alter the structure of the RMGI, but orthodontic shear bond strength does not appear to be compromised.</p>

Postdoc Group A Room 109

Faculty Judges: Drs. Toth, Abena, Aggarwal

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:50 PM	Alison Mantel, DDS and David Berzins, PhD	<p align="center">Friction Testing of a New Ligature</p> <p>Objective: To determine if American Orthodontic's new, experimental ligature produces less friction in vitro when compared to four other ligatures on the market. Methods: A test ligature was tied on a bracket mounted to a custom plate and the static and kinetic friction produced by sliding a passive wire through it was measured by an Instron machine. Dry and wet (saliva soaked) tests were performed. Results: Under wet conditions, the experimental ligature produced similar friction to TP's SuperSlick ligature and less friction than the other ligatures.</p>
6:00 PM	Kevin Knutson DDS , T. Gerard Bradley, BDS, MS	<p align="center">Determining Incisor Eruption with Skeletal Classification, Incisor Angulation, and Palatal Plane Considerations in the Single-Tooth Anterior Implant Patient</p> <p>The timing of surgical implant placement is of the utmost importance if the patient has future growth. If an anterior implant is placed before growth is completed it will look submerged and be in infra-occlusion over time. This unfortunate scenario leaves the patient with an unesthetic result and an implant crown that may need to be replaced(2). This study examines the vertical eruption of incisor teeth and will note the differences between patients based on skeletal classification, palatal plane rotation, lower anterior face height, and the incisor angulation. Differences in these cephalometric diagnoses has the potential to effect implant placement timing in the particular patient.</p>
6:10 PM	Y Chang, DDS ; J Bosio DDS, MS; T Bradley BDS, MS; L Koenig BDS, DDS, MS; D Liu, DDS, MS, PhD	<p align="center">Effects of Rapid Maxillary Expansion on Upper Airway: 3-Dimensional Cephalometric Analysis</p> <p>Rapid maxillary expansion (RME) is one of the techniques most frequently used for the correction of maxillary width deficiency, posterior cross bite or expanding the arch perimeter to alleviate dental crowding1 (Fig.1). Evaluation of the upper airway has become an important diagnostic test in orthodontics, in part due to the potential impact of high resistance airways contributing to an abnormal growth of the naso-maxillary complex, increases in the vertical facial dimensions in children as well as a potential role in the pathophysiology of obstructive sleep apnea2. The advent of cone beam computerized tomography (CBCT) has made 3-dimensional depiction of the craniofacial structures readily accessible using lower radiation than conventional CT scans. The aim of our research was to use CBCT images to study the upper airway changes before and after RME in children undergoing RME as part of their orthodontic treatment.</p>

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:20 PM	Manminder Sethi and Dr. Geoffrey Thompson	<p align="center">Evaluating the Masticatory Function of Denture Patients</p> <p>Objective: To develop a new method to quantify electromyographically the changes in the function of the masseter and temporalis muscles after the delivery of a new denture. Methods: A small permanent magnet was attached to the mandibular denture in the labial vestibule just below the lower incisors. The JT-3D sensor array worn by the patient tracked the movements of the magnet. Disposable bipolar electrodes were placed over the masseter and anterior temporalis muscles and their signals applied to 4 channels of a differential amplifier. A 16 bit analog to digital converter digitized the signals for computer display and analysis. Averaged Chewing Patterns (ACP) were calculated from the movements and Average Chewing Cycles (ACC) were calculated from the EMG data. Student's t test was used to compare the muscle activity with the old denture to the activity with the new denture. Results: Upon visual inspection the new denture movement pattern ACP more nearly resembled a dentulous ACP pattern. The New denture muscle pattern (ACC) also more closely approximated the dentulous pattern. Student's t test showed significant changes in the EMG activity from the old denture to the new denture. Conclusion: With the old denture, this subject showed hyperactivity at rest, asymmetry in clench and imbalance in chewing. The new denture significantly reduced the hyperactivity at rest, significantly reduced the asymmetry in clench and changed the mastication EMG pattern towards a dentate pattern. As society ages more people will need to replace their lost natural dentition with good functioning dentures.1 Previous work by Yven 2 has indicated that while saliva flow does not appear to be inhibited, denture wearers swallow less fragmented boli than dentate subjects. Kimoto3 found resilient denture liners to be effective by testing masticatory performance using mandibular movement and electromyographic activity. Veyrune3 found that denture wearers experienced difficulties during mastication and observed their failure to increase EMG activity per cycle for increased food hardness. It is now possible to evaluate masticatory function, both mechanically (jaw movement) and muscularly (EMG).</p>
		<p align="center">Patient's report of relief of chronic sinusitis following extraction of carious maxillary central incisors</p> <p>Odontogenic infection as an etiology of maxillary sinusitis has been well documented. The most frequent teeth involved are maxillary molars and premolars due to their proximity to the sinus. A patient presented to the graduate prosthodontic department requiring extraction of both maxillary central incisors as part of the overall treatment plan. Following non-surgical extraction, the patient reported resolution of longstanding maxillary sinusitis, which has not returned in the four month follow up. While many cases of odontogenic origin of sinusitis have been presented, instances of sinusitis from infection of the maxillary incisors have not been reported in the literature</p>
6:30 PM	Carolyn Strash, DDS	<p align="center">Application of Extracorporeal Shock Wave to Modulate Alveolar Bone Remodeling</p> <p>Orthodontic tooth movement (OTM) is a mechanically induced modeling of periodontal tissues, with alveolar bone being resorbed on one side and deposited on the other side of PDL space. The rate of OTM is predominantly determined by the rate of resorption of the alveolar bone. If the remodeling rate of the alveolar bone could be increased, then the OTM rate would be increased. One method that could possibly increase the remodeling rate of the alveolar bone is the application of extracorporeal shock wave (ESW). The effects of ESW on alveolar bone remodeling have never been explored which prevents orthodontists from applying ESW to help move teeth faster. This project will look at the effects of ESW on mouse calvarial bone to determine if ESW could increase the remodeling rate of the alveolar bone <i>in vitro</i>.</p>
6:40 PM	J Barta, DDS; D Liu, DDS, MS, PhD	

