HPD RESEARCH DAY

February 14, 2014

College of Osteopathic Medicine
College of Pharmacy
College of Optometry
College of Health Care Sciences
College of Medical Sciences
College of Dental Medicine
College of Nursing

NSU
NOVA SOUTHEASTERN UNIVERSITY
Health Professions Division

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NOVA SOUTHEASTERN UNIVERSITY

Message from the Health Professions Division Chancellor

Today is indeed a proud day for Nova Southeastern University's Health Professions Division (NSU-HPD) because it marks the fourth important milestone in our evolution as a collaborative multidisciplinary and clinical research venue. In the six years since the inaugural HPD Research Day, NSU has continued to expand and develop into a fine example of what dedicated researchers can accomplish when given the support and encouragement of their institution.

Thanks to the proactive nature of Dr. Patrick Hardigan, who chairs the HPD Research Committee, the committee agreed it would be an excellent opportunity to create a showcase for student and faculty involvement in what NSU traditionally calls scholarly activity, much of which is actually research. Interestingly, many people view research as working in a laboratory and using test tubes and specialty equipment when the fact is research extends far beyond that restrictive definition. Our multidisciplinary researchers do some of the finest statistical and clinical research that can be found in the nation. This research is being conducted in an applied research lab using sophisticated research methodology and advanced statistical analysis techniques.

Before I continue, I would like to thank and acknowledge the HPD Research Day Committee members who have been working so diligently to ensure the project's success. They are Dr. Cristina Garcia-Godoy, Dr. Brianna Kent, Dr. Anastasios Lymperopoulos, Dr. Jo Ann Kleier, Dr. Harvey Mayrovitz, Dr. Julie Rodman, and Dr. Elliot Sklar.

Research Day allows our talented students to be present at one place at the same time so they can participate in and view various poster presentations as well as attend multiple discussion groups. This project has proven to be a truly time-consuming undertaking, so I commend the wonderful commitment of our deans and various program leaders who have allowed us to move forward with this multidisciplinary interchange in the area of research and scholarly activity.

Although it's impossible to predict the outcomes that will be realized in the weeks and months following Research Day, I have no doubt our students will be vastly enriched by the experience. I believe they will come away with a realization of the importance of research in the formative accumulation of knowledge one goes through regardless of what HPD program they're participating in here at NSU.

I'm proud to say we've come a long way in a relatively short period of time. We now have multiple numbers of well-known and respected academic researchers in our institution that encompass the health professions spectrum. When Southeastern University of the Health Sciences merged with Nova University in 1994, we only had about $400,000 in externally funded research. Today, the Health Professions Division is over the $22 million mark, while the university is approaching $81 million.

Now that we've demonstrated our capabilities and showcased our acumen and research prowess, it's become apparent that we're viewed from a more-esteemed perspective than ever before. Thank you for your participation.

Sincerely,

Fred Lippman, R.Ph., Ed.D.
Chancellor, Health Professions Division

Welcome to HPD Research Day

February 14, 2014

The Health Professions Research Division is excited to welcome you to Nova Southeastern University's Health Professions Division Research Day (HPD Research Day). All seven academic colleges of the Health Professions Division—Dental Medicine, Health Care Sciences, Medical Sciences, Nursing, Optometry, Osteopathic Medicine, and Pharmacy—have banded together to offer poster displays and oral presentations of their current research.

Research Day reflects the important contributions to the NSU's mission as it relates to academic excellence, intellectual inquiry, leadership, research, and commitment to community through engagement of students and faculty members in a dynamic, life-long learning environment. This is an opportunity to learn about the research that our faculty, residents, fellows and graduate students have conducted as a critical part of their educational experience.

Adding to the festivities will be door prizes and awards for best student presentations. People from other colleges across NSU will visit our division to learn more about us and see the work we do here. Students and faculty from all HPD's Student Education Centers will participate via videoconferencing. This event promises to be more than a day-long celebration of research and scholarly activities. It is also an opportunity for students and faculty from multiple disciplines to interact with each other and with the larger research and NSU communities. I am so pleased that you are able to be a part of this academic research event.

Patrick C. Hardigan, Ph.D.
Director HPD Research

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PLATFORM PRESENTATIONS

Auditorium A

Auditorium A 9:45-10:15 A.M.

SOCIOECONOMIC FACTORS ASSOCIATED WITH CHOLESTEROL MONITORING AMONG PATIENTS WITH HYPERLIPIDEMIA; APPLICATION OF THE ANDERSEN MODEL

Abdullah Althemery, Ph.D. in Pharmacy, College of Pharmacy
Leanne Lai, Ph.D, Professor, College of Pharmacy

Objective. To investigate socioeconomic factors associated with blood cholesterol monitoring among patients with hyperlipidemia. **Background.** The National Cholesterol Education Program (NCEP) advices adults over age of nineteen with high blood cholesterol to have their blood cholesterol monitored every two years. However, few studies demonstrated socioeconomic barriers for the use of cholesterol preventive services. **Methods.** This study conducted a cross-sectional analysis using 2009 Medical Expenditures Panel Survey. Study sample consisted of U.S. civilian, non-institutionalized adults who reported having high blood cholesterol. A series of descriptive statistics and weighted logistic regression analyses were used to evaluate the association between socioeconomic factors and cholesterol monitoring. Andersen Model was applied to identify predisposing, enabling and need variables. **Results.** Approximately 71 million patients reported having high blood cholesterol in 2009. 65 million (94%) reported monitoring blood cholesterol at least once in the past two years. Uninsured were 70% less likely to monitor their blood cholesterol than private insurance (OR: 0.264, 95% CI: 0.181- 0.386). Smokers were 70% more likely to miss their blood cholesterol monitoring than non-smokers (OR: 0.275, 95% CI: 0.376- 0.762). Low-income patients were 60% more likely to miss their blood cholesterol monitoring than higher income (OR: 0.413, 95% CI: 0.27-0.62). **Conclusion.** The Study showed that enabling factors including insurance and income are significant in managing hyperlipidemia. This suggests a need for healthcare interventions that minimize the costs of blood cholesterol monitoring. **Grants.** none

Auditorium A 10:15-10:45 A.M.

TRANSITIONING TO TABLET-BASED ASSESSMENT IN A PROGRAM WITH DISTANCE SITES

Sean Leonard, Ph.D., Assistant Professor, College of Pharmacy
Jennifter Steinberg, Pharm.D., Assistant Professor, College of Pharmacy
Graciela Armayor, Pharm.D., M.S., Assistant Professor, College of Pharmacy

Objective. To provide guidelines and strategies for transitioning from traditional paper/pencil-based assessments to the use of computer tablets, in academic programs that include large classes and distance sites. **Background.** Computer-based assessments are now becoming more common-place, and the latest progression in this trend is to use tablets (such as an iPad). The College of Pharmacy at Nova Southeastern University adopted SofTest-M for use in all academic assessments with the incoming class in 2013. To date this is the first known attempt to introduce tablet-based assessment in a program with fairly large class sizes, and distance campuses. **Methods.** The authors present a project plan that may be most useful in allowing for a smooth transition from paper/pencil assessments to tablet-based assessments. Results from surveys administered to both students and faculty were also used to inform best practices. **Results.** The "leap" from paper/pencil testing to tablet-based assessment was much easier than anticipated. Students generally embraced the tablet-based assessments without difficulty and while faculty were slower to accommodate the change, most found the use of tablets to have significant advantages. Some challenges remain, such as proctoring, policy and procedural issues, and limitations to the functionality of the current available tablets. **Conclusion.** The transition from traditional paper/pencil exams to computer-based assessments can be daunting yet it was found to be much easier in practice. There are clear advantages to using tablets for assessment, but tablets are hardly "perfect" for all assessment situations. **Grants.** None

Auditorium A 10:45-11:15 A.M.

NEGATIVE IMPACT OF BETA-ARRESTIN1 ON HEART FAILURE VIA CARDIAC AND ADRENAL DEPENDENT MECHANISMS

Anastasios Lymperopoulos, PhD, BPharm, MSc, FAHA, Assistant Professor, College of Pharmacy
Ashley Siryk, P2, College of Pharmacy
Samalia Dabul, P2, College of Pharmacy

Objective. Investigation of beta-arrestin1 (barr1) in post-myocardial infarction (MI) heart failure (HF). **Background.** barrs are universal G protein-coupled receptor adapter proteins that negatively regulate cardiac beta-adrenergic receptor (betaAR) function via betaAR desensitization & downregulation. In addition, they mediate G protein-independent betaAR signaling, which might be beneficial, e.g. antiapoptotic, for the heart. However, the specific role(s) of each barr isoform in cardiac betaAR dysfunction, the molecular hallmark of chronic HF, remain unknown. Furthermore, adrenal barr1 exacerbates HF by chronically enhancing adrenal production, and hence circulating levels of aldosterone and catecholamines. **Methods.** We studied barr1 knockout (barr1KO) mice alongside wild type (WT) controls under normal conditions and after surgical MI. **Results.** Normal (sham-operated) barr1KO`s display enhanced betaAR-dependent contractility and post-MI barr1KO`s enhanced overall cardiac function (and betaAR-dependent contractility) compared to WT`s. Post-MI barr1KO`s also show increased survival, and decreased cardiac infarct size, apoptosis, and adverse remodeling, as well as circulating catecholamines & aldosterone, compared to post-MI WT`s. The underlying mechanisms are on one hand improved cardiac betaAR signaling and function, as evidenced by increased betaAR density and pro-contractile signaling, via reduced cardiac betaAR desensitization due to cardiac barr1 absence, and on the other hand decreased production leading to lower circulating levels of catecholamines & aldosterone due to adrenal barr1 absence. **Conclusion.** Thus, barr1, via both cardiac and adrenal effects, is detrimental for cardiac structure and function and significantly exacerbates post-MI HF. **Grants.** 1) Scientist Development Grant from the American Heart Association (AHA #09SDG2010138, National Center) to A.L. 2)NSU HPD Research Grant #335797 to A.L.