Postdoc Group B Room 129

Faculty Judges: Drs. Lynch, Okunseri, Hodgson

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM	Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.	
5:30 PM	Joseph D. Nencka D.D.S.	<p align="center">An In Vitro Comparison of the Accuracy of Three Electronic Apex Locators</p> <p>Introduction: The purpose of this study was to compare the accuracy of three electronic apex locators: Root ZX II®, Brasseler P.A.L.™ and Sybron Mini™. Methods: Forty extracted single rooted teeth were used, and sectioned at the cemento enamel junction (CEJ). Root lengths were measured by measuring a file that was determined to be flush with the main portal of exit. The tooth was then embedded in a conducting medium and measured connecting the file to the apex locator. The accuracy of the 3 apex locators was then statistically compared. Results: Root ZX II was accurate 75% of the time, Brasseler P.A.L. 75%, and Sybron Mini 72.5%. There was no statistical difference (P. > 0.9005) in the accuracy between the three apex locators. Conclusions: This study showed that there was no statistical difference (P. > 0.9005) between the accuracy of the Root ZX II, Brasseler P.A.L. and Sybron Mini apex locators.</p>
5:40 PM	M Foster, DDS; D Liu, DDS, MS, PhD; J Bosio, DDS MS; T Bradley, BDS MS	<p align="center">Marginal Ridge Thickness (MRT) of Maxillary Central Incisors in Orthodontic Patients</p> <p>The purpose of this study was to determine the marginal ridge thickness (MRT) in orthodontic patients and how that relates to Bolton tooth size discrepancy. The MRT of maxillary central incisors and the Bolton index of the selected 120 pre-orthodontic dental casts were measured for the frequency and the magnitude (means and standard deviation). These data were analyzed to reflect the distribution of MRT in orthodontic patients, and to test the possible correlation between MRT and Bolton Index.</p>
5:50 PM	Steve Koutnik, DDS	<p align="center">Choosing an All-ceramic System in the Esthetic Zone</p> <p>Arguably one of the most challenging aspects of clinical practice is matching prosthetic dental restorations with natural teeth in the esthetic zone. Dentists, technicians and manufacturers alike are constantly searching for the ideal material for matching artificial prostheses to natural teeth. In fact, the all-ceramic crown was introduced by Charles Henry Land in 1903¹, and despite more than a hundred years of innovation and improvements, practitioners are still without a “miracle” material for the highly esthetic patient.</p>