Auditorium A 1:15-1:45 P.M.

SIALIC ACID IN ASTHMATICS AS DETECTED BY TRITHRICOMONAS MOBILILENSIS LECTIN (TML) HISTOCHEMISTRY.

Andrew Mariassy, Ph.D, Professor, College of Medical Sciences
Lori Dribin, Ph.D., Professor, College of Medical Sciences

Objective. To detect and compare sialic acid expression in asthmatic subjects and controls. **Background.** Expression of carbohydrates on the lung surface is the basis of the interaction of microorganisms and the host. **Methods.** We examined asthmatic (4) and control (4) lungs. The tissues were obtained at autopsy and used for histochemical analysis. Trithrichomonas mobiliensis lectin (TML) is a sialic acid-specific lectin from a colonic parasite of squirrel monkeys. TML recognizes the sialic acid in a number of stereological configurations. Due to the high specificity for sialic acid, its long term stability and its wide commercial availability, TML is a useful probe in sialic acid histochemistry. Lectin binding was detected by Avidin-Biotin, Vector Kit® in the histological sections. Digital images were used for evaluation of staining density on a scale from 0 = no staining to 4 = dense staining. **Results.** Sialyl residues in the lung surface of asthmatics were more abundant when compared to controls; in bronchi 2.29 vs 0.00; in bronchioles, 1.50 vs 0.53 and in glands 1.67 vs 0.00. This preliminary data show an unexpected prevalence of sialic acid residues expressed in the asthmatic airways as compared to controls. Further examination of this carbohydrate distribution should be made. **Conclusion.** We conclude that these findings indicate a shift in the expression of an important glycocalyx component that participates in the host defense.
Grants. Supported by NSU Faculty Research Grant.

CLINICAL PHARMACIST IMPACT ON MEDICATION-RELATED OUTCOMES IN A PEDIATRIC MEDICAL HOME

Danielle Padgett, P4, College of Pharmacy
Sandra Benavides, PharmD, Associate Professor, College of Pharmacy
Isabelle Thony, P4, College of Pharmacy

Objective. The purpose of this study is to develop and implement clinical pharmacy services in a pediatric patient centered medical home (PCHM). **Background.** The PCMH is a common delivery model for special needs children and lends itself to the incorporation of a pharmacist to manage medication use and improve medication related outcomes. **Methods.** A clinical pharmacist initiated services at Children's Medical Services. All medical charts were reviewed by a pharmacist prior to clinic visits and evaluated for improved medication use. During the visit, the clinical pharmacist completed a medication history to reconcile the medication records. **Results.** In seven months, a total of 166 medical charts were reviewed. The average age was 11.6 ± 5.2 years (range 0.8-21.4). The average number of medications per patient at time of review was 4 ± 4(range 0-18). Overall, the total number of interventions made was 102 in 60 (36%) patients. The intervention included: 31 (53% of all interventions) omitted medications, 28 (47%) medication discontinued, 18 (17%) incorrect doses , 1 (2%) incorrect route , 14 (23%) incorrect frequency , 1 (2%) missing PRN indication , 4 (7%) missing allergy , and 5 (8%) other (including incorrect concentration medication). **Conclusion.** The number of interventions in a short timeframe illustrates the necessity of a pharmacist to assist in coordinating medication use in this population. Accurate medication records can prevent medication errors upon hospital admission, visits to specialty practitioners in which sedation may be required (e.g., dental procedures) and when referring the patient to another specialty physician. **Grants.** N/A

FEMALE PHARMACISTS IN LEADERSHIP ROLES IN ACADEMIA

Jennifer Quevedo, P3, College of Pharmacy
Jenny Pham, P3, College of Pharmacy
Jennifer Steinberg, PharmD,BCPS, Assistant Professor, College of Pharmacy
Sandra Benavides, PharmD, Associate Professor, College of Pharmacy

Objective. To examine the percentage of females and males in leadership roles in academia. **Background.** Research shows that females now make up the majority of pharmacy graduates. Despite more females entering the profession of pharmacy, the percentage in leadership roles is still low. **Methods.** This evaluative study was conducted using retrospective data from The American Association of Colleges of Pharmacy (AACP) Profile of Pharmacy Faculty for 2007-2008 and 2012-2013 academic years. Data pertaining to the number of women in various academic and administrative ranks were extracted and classified to compare the percentage between females and males. Additional analyses include the comparisons between male and female classified as full-time or part time, as well as race and ethnicity. Data from the two academic years will be compared to determine if any changes have occurred over time amongst females and males in academic leadership roles. **Results.** Overall, analyses of comparison of full-time and part-time roles in 2007-2008 show that males held more leadership roles than females (68% vs 32%).The 2012-2013 analyses show an increase in females in full-time leadership roles(39%) compared to males (61%) . Part time roles were equally distributed for both male and females in 2012-2013, showing an increase since 2007-2008 (54% vs 45%). Males also held more leadership roles across departments of pharmacy with the exception of Continuing Professional Education and Pharmacy Practice. **Conclusion.** Females who hold leadership roles in academia have increased; however, males are still at a higher percentage than females. **Grants.** N/A

MECHANISTIC ANALYSIS OF VITAMIN B6 DEFICIENCY FOLLOWING SMALL BOWEL TRANSPLANTATION

Mohammad Shawaqfeh, Pharm D, Assistant Professor, College of Pharmacy
Raman Venkataramanan , PhD, Professor, University of Pittsburgh

Objective. This study was conducted to determine the cause of vitamin B6 deficiency reported following small bowel transplantation. **Background.** Earlier research has shown that patients following small bowel transplantation developed a vitamin B6 deficiency regardless of vitamin intake or supplementation. **Methods.** . For this study the urinary metabolite of vitamin B6 4-pyridoxic acid was measured in urine and compared to a matched healthy control subjects. Plasma Alkaline phosphatase, serum albumin and selected cytokines (IL-1², IL-2, IL-4, IL-6, IL-8, IL-10, IL-12, TNF-±, IFN-³) were measured. **Results.** Twelve hour urinary 4-PA amounts were significantly higher in transplant group (16.92 µmol±3.58). Compared to the control group (1.11 µmol± 0.13) (p-value<0.05). 4-PA amounts were (1.11 µmol ±0.13), (23.78 µmol ±5.96), and 10.1 µmol ±1.4) in control, transplant session 1 and transplant session 2, respectively. (pvalue<.05). Average alkaline phosphatase (ALKP) was (56.8 IU/L ±3.7) for control group and (112.5 IU/L ±18.4) for transplant group (p-value = 0.007). Average serum Albumin was (4.0 g/dl ±0.14) in the control group and (3.4 g/dl ±0.08) in the transplant group (p-value =0.001). Only IL-6 and TNF-± were significantly higher in transplant patients in both session 1 and 2 than in control group. Both IL-8 and IL-10 were significantly higher than in control during transplant session 1 only. The rest of the cytokines were not significantly different from control group. ANOVA was used for analysis **Conclusion.** The higher urinary 4-PA amounts seen in the transplant groups may indicate increased degradation. Elevated alkaline phosphatase plasma and decreased serum albumin in transplant patients may lead to increased P5P degradation. **Grants.** None

Finkelstein Auditorium

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 9:45-10:15 A.M.

FABRICATION AND CHARACTERIZATION OF EPINEPHRINE NANOCRYSTALS USING TOP-DOWN TECHNIQUE

Alhussain Aodah, Ph.D. in Pharmacy, College of Pharmacy
Belacryst Mendez , Entry Level P3, College of Pharmacy
Annette Losada, Entry Level P3, College of Pharmacy
Mutasem Rawas-Qalaji, B. Pharm, Ph.D., Assistant Professor, College of Pharmacy

Objective. To fabricate and characterize epinephrine bitartrate nanocrystals (EpiBit-NCs) using Microfluidizer. **Background.** Epinephrine(Epi) 0.3mg IM injection is the drug of choice for the treatment of anaphylaxis in community sittings. Previously, we showed that Epi 40mg rapidly disintegrating sublingual tablets (RDSTs) is bioequivalent to Epi 0.3mg IM injection in a rabbit model. We hypothesized that significant reduction in the Epi particle size will significantly increase Epi dissolution and absorption and permit for the reduction of Epi sublingual dose. **Methods.** EpiBit NCs were prepared using LV-1/Microfluidizer. EpiBit 0.7mg/ml, 1.4mg/ml, 2.8mg/ml, 3.5mg/ml, and 4.5mg/ml were suspended in isopropyl alcohol (n=3) and processed at 15,000, 25,000, or 30,000Psi for 4 cycles. Mean particles size distribution (PSD) and zeta potential (ZP) were measured after each cycle using Zetasizer(n=3). Reproducibility and fabrication yield were calculated(n=5). **Results.** Mean(SD) PSD of EpiBit before processing was 131.8±10.5µm. Processing EpiBit 0.7mg/ml, 1.4mg/ml, 2.8mg/ml, 3.5mg/ml, and 4.5mg/ml for 1 cycle at 30,000Psi resulted in PSD and ZP of 709±288nm and -14±6mV, 665±47nm, 249±38nm and -28±2mV (fabrication yield 36±6%), 1211±389nm and -16±2mV, and 1091±43nm and -28±1mV, respectively. Processing EpiBit 2.8mg/ml for 2, 3, 4 cycles resulted in PSD of 827±114nm, 971±124nm, and 976±163nm, respectively. Processing EpiBit 2.8 mg/ml for 1 cycle at 25,000 or 15,000Psi resulted in PSD and ZP of 603±169nm and -9±4mV, and 649±473nm and -12±7mV, respectively. **Conclusion.** The fabrication of the EpiBit NC using LV-1 Microfluidizer was feasible. Particles size was reduced 135 fold. EpiBit NC as RDSTs have the potential to enhance the sublingual absorption of Epi. **Grants.** This study was funded by the Health Professions Division Grant and the President's Faculty Research & Development Grant, Nova Southeastern University.

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 10:15-10:45 A.M.

EVALUATION OF FLORIDA PHYSICIANS' KNOWLEDGE AND ATTITUDES TOWARD ACCESSING THE STATE PRESCRIPTION DRUG MONITORING PROGRAM AS A PRESCRIBING TOOL

Jennifer Gershman, Pharm.D., Assistant Professor, College of Pharmacy
Jason Gershman, Ph.D., Associate Professor, Farquhar College of Arts and Sciences
Andrea Fass, Pharm.D., Assistant Professor, College of Pharmacy
Ioana Popovici, Ph.D., Assistant Professor, College of Pharmacy

Objective. This study was conducted to assess Florida physicians' attitudes and knowledge toward accessing the state's prescription drug monitoring program (PDMP). **Background.** Florida's PDMP collects and stores controlled substance prescribing and dispensing information for schedules II-IV. Florida's PDMP is currently operational; however, physicians are not required to access the program prior to prescribing controlled substances. **Methods.** Five thousand medical doctors and osteopathic physicians licensed in Florida were randomly selected for a voluntary and anonymous 15 question self-administered survey approved by the Institutional Review Board. Surveys were distributed through U.S. postal service mail. Likert-scale questions were used to assess prior knowledge (1=none to 5=excellent) and attitudes toward accessing the PDMP (1=strongly disagree to 5=strongly agree). **Results.** The study yielded a response rate of 7.8%. Among participants that have access and answered the PDMP usefulness question, 94.8% agree or strongly agree that it is a useful tool. Sixty-three out of 64 physicians (98.4%) who conducted 25 or more searches agree or strongly agree that the PDMP is a useful tool for monitoring patients' controlled substance histories. Also, 72.5% of participants with access that answered the "doctor shopping" question agreed that “doctor shopping” will decrease. Among the 64 most frequent PDMP users, 69.4% agreed or strongly agreed that they have prescribed fewer controlled substances after accessing the PDMP. **Conclusion.** A majority of participants believe the PDMP is a useful tool for monitoring patients' controlled substance histories. **Grants.** This study was fully funded by an HPD internal grant.

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 10:45-11:15 A.M.

FREE AND LOADED SWELLING OF SUPERDISINTEGRANTS

Yogesh Joshi, Ph.D. in Pharmacy, College of Pharmacy
Hamid Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The objective of this study was to study the behavior of superdisintegrants under free and loaded conditions. **Background.** Superdisintegrants are characterized by their swelling ratio, which determines their capacity to disintegrate tablets. Swelling ratio is determined by weight or volume of the dry versus swollen sample. While high swelling capacity and slow swelling rate can be successfully measured by weight or volume changes, a high standard deviation is expected when swelling is negligible or very fast. Moreover, the swelling capacity and rate can be changed when isolated particles of the superdisintegrant are dispersed in the swelling medium (free swelling) or compressed into a tablet before exposed to the swelling medium (loaded swelling). We therefore developed a new effective method to measure the swelling pressure of superdisintegrants. **Methods.** Tablets of three different superdisintegrants were prepared with same hardness and weight. Swelling pressure was determined by the novel probe attached to the Brookfield CT3 texture analyzer; weight selling ratio of the superdisintegrants as particle and tablet was also measured. **Results.** Under free swelling, Explotab displayed the maximum swelling capacity, while maximum swelling pressure was obtained for Croscarmellose. We also found most water absorbed by explotab was interstitial, while it was bulk absorption for Croscarmellose. Polyplasdone showed almost same free and loaded swelling, the swelling was low and fast, which can be accounted for by its wicking action. **Conclusion.** Although useful for comparative studies, the free swelling data cannot be used to characterize disintegration power of superdisintegrants in tablets. **Grants.** NA

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 1:15-1:45 P.M.

TAILOR-MADE POLYVINYL ALCOHOL CRYOGELS FOR PHARMACEUTICAL APPLICATIONS

Srinath Muppalaneni, Ph.D. in Pharmacy, College of Pharmacy
Yogesh Joshi, Ph.D. in Pharmacy, College of Pharmacy
Hossein Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The main objective of this study was to characterize adhesive, swelling and viscoelastic properties of Polyvinyl alcohol (PVOH) cryogels **Background.** PVOH is a hydrophilic linear polymer commonly used as film-former, emulsifier, and binder in variety of pharmaceutical dosage forms including tablets, transdermal patches, ophthalmic gels, and implants. PVOH can also undergo chemical or physical gelation, which can be utilized for specialized applications such as in controlled drug delivery. Aqueous solutions of PVOH undergoes cryogelation when exposed to repeated freeze-thaw cycles. The cryogels prepared as such possess unique mechanical, elastic, adhesive, and swelling properties, which can be utilized in developing platforms for controlled and novel drug delivery applications. **Methods.** PVOH aqueous solutions were prepared by dissolving the polymer (PVOH, 99% hydrolyzed, MW 124K-188K, Sigma Aldrich) in deionized water at 90oC under mechanical mixing. The corresponding cryogels were prepared using three different PVOH concentrations (5, 8, 10 wt%) and subjected to two freeze-thaw cycles consisting of freezing at -10oC for 4 hr and thawing at 25oC for 2 h. Adhesive properties were measured using a CT3 Texture analyzer, swelling properties by gravimetry, gumminess by running a texture profile analysis, whereas hardness was measured by compression test using Volodkevich bite jaws (Brookfield Engineering). **Results.** Cryogels prepared at different concentrations displayed adhesive forces ranging 83-430mN, adhesiveness ranging 0.07-0.36mJ, gumminess ranging 5-22N, hardness ranging 1114mJ, and swelling ranging 10-50%. **Conclusion.** Adhesive properties and gumminess decreased with increase in polymer concentration whereas hardness and swelling increased with increase in concentration. **Grants.** NSU grants# 335867 and 335489.

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 1:45-2:15 P.M.

FEMALE PHARMACISTS IN LEADERSHIP ROLES IN PROFESSIONAL PHARMACY ORGANIZATIONS

Jenny Pham, P3, College of Pharmacy
Jennifer Quevedo, P3, College of Pharmacy
Jennifer Steinberg, PharmD, BCPS, Assistant Professor, College of Pharmacy
Sandra Benavides, PharmD, Associate Professor, College of Pharmacy

Objective. To examine the percentage of female pharmacists in leadership roles in pharmacy professional organizations. **Background.** Earlier research has shown that the total numbers of females serving in the top leadership roles are still low compared to the current male to female ratio in pharmacy practice **Methods.** Four pharmacy organizations - American Association of Colleges of Pharmacy (AACP), American College of Clinical Pharmacy (ACCP), American Pharmacist Association (APhA), and American Society of Health-System Pharmacists (ASHP) - were included in the evaluation. For each organization past presidents and the current leadership team were collected from the respective websites using the search function. The information was classified based on gender, using Internet searches to verify categorization. The primary outcome was the percent of females in the role of president since the organizations were founded. Secondary outcomes were the analysis of other organizational leadership roles (e.g., Board Members, committee members) with regard to gender distribution. **Results.** Overall, females held 20% of president positions in all the organizations combined since their inception. The lowest percentage was in APhA (5%) followed by an increasing trend to the maximum of 19% in ASHP. For the secondary outcome, the percent of females in leadership roles other than president in 2013 is higher than the number of female presidents; however, the overall percentage of males still remains greater. **Conclusion.** Females in leadership positions of major pharmacy organizations including AACP, ACCP, APhA, and ASHP have increased since each organization began. **Grants.** N/A

Finkelstein Auditorium (via videoconference from Jonas Auditorium) 2:15-2:45 p.M.