Postdoc Group B Room 129

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<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:00 PM	Nikolay Mollov DDS; Jose A. Bosio, BDS, MS; T. Gerard Bradley, BDS, MS; Jessica Pruszyński, PhD	<p align="center">Soft Tissue Measurements Compared To Cephalometric Measurements</p>
		<p>Proper orthodontic treatment requires a detailed evaluation of any problems that may exist in the maxillo-facial complex including the diagnosis of any soft and hard tissue discrepancies. The cephalometric radiograph is normally used to detect any bony discrepancies while the clinical exam and facial photographs are used for the diagnosis of soft tissue problems. To provide ideal orthodontic care it is essential that the proper diagnosis is achieved for both soft and hard tissue complexes. This project will attempt to determine if there is a correlation between proportions in soft tissue facial landmarks and their representation in the cephalometric radiograph.</p>
6:10 PM	Y Yarmolyuk DDS; D Liu, DDS, MS, PhD	<p align="center">Role of mechanical stress in LPS-induced damage of periodontal cells <i>in vitro</i></p>
		<p>Orthodontic movement of teeth with destructed periodontal tissues is risky because, if used inattentively, the mechanical force could worsen the damaged periodontal tissues. Guidelines for orthodontically moving periodontally comprised teeth have not been established, mainly due to the lack of scientific evidence about the relationship between bacterial invasion and mechanical force in the periodontal tissues. Lipopolysaccharides (LPS) - a major bacterial product plays a key role in tissue destruction of periodontitis by causing apoptosis and cell death. Fluid shear stress (FSS) has been shown to survive the apoptotic cells <i>in vitro</i>. We hypothesize that mechanical force will be able to survive the LPS-damaged periodontal cells. To test this, we are going to establish a cell damage model by treating periodontal cells with LPS and applying FSS to see if the damaged cells will be survived and explore possible cellular mechanisms.</p>
6:20 PM	Angela Zapf	<p align="center">Microhardness of Resin Composites Under Various Glass Ionomer Cements Using the Sandwich Technique</p>
		<p>The aim of this study was to evaluate the interaction of glass ionomer cement and resin composite when applied using the sandwich technique, with hardness of resin composite being examined at 24 hours and 3 days. Fuji II, Fuji II LC, and Fuji IX were the glass ionomer cements used acting as experimental groups. A control group of all resin composite was also utilized for comparison. Results from this study showed a statistically significant difference in hardness of Fuji II compared to Fuji II LC and Fuji IX at 3 days. Furthermore, while Fuji II LC and Fuji IX had hardness values increase over the 3 days, Fuji II had a decrease in hardness. It could be suggested that conventional glass ionomer is a better candidate for sandwich technique, although further testing is needed to support this claim. Overall sandwich technique is certainly a beneficial treatment option.</p>

Postdoc Group B Room 129**Faculty Judges: Drs. Lynch, Okunseri, Hodgson**

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:30 PM	Dr. Kelly A Beck	The Sleep Apnea Oral Appliance Revisited: A Case Report
		Sleep apnea is a relatively common disorder in which a person experiences episodic obstruction of the airway during sleep, resulting in hypoxemia and frequent arousals. Following diagnosis, there are various treatment options available to these patients. Presented is a case report of a patient who came to the clinic with a diagnosis of obstructive sleep apnea requesting a dental device. The case was further complicated by a history of myofacial pain disorder. A sleep apnea appliance was constructed and post-op sleep study conducted to determine efficacy of dental appliance.
6:40 PM	Jang-Ching Chou, Gerald Ziebert	Complete Denture Construction Using the Hamular-Incise Papilla (HIP) Plane
		Recent studies have found the HIP (Hamular Notch-Incise Papilla) Plane to be parallel to the occlusal plane. This report provides a technique for utilizing the HIP Plane for complete denture construction.