A NOVEL APPROACH FOR ENHANCING THE SUBLINGUAL ABSORPTION OF EPINEPHRINE FROM RAPIDLY DISINTEGRATING TABLETS FOR THE POTENTIAL FIRST-AID TREATMENT OF ANAPHYLAXIS

Mutasem Rawas-Qalaji, B.Pharm, Ph.D., Assistant Professor, College of Pharmacy
Ousama Rachid, Ph.D., Lecturer, University of Manitoba
Belacryst A. Mendez, P3, College of Pharmacy
Annette Losada, P3, College of Pharmacy
F. Estelle Simons, M.D., Professor, University of Manitoba
Keith Simons, Ph.D., Professor, University of Manitoba

Objective. Our objective was to evaluate the rate and extent of absorption of epinephrine microcrystals (Epi-MC) administered from rapidly disintegrating sublingual tablets (RDSTs). **Background.** For the treatment of anaphylaxis in community settings, an IM injection of Epi 0.3 mg in the thigh using an auto-injector is the drug of choice and the only available dosage form in the market. Previously, we showed that Epi 40 mg from RDSTs is bioequivalent to Epi 0.3 mg IM injection in our validated rabbit model. **Methods.** The rate and extent of Epi absorption from Epi 40 mg RDSTs and Epi-MC 20 mg RDSTs (n=5) were evaluated in rabbits using a randomized crossover study design. Epi 0.3 mg IM injections in the thigh and placebo RDSTs were used as positive and negative controls, respectively. Blood samples were collected at frequent intervals and Epi concentrations were measured using HPLC with electrochemical detection. **Results.** Mean (SD) AUC0-60 and Cmax from Epi-MC 20 mg RDSTs (942±244 ng/ml/min and 38±10 ng/ml) and Epi 40 mg RDSTs (678±149 ng/ml/min and 32±10 ng/ml) did not differ significantly ($p>0.05$) from each other or from Epi 0.3 mg IM injections (592±122 ng/ml/min and 28±7 ng/ml), but these were all significantly higher ($p<0.05$) than endogenous Epi from placebo RDSTs (220±78 ng/ml/min and 8±3 ng/ml). The mean±SD Tmax was not significantly different ($p>0.05$) between all formulations. **Conclusion.** The Epi-MC RDSTs improved Epi absorption two-fold and reduced the required bioequivalent dose by 50%. These sublingual Epi tablets are suitable for Phase I human studies. **Grants.** This study was partially funded by Health Professions Division Grant and the President's Faculty Research & Development Grant, Nova Southeastern University

EFFICACY AND TOLERABILITY OF DIPEPTIDYL PEPTIDASE-4 INHIBITORS IN PATIENTS WITH DIABETES MELLITUS AND RENAL IMPAIRMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS.

Catherine Harrington, PharmD, PhD, Associate Professor, College of Pharmacy
Devada Singh Franco, PharmD, Associate Professor, College of Pharmacy
Antonia Zapantis, PharmD, MS, Associate Professor, College of Pharmacy
Eglis Tellez Corrales, PharmD, Assistant Professor, College of Pharmacy

Objective. Evaluate efficacy and tolerability of DPP-4 inhibitors (DPP-4I) in patients with type 2 diabetes mellitus (T2DM) and chronic renal failure (CRF) using a systematic review and meta-analysis of available literature. **Background.** CRF is commonly found in patients with T2DM and the list of antidiabetic medications that can be used in this population is limited. **Methods.** Eight published randomized, clinical trials were identified from multiple databases. Qualitative assessment and quantitative analyses were performed. **Results.** Studies of DPP-4I included sitagliptin, saxagliptin, linagliptin and vildagliptin with 995 patients analyzed (average age 65 years, 56.4% males, 56.5% Caucasians, baseline A1c 7.9%). When compared with placebo, DPP-4I caused a reduction in A1c at 12 (-0.51%) and 52 (-0.72%) weeks, respectively, $p<0.00001$, but reduction was not significantly different compared with glipizide. Subgroup analyses by severity of renal impairment showed DPP-4I caused a significant reduction in A1c with moderate (0.79) and severe (-0.62) renal impairment ($p<0.02$). When compared with glipizide, DPP-4I were associated with weight loss at 12 and 54 weeks by 0.54Kg and 1.51Kg, respectively ($p<0.01$). DPP-4I were associated with a numerical increase in rate of hypoglycemic events versus placebo (20.4% versus 16.4%, p=NS) but not when compared with glipizide (6.2% versus 15.5%, p=0.0009). There were no differences between DPP-4I and comparator for any adverse events (AE) (73.7% versus 75.1%), serious AE (19.1% versus 18.9%), any drug-related AE (19.8% versus 21.1%) and withdrawals due to AE (7.6% versus 8.1%), respectively. **Conclusion.** Meta-analysis suggests that DPP-4I are effective and well-tolerated in patients with T2DM with CRF. **Grants.** N/A

Hull Auditorium

Hull Auditorium 9:45-10:15 A.M.

AN ASSESSMENT OF ACCULTURATION ON DIABETES TYPE II OUTCOMES AMONG MEXICAN AMERICANS

Kathleen Pierre, Other, Other
Alexandra Perez, PharmD, Assistant Professor, College of Pharmacy

Objective. To evaluate the relationship between low and high levels of acculturation and Type 2 Diabetes Mellitus (T2DM) standards of diabetes care on Mexican Americans. **Background.** Evidence suggests a possible relationship between acculturation and certain health outcomes. The effect of acculturation on Mexican Americans and diabetes standards of care is not well documented. **Methods.** Demographic and clinical data of individuals self-reported as Mexican American aged e20 years with T2DM were obtained from the NHANES federal database (2001-2002 and 20032004 cohorts). Preference of Spanish or English language use as a child, at home, with friends, thinking, reading or speaking was used as proxy for acculturation and was categorized into high (English preference) and low (Spanish preference). Select standards of diabetes care included control of hemoglobin A1c, medication use and prevalence of eye disease. Chi-squared and independent t-tests were used to compare outcomes across acculturation level (alpha=5%). **Results.** 85 Mexican Americans were included: 40 with low and 45 with high acculturation. Overall, the mean age was 62.5+/-12.2 years, and 49.4% were female (p>0.05 for all baseline characteristic comparisons). The mean A1c was 7.3+/1.7% and 7.6+/-1.8% and achieving A1c goal of <6.5% was 40% and 40% for low and high acculturation. Those currently on insulin were 15% and 22.2% and oral antidiabetic pills were 85% and 68.2% and with retinopathy were 22.5% and 28.9% for low and high acculturation, respectively (p>0.05 for all comparisons). **Conclusion.** No relationship between acculturation and select diabetes outcomes was found. Language preference may not reflect true acculturation level. **Grants.** No funding was obtained for this study

Hull Auditorium 10:15-10:45 A.M.

CREATING A HPD INTERPROFESSIONAL CULTURE IN EDUCATION AND CLINICAL PRACTICE

Cecilia Rokusek, Ed.D., R.D., College of Osteopathic Medicine
Sandra Dunbar, DPA, OTR/L, FAOTA, College of Health Care Sciences
Abbie Brodie, DDS, MS, College of Dental Medicine

Objective. At no other time in academic history is the timing more ideal than now for the integration of interprofessional education and practice into the curriculum and in the clinics at Nova Southeastern University. Currently there are over 60 health professions disciplines whose professional academic accreditations require interprofessional education in the curriculum. As a result of a 3-year ongoing initiative started in the College of Osteopathic Medicine and now fully integrated in the Health Professions Division, interprofessional education is occurring and faculty development programs are being offered throughout the academic year. **Background.** This presentation will discuss the interprofessional initiatives that are now available to students and faculty in the Health Professions Division. **Methods.** Results of attitude and knowledge surveys from students participating in interprofessional case studies will be discussed. Recommendations for the future to sustain the interprofessional culture will be examined. Participants will have the opportunity to discuss logistical challenges and future possibilities to expand the interprofessional learning opportunities within the community. Evaluative strategies will be discussed. The integration of interprofessional practice in the community setting and follow-up assessments will be explored. **Results. Conclusion. Grants.** N/A

Hull Auditorium 10:45-11:15 A.M.

ASYMMETRIES AND LOW INDIVIDUAL SCORES ON THE FUNCTIONAL MOVEMENT SCREEN PREDICT INJURY IN NCAA DIVISION II ATHLETES

Monique Mokha, PhD, ATC, Assistant Professor, Farquhar College of Arts and Sciences
Peter Sprague, PT, DPT, OCS, Assistant Professor, College of Osteopathic Medicine
Dustin Gatens, MS, ATC, Clinical Professor, Farquhar College of Arts and Sciences
Anya Ellerbroak, Other, Other
Stephanie Hauck, Other, Other

Objective. To determine if a score of "1" or a left to right asymmetry in the individual FMS tests predicts injury in NCAA Division II collegiate athletes. **Background.** Functional Movement ScreenTM (FMS) scores of <14 have been used to predict injury in athletic populations. Clinicians prioritize individual test scores of "1" and asymmetries when designing corrective programs. Therefore, identifying either of these may have more utility in predicting injury. **Methods.** : 94 male and female collegiate athletes with no recent history of musculoskeletal injury performed the FMS during pre-season. Injury incidence data were tracked for an academic year by certified athletic trainers via computer software. Injury was defined as physical damage to the body secondary to physical training where the athlete sought medical care. Both contact and noncontact injuries were included. Total FMS scores were categorized as low (<14) or high (>14). Pearson Chi-square analyses were used to determine if (a) total FMS scores could predict injury, and (b) individual scores of "1" or an asymmetry could predict injury, P<.05. **Results.** Athletes whose total FMS scores were <14 were not more likely to sustain an injury (95% CI=.460-2.839, P=.774). However, athletes with individual scores of "1" or an asymmetry were 6.8x more likely to sustain an injury (95% CI=2.618-17.566, P<.001). **Conclusion.** Total FMS scores could not be used to predict injury in this group. However, a score of "1" or an asymmetry in the individual tests did predict injury. Individual test scores may provide clinicians with better guidance when developing injury prevention programs. **Grants.** no grants

Hull Auditorium 11:15-11:45 A.M.