Postdoc Group C Room 209 Faculty Judges: Drs. Dentino, Domagala, Hjertstedt

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
5:00 PM		Mandatory Faculty Judges Orientation and Calibration Session in <u>Room 188</u>. Printed documents will be distributed at this meeting. All judges are expected to attend this meeting.
5:30 PM	Dr. James B. Nowicki	<p align="center">An In Vitro Spectroscopic Analysis to Determine the Chemical Composition of the Precipitate Formed by Mixing Sodium Hypochlorite and Chlorhexidine</p> <p>Introduction: The purpose of this in vitro study was to determine the chemical composition of the precipitate formed by mixing sodium hypochlorite (NaOCl) and Chlorhexidine (CHX), and relative molecular weight of the components. Methods: Using commercially available chlorhexidine gluconate, a 2% solution was formed and mixed in a 1:1 ratio with commercially available NaOCl producing a brown precipitate. The precipitate as well as a mixture of precipitate and pure chlorhexidine diacetate was then analyzed using 1D and 2D NMR spectroscopy. Results: The 1D and 2D NMR spectra were fully assigned, in terms of chemical shifts of all proton and carbon atoms in intact CHX. This permitted identification of CHX breakdown products, including a lower molecular weight component of CHX that contained a para-substituted benzene that was not parachloroaniline, and contained no aliphatic linker. Conclusions: Based on this in vitro study, the precipitate formed by NaOCl and CHX is composed of at least two separate molecules, all of which are smaller in size than CHX. Along with native CHX, the precipitate contains two chemical fragments derived from CHX, neither of which are parachloroaniline.</p>
5:40 PM	Jane Wright, DDS, Jose A. Bosio, BDS, MS, T. Gerard Bradley, BDS, MS, Jessica Pruszynski Ph.D.	<p align="center">Congenitally Missing Maxillary Lateral Incisors and the Relation to Tooth Size</p> <p>The maxillary lateral incisor is the second most frequently missing tooth in the dental arch requiring a complex and multidisciplinary treatment approach. The purpose of this study is to evaluate whether a tooth size discrepancy exists amongst dentitions with maxillary lateral incisor agenesis.</p>
5:50 PM	Mohammad Aljadi, Geoffery Thompson, Masaaki Izumi, Gerald Ziebert	<p align="center">A technique for fabricating a 2-piece surgical template</p> <p>This manuscript presents an inexpensive and relatively easy technique for fabricating a surgical stent that will transfer all the necessary information, including the CEJ position, implant angulation, and the mesiodistal position of the implant to the surgeon. Also, this stent will allow the surgeon to use it throughout their drilling sequence.</p>

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:00 PM	Annie Burns DMD , Azadeh Emam DMD, Anna Przyszlak DDS, and Margarita Silva DDS	<p align="center">Restoring Function and Esthetics in a Patient with a History of Cleft Lip and Palate</p>
		<p>Here we present a clinical case of a 29 year old Caucasian male with a history of unilateral cleft lip (left side) and palate. This poster explores the treatment plan for the patient as well as the challenges that we have encountered during the course of treatment. Our goals were to increase the patient's esthetics and function with this denture. Both maxillary denture retention and determining a functional occlusal scheme were problematic in the design of the denture. Currently, we are utilizing an interim maxillary prosthesis to determine if an implant-retained maxillary overdenture are necessary.</p>
6:10 PM	Ju-Han (Donna) Chang, DDS; David Berzins, PhD	<p align="center">Force decay of esthetic, fiber-reinforced composite orthodontic wires</p>
		<p>After the development of clear brackets, clinicians and researchers started to investigate the feasibility of using fiber-reinforced composite archwires as an alternative to metal archwires to meet the increasing esthetic demands of the growing adult population. The fiber-reinforced composite's translucent optical property definitely meets the esthetic demand of the patients. However, studies need to be conducted to see if it also has the desired mechanical properties for clinicians to utilize it in active orthodontic treatment. The goal of this research is to study the force decay levels of fiber-reinforced composite archwires from BioMers Products and compare it to that of conventional nickel-titanium archwires (Nitinol Classic from 3M Unitek) using a three-point bending test.</p>
6:20 PM	Raghav Puri , David W. Berzins	<p align="center">Metallurgical characterization of new palladium-containing CoCr and NiCr alloys</p>
		<p>Recently introduced has been an entirely new subclass of casting alloy composition whereby palladium (~25wt%) is added to traditional base metal alloys (CoCr and NiCr). The purpose of this study was to evaluate the Vickers hardness and microstructure of these new alloys and compare them to traditional CoCr and NiCr. The casting alloys investigated were two CoPdCr, NiPdCr, CoCr, and NiCr. As-cast cylindrical alloy specimens were mounted in epoxy and prepared with standard metallographic procedures. Vickers hardness (VHN) was measured and statistically analyzed by ANOVA. The alloys were etched and the microstructure examined with an optical microscope and SEM/EPMA. In general, the Co-based alloys had higher hardness than Ni-based alloys and alloying with Pd had a varied effect on hardness depending upon alloy. The microstructure characterization showed a dendritic microstructure for all of the alloys, however the palladium containing alloys possessed more precipitates and/or secondary phases than their traditional counterparts.</p>

Postdoc Group C Room 209**Faculty Judges: Drs. Dentino, Domagala, Hjertstedt**

<i>Time</i>	<i>Student/Resident</i>	<i>Title & Abstract</i>
6:30 PM	Elizabeth Ninan	Titanium and Its Use as a Dental Implant
		NO ABSTRACT PRESENT ON POSTER