FILLING A COMMUNITY NEED: AN EFFECTIVE PARTNERSHIP BETWEEN TOWN AND GOWN WITH AN INNOVATIVE SELF-CONTAINED CLINICAL EDUCATION MODEL

Debra Stern, PT, DPT, MSM, DBA, Associate Professor, College of Health Care Sciences
Kimberly Smith, PT, DPT, Lecturer, College of Health Care Sciences
Shari Rone-Adams, PT, MHSA, DBA, Associate Professor, College of Health Care Sciences

Introduction. The purpose of the collaboration between an academic entry level physical therapy program and tax assisted hospital physical therapy department was to provide an early OP introduction to second year DPT students consistent with their didactic course content and provide needed physical therapy services to indigent, underserved and uninsured individuals on the hospital waiting list. **Case presentation.** With reductions in hospital revenue and resulting decreasing physical therapy resources, the largest local district hospital was challenged by a long list of patients waiting for services and sought a solution. **Deviation From the Expected.** A contract relationship was established to provide a faculty member and student supervised services one day per week throughout the academic year in the hospital OP department. **Discussion.** Working with the local hospital PT Director and the university attorney, a designated faculty member developed a viable clinical education experience using a self-contained collaborative clinical model. Underserved clients from the "waiting list" with musculoskeletal diagnoses consistent with limited visit requirement and student knowledge are selected for the faculty/student OP clinic. The hospital has designated an area in the OP department for initial examination and evaluation with permission to use the OP gym area as needed. The supervising faculty assists with selection and scheduling of patients with a maximum 8/day. Hospital personnel contact and complete the patient registration process including required hospital intake paperwork. The patient is seen for an initial evaluation and a maximum of 3 follow-up visits, consistent with hospital policy. Clinic occurs once weekly during each academic semester. **Conclusion.** Patient satisfaction is high per hospital survey. Hospital staff reports less stress and pressure from administration as the patient waiting list is diminishing. An effective scheduling system was developed with students attending 2 weeks in a row for patient follow-up. With only patient name and physician diagnosis available, students are learning to expect the unexpected,

complete histories and interviews, determine and perform appropriate examination, develop short term plans of care, provide intervention and document (manually). Students are developing effective communication skills with patients and other health professionals and gaining confidence. They are also learning how to determine if patients may need additional services, referral or are inappropriate. From a faculty perspective, we can identify student challenges and provide opportunity to enhance learning to facilitate success in full-time internships. As faculty salary is covered by the university, the hospital has incurred minimal cost and maximized their ability to accommodate a population needing services that otherwise were going unfulfilled. With this successful model of marrying town and gown, the plan is to continue the program and possibly expand it. **Grants.** Contract relationship with Broward Health

Hull Auditorium 11:45A.M.-12:15 P.M.

CHANGES IN FUNCTIONAL MOVEMENT SCREEN SCORES OVER A SEASON IN COLLEGIATE SOCCER AND VOLLEYBALL ATHLETES

Peter Sprague, PT, DPT, OCS, Assistant Professor, College of Osteopathic Medicine
Monique Mokha, PhD, ATC, LAT, Associate Professor, Farquhar College of Arts and Sciences
Dustin Gatens, MS, ATC, LAT, Clinical Adjunct Professor, Farquhar College of Arts and Sciences

Objective. The purpose of this study was to document the changes in functional movement patterns over a competitive season. **Background.** Changes in functional movement patterns have been identified as predictors of athletic injury, a topic that has recently seen significant interest in the literature. The Functional Movement Screen (FMS) is a screening tool for the musculoskeletal system that has been shown to have validity in identifying individuals who may be at risk for athletic injury. Changes in many aspects of physical capacity and athletic performance have been documented through the course of a competitive season in collegiate athletes. To date, changes in FMS test scores through a competitive season have not been identified. **Methods.** Fifty-seven NCAA Division II athletes were screened using the FMS as part of the pre and post participation examination for their compeFiftytitive seasons in 2012. Composite and individual FMS test scores for the pre and post season were compared to identify significant changes. The scores were also analyzed for changes in the number of asymmetries present and the frequency of a score of one in any of the tests. **Results.** There were no significant interactions in the main effects for time or sport in the composite FMS scores. However, four individual tests did show significant change. The deep squat ($Z=-3.260$, $p=.001$) and inline lunge scores ($Z=-3.498$, $p<.001$) improved across all athletes, and the active straight leg raise ($Z=-2.496$, $p=.013$) and rotary stability scores ($Z=2.530$, $p=.011$) worsened across all athletes. A reduction in the number of asymmetries ($X2=4.258$, $p=.039$) and scores of 1 ($X2=26.148$, $p<.001$) were also found. **Conclusion.** Changes in individual fundamental movement patterns occur through the course of a competitive season. **Grants.** No grants were used for this study

Hull Auditorium 2:15-2:45 P.M.

PHYSICAL THERAPY COMPLICATION OF PNEUMARTHROSIS AND SUBCUTANEOUS EMPHYSEMA FOLLOWING KNEE ARTHROSCOPY

Kunkel Kevin, Phd, MSPT, MLD-CDT, Assistant Professor, College of Health Care Sciences

Introduction. Physical Therapy is often utilized for the post-operative rehabilitation of patients who have undergone arthroscopic knee surgery. The number of knee arthroscopic procedures performed in 2006 had increased 49% since 1996 to 984,607. Nearly 500,000 arthroscopic procedures were performed for medial or lateral meniscal tears. (Kim, Bosque, Meehan, Jamali, & Marder, 2011)Complications of arthroscopic surgery have been identified including laceration of popliteal artery, personal and saphenous nerve palsies, deep infection, instrumental breakage, deep vein thrombosis and multiple other complications.(Austin & Sherman, 1993) The purpose of this case study is to describe the treatment of a patient who developed subcutaneous emphysema and knee pneumarthrosis of the right knee region following an arthroscopic medial meniscal repair and debridement of osteoarthritis. Few case studies have been published which identify this condition. This specific case contains video of the conditions as it presented on the first day of symptoms. **Case presentation.** Case description: The patient is a 69 year old female with a

preoperative diagnosis of a medial meniscal tear and arthritis of the right knee. The patient reported that she had knee pain with a history of arthritis for many months and underwent conservative physical therapy treatment without success. The patient underwent a right knee arthroscopy, partial meniscectomy and debridement on January 25, 2012. The finding reported by the surgeon indicated a marked arthrosis consisted with a prior MRI. The surgery revealed a degenerative, significant flap, displaced flap tear, posterior horn medial meniscus with degeneration. Marked articular cartilage loss in the tibia and the femur, medial compartment as well as moderate loss in lateral compartment and moderate loss patellofemoral compartment were apparent during surgery. Minor fraying of the lateral meniscus was noted. The surgical procedure involved the patient positioned supine with successful induction of anesthesia and prepped and draped in the usual fashion. The arthroscope was inserted in the usual fashion through a standard portal distal and lateral to the patella. The unstable portion of the medial meniscus was identified and resected, preserving as much meniscus as possible. Debridement was performed and the rest of the knee re-evaluated and no lose bodies were found. Lavage took place and the instruments were removed and the portals closed with interrupted 4-0 nylon. A sterile compressive dressing was applied. The patient was ordered physical therapy and was scheduled in Florida on 1/30/2012. Prior to traveling from New York on a follow up visit on 1/30/2012 the sutures were removed from the portal sites. Upon evaluation, the patient ambulated with a cane independently and performed all transfers without pain or limitation. The patient reported actively ascending and descending steps and curb. Strength limitations to the knee were 4-/5 and Range of motion to the knee was within normal limits. **Deviation From the Expected.** The patient underwent 3 visits of physical therapy when upon her 4th visits she stated that she noticed a “swishing sound” when she flexed her knee and painless pressure was reported in the midrange of motion. The portal site were producing exudate and palpable and the patient was referred to her local physician who ordered oral antibiotics. **Discussion.** Following the MD visit, the patient underwent treatment to address the subcutaneous emphysema and pneumarthrosis which was produced by a communication from the knee joint and surrounding tissue through the portal sites and the environment. Treatment involved two manual techniques to address the edema and the emphysema. Primary treatment required the use of deep “milking” manual technique to migrate the trapped air to the portal sites for evacuation. This technique was followed by complex decongestive therapy with manual lymphatic drainage and compression therapy using short stretch bandages. The patient wore the bandages continuously until she returned for the next visit at which time the treatment was repeated. After 3 weeks of treatment with a frequency of 3 times a week, the pneumarthrosis and subcutaneous emphysema had resolved. **Conclusion.** It is postulated that the combination of the removal of sutures and a local infection produced and environment in which the portal site dehisced allowing a tunneling to occur and infiltration of ambient air which became trapped within and surrounding the joint. **Grants.** To be added

Hull Auditorium 2:45-3:15 P.M.

WHERE DOES THE TIME GO? A WORK SAMPLING STUDY OF DPT FACULTY TIME USE

Kathleen Rockefeller, PT, ScD, MPH, Associate Professor, College of Health Care Sciences
Mary Blackinton, PT, EdD, GCS, Associate Professor, College of Health Care Sciences
Lance Cherry, PT, EdD, OCS, Assistant Professor, College of Health Care Sciences
Melissa Lazinski, PT, DPT, OCS, Assistant Professor, College of Health Care Sciences
Keiba Shaw, PT, EdD, Associate Professor, College of Health Care Sciences

Objective. The goal of this study was to use iPad technology to collect real-time data in order to estimate and compare how faculty time was spent two Doctor of Physical Therapy programs -- one delivered via a traditional face-to-face format, the other via a hybrid forming involving the use of online technology in addition to face-to-face interactions. **Background.** There is little information about how faculty members in physical therapist education programs allocate their time among teaching, scholarship, service, and administration. We studied faculty in two types of entry-level DPT Programs offered at the same private university. One program is a Traditional Program, delivered primarily through on-campus face-to-face interaction. The other is a Hybrid Program, where students come to campus once a month for four days of full-time face-to-face interaction; otherwise, content is delivered through a variety of online tools and technology. **Methods.** An observational work sampling method was used to collect data. A taxonomy of work as a faculty member in a DPT program was created and used to design a framework of categories for data collection. Major task categories were teaching, research, service, administration, and other. Under each major task category, codes for relevant activities were created; e.g., course development,

scholarly writing, and committee work. There were also codes for location (e.g., classroom, lab, home) and for tools used (e.g., laptop, telephone). Based on the taxonomy, a developer designed an application for the iPad that was used to collect observations from faculty members. Faculty "logged in" to the application while working, and would then receive alert signals at random. At each signal, the faculty would use the application to note the categories they were engaging in at the time of the signal. Data were collected over a full academic year (two semesters). Proportions of observations were calculated for all categories of observations. Cross-tabulations were done to further characterize exposures of interest. Chi-square statistics were used to compare work in the two types of programs. **Results.** Faculty in both programs allocated their time among teaching, research, service, and administration. There were overall significant differences between the two programs in the distributions of tasks, activities, locations, and tools. The proportion of time spent teaching, however, was approximately the same, as was the time spent in the office. **Conclusion.** Faculty members in both programs performed tasks related to traditional faculty expectations of teaching, research, and service. There were a number of significant differences between the two programs in terms of the tasks and activities performed, along with locations and tools. It was feasible to use iPad technology to collect work sampling data, although there were a number of limitations, particularly the lack of WiFi access in a number of locations. **Grants.** HPD Educational Research Grant

Jonas Auditorium

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 9:45-10:15 A.M.

FABRICATION AND CHARACTERIZATION OF EPINEPHRINE NANOCRYSTALS USING TOP-DOWN TECHNIQUE

Alhussain Aodah, Ph.D. in Pharmacy, College of Pharmacy
Belacryst Mendez , Entry Level P3, College of Pharmacy
Annette Losada, Entry Level P3, College of Pharmacy
Mutasem Rawas-Qalaji, B. Pharm, Ph.D., Assistant Professor, College of Pharmacy

Objective. To fabricate and characterize epinephrine bitartrate nanocrystals (EpiBit-NCs) using Microfluidizer. **Background.** Epinephrine(Epi) 0.3mg IM injection is the drug of choice for the treatment of anaphylaxis in community sittings. Previously, we showed that Epi 40mg rapidly disintegrating sublingual tablets (RDSTs) is bioequivalent to Epi 0.3mg IM injection in a rabbit model. We hypothesized that significant reduction in the Epi particle size will significantly increase Epi dissolution and absorption and permit for the reduction of Epi sublingual dose. **Methods.** EpiBit NCs were prepared using LV-1/Microfluidizer. EpiBit 0.7mg/ml, 1.4mg/ml, 2.8mg/ml, 3.5mg/ml, and 4.5mg/ml were suspended in isopropyl alcohol (n=3) and processed at 15,000, 25,000, or 30,000Psi for 4 cycles. Mean particles size distribution (PSD) and zeta potential (ZP) were measured after each cycle using Zetasizer(n=3). Reproducibility and fabrication yield were calculated(n=5). **Results.** Mean(SD) PSD of EpiBit before processing was 131.8±10.5µm. Processing EpiBit 0.7mg/ml, 1.4mg/ml, 2.8mg/ml, 3.5mg/ml, and 4.5mg/ml for 1 cycle at 30,000Psi resulted in PSD and ZP of 709±288nm and -14±6mV, 665±47nm, 249±38nm and -28±2mV (fabrication yield 36±6%), 1211±389nm and -16±2mV, and 1091±43nm and -28±1mV, respectively. Processing EpiBit 2.8mg/ml for 2, 3, 4 cycles resulted in PSD of 827±114nm, 971±124nm, and 976±163nm, respectively. Processing EpiBit 2.8 mg/ml for 1 cycle at 25,000 or 15,000Psi resulted in PSD and ZP of 603±169nm and -9±4mV, and 649±473nm and -12±7mV, respectively. **Conclusion.** The fabrication of the EpiBit NC using LV-1 Microfluidizer was feasible. Particles size was reduced 135 fold. EpiBit NC as RDSTs have the potential to enhance the sublingual absorption of Epi. **Grants.** This study was funded by the Health Professions Division Grant and the President's Faculty Research & Development Grant, Nova Southeastern University.

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 10:15-10:45 A.M.

EVALUATION OF FLORIDA PHYSICIANS' KNOWLEDGE AND ATTITUDES TOWARD ACCESSING THE STATE PRESCRIPTION DRUG MONITORING PROGRAM AS A PRESCRIBING TOOL

Jennifer Gershman, Pharm.D., Assistant Professor, College of Pharmacy
Jason Gershman, Ph.D., Associate Professor, Farquhar College of Arts and Sciences
Andrea Fass, Pharm.D., Assistant Professor, College of Pharmacy
Ioana Popovici, Ph.D., Assistant Professor, College of Pharmacy

Objective. This study was conducted to assess Florida physicians' attitudes and knowledge toward accessing the state's prescription drug monitoring program (PDMP). **Background.** Florida's PDMP collects and stores controlled substance prescribing and dispensing information for schedules II-IV. Florida's PDMP is currently operational; however, physicians are not required to access the program prior to prescribing controlled substances. **Methods.** Five thousand medical doctors and osteopathic physicians licensed in Florida were randomly selected for a voluntary and anonymous 15 question self-administered survey approved by the Institutional Review Board. Surveys were distributed through U.S. postal service mail. Likert-scale questions were used to assess prior knowledge (1=none to 5=excellent) and attitudes toward accessing the PDMP (1=strongly disagree to 5=strongly agree). **Results.** The study yielded a response rate of 7.8%. Among participants that have access and answered the PDMP usefulness question, 94.8% agree or strongly agree that it is a useful tool. Sixty-three out of 64 physicians (98.4%) who conducted 25 or more searches agree or strongly agree that the PDMP is a useful tool for monitoring patients' controlled substance histories. Also, 72.5% of participants with access that answered the "doctor shopping" question agreed that “doctor shopping” will decrease. Among the 64 most frequent PDMP users, 69.4% agreed or strongly agreed that they have prescribed fewer controlled substances after accessing the PDMP. **Conclusion.** A majority of participants believe the PDMP is a useful tool for monitoring patients' controlled substance histories. **Grants.** This study was fully funded by an HPD internal grant.

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 10:45-11:15 A.M.

FREE AND LOADED SWELLING OF SUPERDISINTEGRANTS

Yogesh Joshi, Ph.D. in Pharmacy, College of Pharmacy
Hamid Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The objective of this study was to study the behavior of superdisintegrants under free and loaded conditions. **Background.** Superdisintegrants are characterized by their swelling ratio, which determines their capacity to disintegrate tablets. Swelling ratio is determined by weight or volume of the dry versus swollen sample. While high swelling capacity and slow swelling rate can be successfully measured by weight or volume changes, a high standard deviation is expected when swelling is negligible or very fast. Moreover, the swelling capacity and rate can be changed when isolated particles of the superdisintegrant are dispersed in the swelling medium (free swelling) or compressed into a tablet before exposed to the swelling medium (loaded swelling). We therefore developed a new effective method to measure the swelling pressure of superdisintegrants. **Methods.** Tablets of three different superdisintegrants were prepared with same hardness and weight. Swelling pressure was determined by the novel probe attached to the Brookfield CT3 texture analyzer; weight selling ratio of the superdisintegrants as particle and tablet was also measured. **Results.** Under free swelling, Explotab displayed the maximum swelling capacity, while maximum swelling pressure was obtained for Croscarmellose. We also found most water absorbed by explotab was interstitial, while it was bulk absorption for Croscarmellose. Polyplasdone showed almost same free and loaded swelling, the swelling was low and fast, which can be accounted for by its wicking action. **Conclusion.** Although useful for comparative studies, the free swelling data cannot be used to characterize disintegration power of superdisintegrants in tablets. **Grants.** NA

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 1:15-1:45 P.M.

TAILOR-MADE POLYVINYL ALCOHOL CRYOGELS FOR PHARMACEUTICAL APPLICATIONS

Srinath Muppalaneni, Ph.D. in Pharmacy, College of Pharmacy
Yogesh Joshi, Ph.D. in Pharmacy, College of Pharmacy
Hossein Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The main objective of this study was to characterize adhesive, swelling and viscoelastic properties of Polyvinyl alcohol (PVOH) cryogels **Background.** PVOH is a hydrophilic linear polymer commonly used as film-former, emulsifier, and binder in variety of pharmaceutical dosage forms including tablets, transdermal patches, ophthalmic gels, and implants. PVOH can also undergo chemical or physical gelation, which can be utilized for specialized applications such as in controlled drug delivery. Aqueous solutions of PVOH undergoes cryogelation when exposed to repeated freeze-thaw cycles. The cryogels prepared as such possess unique mechanical, elastic, adhesive, and swelling properties, which can be utilized in developing platforms for controlled and novel drug delivery applications. **Methods.** PVOH aqueous solutions were prepared by dissolving the polymer (PVOH, 99% hydrolyzed, MW 124K-188K, Sigma Aldrich) in deionized water at 90oC under mechanical mixing. The corresponding cryogels were prepared using three different PVOH concentrations (5, 8, 10 wt%) and subjected to two freeze-thaw cycles consisting of freezing at -10oC for 4 hr and thawing at 25oC for 2 h. Adhesive properties were measured using a CT3 Texture analyzer, swelling properties by gravimetry, gumminess by running a texture profile analysis, whereas hardness was measured by compression test using Volodkevich bite jaws (Brookfield Engineering). **Results.** Cryogels prepared at different concentrations displayed adhesive forces ranging 83-430mN, adhesiveness ranging 0.07-0.36mJ, gumminess ranging 5-22N, hardness ranging 1114mJ, and swelling ranging 10-50%. **Conclusion.** Adhesive properties and gumminess decreased with increase in polymer concentration whereas hardness and swelling increased with increase in concentration. **Grants.** NSU grants# 335867 and 335489.

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 1:45-2:15 P.M.

FEMALE PHARMACISTS IN LEADERSHIP ROLES IN PROFESSIONAL PHARMACY ORGANIZATIONS

Jenny Pham, P3, College of Pharmacy
Jennifer Quevedo, P3, College of Pharmacy
Jennifer Steinberg, PharmD, BCPS, Assistant Professor, College of Pharmacy
Sandra Benavides, PharmD, Associate Professor, College of Pharmacy

Objective. To examine the percentage of female pharmacists in leadership roles in pharmacy professional organizations. **Background.** Earlier research has shown that the total numbers of females serving in the top leadership roles are still low compared to the current male to female ratio in pharmacy practice **Methods.** Four pharmacy organizations - American Association of Colleges of Pharmacy (AACP), American College of Clinical Pharmacy (ACCP), American Pharmacist Association (APhA), and American Society of Health-System Pharmacists (ASHP)- were included in the evaluation. For each organization past presidents and the current leadership team were collected from the respective websites using the search function. The information was classified based on gender, using Internet searches to verify categorization. The primary outcome was the percent of females in the role of president since the organizations were founded. Secondary outcomes were the analysis of other organizational leadership roles (e.g., Board Members, committee members) with regard to gender distribution. **Results.** Overall, females held 20% of president positions in all the organizations combined since their inception. The lowest percentage was in APhA (5%) followed by an increasing trend to the maximum of 19% in ASHP. For the secondary outcome, the percent of females in leadership roles other than president in 2013 is higher than the number of female presidents; however, the overall percentage of males still remains greater. **Conclusion.** Females in leadership positions of major pharmacy organizations including AACP, ACCP, APhA, and ASHP have increased since each organization began. **Grants.** N/A

Jonas Auditorium (videoconferenced to Finkelstein Auditorium) 2:15-2:45 P.M.

A NOVEL APPROACH FOR ENHANCING THE SUBLINGUAL ABSORPTION OF EPINEPHRINE FROM RAPIDLY DISINTEGRATING TABLETS FOR THE POTENTIAL FIRST-AID TREATMENT OF ANAPHYLAXIS

Mutasem Rawas-Qalaji, B.Pharm, Ph.D., Assistant Professor, College of Pharmacy
Ousama Rachid, Ph.D., Lecturer, University of Manitoba
Belacryst A. Mendez, P3, College of Pharmacy
Annette Losada, P3, College of Pharmacy
F. Estelle Simons, M.D., Professor, University of Manitoba
Keith Simons, Ph.D., Professor, University of Manitoba

Objective. Our objective was to evaluate the rate and extent of absorption of epinephrine microcrystals (Epi-MC) administered from rapidly disintegrating sublingual tablets (RDSTs). **Background.** For the treatment of anaphylaxis in community settings, an IM injection of Epi 0.3 mg in the thigh using an auto-injector is the drug of choice and the only available dosage form in the market. Previously, we showed that Epi 40 mg from RDSTs is bioequivalent to Epi 0.3 mg IM injection in our validated rabbit model. **Methods.** The rate and extent of Epi absorption from Epi 40 mg RDSTs and Epi-MC 20 mg RDSTs (n=5) were evaluated in rabbits using a randomized crossover study design. Epi 0.3 mg IM injections in the thigh and placebo RDSTs were used as positive and negative controls, respectively. Blood samples were collected at frequent intervals and Epi concentrations were measured using HPLC with electrochemical detection. **Results.** Mean (SD) AUC0-60 and Cmax from Epi-MC 20 mg RDSTs (942±244 ng/ml/min and 38±10 ng/ml) and Epi 40 mg RDSTs (678±149 ng/ml/min and 32±10 ng/ml) did not differ significantly ($p>0.05$) from each other or from Epi 0.3 mg IM injections (592±122 ng/ml/min and 28±7 ng/ml), but these were all significantly higher ($p<0.05$) than endogenous Epi from placebo RDSTs (220±78 ng/ml/min and 8±3 ng/ml). The mean±SD Tmax was not significantly different ($p>0.05$) between all formulations. **Conclusion.** The Epi-MC RDSTs improved Epi absorption two-fold and reduced the required bioequivalent dose by 50%. These sublingual Epi tablets are suitable for Phase I human studies. **Grants.** This study was partially funded by Health Professions Division Grant and the President's Faculty Research & Development Grant, Nova Southeastern University

EFFICACY AND TOLERABILITY OF DIPEPTIDYL PEPTIDASE-4 INHIBITORS IN PATIENTS WITH DIABETES MELLITUS AND RENAL IMPAIRMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS.

Catherine Harrington, PharmD, PhD, Associate Professor, College of Pharmacy
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Objective. Evaluate efficacy and tolerability of DPP-4 inhibitors (DPP-4I) in patients with type 2 diabetes mellitus (T2DM) and chronic renal failure (CRF) using a systematic review and meta-analysis of available literature. **Background.** CRF is commonly found in patients with T2DM and the list of antidiabetic medications that can be used in this population is limited. **Methods.** Eight published randomized, clinical trials were identified from multiple databases. Qualitative assessment and quantitative analyses were performed. **Results.** Studies of DPP-4I included sitagliptin, saxagliptin, linagliptin and vildagliptin with 995 patients analyzed (average age 65 years, 56.4% males, 56.5% Caucasians, baseline A1c 7.9%). When compared with placebo, DPP-4I caused a reduction in A1c at 12 (-0.51%) and 52 (-0.72%) weeks, respectively, $p<0.00001$, but reduction was not significantly different compared with glipizide. Subgroup analyses by severity of renal impairment showed DPP-4I caused a significant reduction in A1c with moderate (0.79) and severe (-0.62) renal impairment ($p<0.02$). When compared with glipizide, DPP-4I were associated with weight loss at 12 and 54 weeks by 0.54Kg and 1.51Kg, respectively ($p<0.01$). DPP-4I were associated with a numerical increase in rate of hypoglycemic events versus placebo (20.4% versus 16.4%, p=NS) but not when compared with glipizide (6.2% versus 15.5%, p=0.0009). There were no differences between DPP-4I and comparator for any adverse events (AE) (73.7% versus 75.1%), serious AE (19.1% versus 18.9%), any drug-related AE (19.8% versus 21.1%) and withdrawals due to AE (7.6% versus 8.1%), respectively. **Conclusion.** Meta-analysis suggests that DPP-4I are effective and well-tolerated in patients with T2DM with CRF. **Grants.** N/A

Melnick Auditorium

Melnick Auditorium 9:45-10:15 A.M.

AMNIOTIC MEMBRANE THERAPY TRIAL IN SEVERE DRY EYE SYNDROME

Kellie Bassion, OD, Lecturer, College of Optometry
Kimberly Reed, OD, Associate Professor, College of Optometry

Introduction. Dry eye syndrome is a common condition encountered in optometric practice. It is important to consider all treatment options in order to provide relief for patients. **Case presentation.** A 28 year old white male presented with complaints of blur with spectacles. Visual acuity was better, and more consistent, wearing soft hydrogel contact lenses. At several visits, visual acuity varied from 20/25 to 20/100. Corneal staining was present superiorly in a whorl-like pattern. Neovascularization of approximately 2 mm was noted superiorly in both eyes. Findings were consistent with severe dry eye syndrome, with a possible contributory limbal stem cell deficiency. Treatment with topical steroid, cyclosporine-A, and artificial tears offered limited relief. A monocular trial with an amniotic membrane (Prokera Slim®, BioTisue) was initiated OD with limited initial success. The patient was next recommended for scleral contact lenses. **Deviation From the Expected.** Severe dry eye is uncommon in younger males. The use of amniotic membranes for the treatment of dry eye is a relatively new option available for consideration. **Discussion.** Contact lens wear can lead to limbal stem cell deficiency. Discontinuation of contact lens wear is essential for resolution. The amniotic membrane used in this case yielded limited initial results. The membrane thinned after three days of wear and was extracted from the eye. **Conclusion.** It is important to consider all treatment options when managing dry eye syndrome. Amniotic membrane therapy is reported to aid in corneal healing. Scleral contact lens use may prevent recurrence of limbal stem cell deficiency by avoiding contact with the limbus. **Grants.** none

Melnick Auditorium 10:15-10:45 A.M.

TOPOGRAPHIC MAPPING OF MACULA WITH MFERG IN DIFFUSE RETINAL PIGMENT EPITHELIOPATHY

Hua Bi, OD, PhD, Assistant Professor, College of Optometry
Albert Woods, OD, MS, Associate Professor, College of Optometry

Introduction. Multifocal electroretinogram (mfERG) is a technique that can topographically map functional changes in the retina. Topographic mapping of macula with mfERG is presented in a unique case of diffuse retinal pigment epitheliopathy (DRPE). **Case presentation.** A 53 year-old female with DRPE was referred for electrodiagnostic testing to help evaluate vision loss OU lasting for one year. The patient's medical history was significant for multiple sclerosis diagnosed 10 years ago with a past history of immunomodulating therapy. Best-corrected visual acuity (BVA) was 20/25- OD and 20/30- OS. Funduscopic findings showed yellowish submacular lesion OU, peripheral vitreous cell clumping secondary to an intermediate uveitis OU, and a small area of RPE pigment clumping in the mid-periphery of temporal retina OS. Spectral domain optical coherence tomography (OCT) findings of both maculae showed accumulation of material on the outer retina with subretinal space underneath the thickened retina. MfERG responses showed demarcated attenuation in rings 1 & 2 OU and a small local attenuation in the paracentral rings for inferior temporal retina OS without significant delay. Flash ERG showed normal rod responses and moderate attenuation of cone responses without significant delay OU. Electro-oculogram was within normal range OU. **Deviation From the Expected.** This is a unique presentation of DRPE with both yellow submacular deposition and RPE pigment clumping in the mid-peripheral retina.
Discussion. The central macula dysfunction is consistent with the BVA and OCT findings in the patient.
Conclusion. MfERG testing provides topographic macula mapping of functional changes in the patient with DRPE.
Grants. N/A

THE EFFECT OF TRANSIENT GLARE ON OBJECT-RECOGNITION

Grace Farrell, OD-1, College of Optometry
Edgar Ekure, Other, Other
Hua Bi, OD, PhD, Assistant Professor, College of Optometry
BinBin Su, Other, Other
Bin Zhang, MD, PhD, Associate Professor, College of Optometry

Objective. To investigate how object-recognition is affected by transient glare. **Background.** Disability glare happens when a light source causes a diffusive intraocular light scattering, which reduces target visibility and results in functional impairment. Previous studies have mainly focused on how visual acuity and contrast sensitivity is affected by steady glare source. However, in real world, most glare sources are transient in nature with sudden onset, such as the headlight of approaching car. Moreover, it is not clear how complex visual functions are affected by transient glare. In this study, we studied how object-recognition is affected by transient glare and provided evidences that veiling luminance, which is mechanism of visual impairment caused by steady glare, may not fully explain the impaired visual performance with transient glare. **Methods.** The stimulus used is a circular contour deformed by applying a radial sinusoidal modulation to the radius (RF-contour). The center of the glare source was at the same height of the stimulus and deviated horizontally 10° away from the line of sight. The amount of glare and the equivalently reduced retinal contrast (Cst-low) of the stimulus were also calculated. The ability to detect the smallest amount of deformations on circular contours was measured with two-alternative forced choice paradigm under a) test condition: RF-contour at high contrast with a transient glare; b) control 1: RF-contour at high contrast without glare; c) control 2: RF-contour at Cst-low without glare; d) control 3: RF-contour at Cst-low without glare, but with partial section missing. **Results.** 1. Transient glare significantly impaired the ability to detect the smallest radial deformation in RF contour with high contrast (results a vs. b). 2. The impairment caused by transient glare was significantly greater than those caused by reducing contrast (results a vs. c). 3. The impairment caused by transient glare was similar to those measured at low contrast and with ¼ section missing (results a vs. d). **Conclusion.** Glare impairs the ability of object recognition. Depending on the configuration of the stimulus and the glare source, this impairment may not be fully explained by veiling luminance. **Grants.** PFRDG2012

MANAGEMENT OF INTRACTABLE DIPLOPIA WITH CONTACT LENSES: A CASE REPORT

Christian Hernandez, OD, Lecturer, College of Optometry

Introduction. Management options for intractable diplopia include optical occlusion and frosted spectacle lens. The purpose of this case report is to explore the treatment of intractable diplopia with prosthetic contact lens occlusion and with plus power fogging techniques. **Case presentation.** A 67 year-old female patient was seen in July 2013 on referral from a tertiary eye care provider. Pertinent ocular history included LASIK, retinal detachment and repair and strabismus surgery. Best-corrected spectacle acuity was 20/50 OD and 20/25+ OS. The patient demonstrated an ocular deviation of 25 prism diopters constant right hypertropia and 8 prism diopters constant right esotropia. The patient was unable to achieve stable sensory fusion with relieving or neutralizing prism. The patient reported increased comfort when images were further apart and the non-dominant image was fogged. Fogging was introduced in one diopter increments over the distance Rx with the dispensed contact lens parameters as follows: omafilcon A, +4.50D, 8.60mm BCR and 14.2mm OAD. The parameters of the occlusion contact lens were as follows: hioxifilcon B, plano power, 8.9mm BCR, 14.5mm OAD, 4.0 mm black pupil and clear surround. **Deviation From the Expected. Discussion. Conclusion.** Upon first follow up, the patient reported benefits included improved cosmesis, slightly expanded binocular visual field and reversibility. Contact lens management with fogging or occlusion is a viable non-invasive treatment for intractable diplopia. **Grants.** None

Melnick Auditorium 1:45-2:15 P.M.

AN INTRODUCTION TO MICROCEPHALY • LYMPHEDEMA • CHORIORETINOPATHY

Anna James, O.D., Guest Lecturer, College of Optometry

Introduction. Objective. To introduce a rare condition called Microcephaly-Lymphedema- Chorioretinal Dysplasia (MLCRD) Syndrome and determine ophthalmic norms as well as special tests/referrals necessary
Case presentation. Background. MLCRD can present as primary (genetic) or secondary (nongenetic). It was first described in 1966 based on a family of five individuals with microcephaly and chorioretinopathy. These five individuals were spread out over four generations. Since then there has been more research and cases presented to help healthcare professionals better evaluate and determine necessary testing and norms for patients presenting with this syndrome. These patients often present with abnormal facial features and variable ophthalmic findings as well as modes of inheritance. **Deviation From the Expected.** Methods. A comprehensive eye examination was performed with a dilated fundus examination. Pictures of the fundus were obtained. Recommendations for electrodiagnostic testing are still pending as well as medical records release signed for release of MRI/CT scans performed. All of these tests including cardiac evaluation are recommended for patient's presenting with MLCRD. B scan can confirm the chorioretinopathy but was not obtained. **Discussion.** Results. The patient I observed ophthalmically had chorioretinopathy, retinal sheen disrupted in appearance, and disc pallor. Other findings are pending due to medical record release form return and referrals out for electrodiagnostics.
Conclusion. . Conclusions. In patients with MLCRD it is vital that they regularly see their primary care giver/pediatrician, are given a referral to geneticist to confirm diagnosis, referral for electrodiagnostics to determine retinal profile, referral to cardiologist to rule out atrial septal defect, and follow up with a pediatric ophthalmologist or optometrist. This is only a few referrals among many to be discussed. **Grants.** none

Melnick Auditorium 2:15-2:45 P.M.

MANAGEMENT OF ACQUIRED BRAIN INJURY IN A CHILD

Laura Martinez, Other, Other

Introduction. Transient ischemic attacks (TIA) can be detrimental to the body as well as the visual system. This case will focus on the effects of TIAs on the visual system of a child. The presentation will include a description of how to use both Fresnel prisms and vision therapy to successfully treat children with acquired brain injury.
Case presentation. A nine-year-old female presented with neck pain from a left head turn which developed following a series of transient ischemic attacks due to a ventriculoperitoneal (VP) shunt malfunction. The transient ischemic attacks lead to a comitant strabismus, oculomotor dysfunction, pendular nystagmus, and bilateral left hemianopia. Her goals for vision therapy include regaining comfort and efficiency in reading books and music.
Deviation From the Expected. Typically a person with a bilateral left hemianopia will use yolked prisms in order to help them appreciate their left peripheral field; thus, yolked Fresnel prisms were used on the patient. She was able to appreciate the increase in her left field, but became diplopic after a few weeks of using the yolked prism. During vision therapy different prisms and visual techniques will be used to train the patient to function efficiently and comfortably. **Discussion.** VP shunt malfunctions can occur due to obstructions, disconnections, or infections. Optometrists like any other health care professional, need to be aware of what to look for in a child that is having a ventriculoperitoneal shunt malfunction. Some visual problems during a VP shunt malfunction are blurry vision, double vision, or loss of vision. These patients need to be immediately referred to the emergency room. If the VP malfunction has caused an acquired brain injury, vision therapy should become part of the treatment plan, along with OT and PT. **Conclusion.** The patient is currently going through vision therapy. The nine-yearold female patient has been working on using yolked prism, fixation, oculomotor, peripheral awareness, and visual scanning activities during the vision therapy sessions. We anticipate vision therapy will allow her, and other children with acquired brain injuries, to increase her comfort and efficiency in reading. **Grants.** None.

COMPARISONS OF THE SPATIAL MATRIX OF F SUBFIELDS BETWEEN MULTIPLE NEARBY V2 NEURONS IN AMBLYOPIC MONKEYS

Bin Zhang, MD, PhD, Associate Professor, College of Optometry

Objective. To investigate the neural basis of position uncertainty, distortion, and/or deficit orientation discrimination in human amblyopes. **Background.** Amblyopia is a developmental vision deficit caused by experiencing binocular imbalance during early development. Despite interesting theories based on many perceptual and modeling studies, the neural basis of vision deficits associated with amblyopia is poorly understood except for the well established ocular dominance imbalance in V1 of monocularly form deprived animals. In this study we employed a new approach to study vision deficits in amblyopic monkeys that may give us an insight into a neural basis of similar visual deficits in human amblyopes. **Methods.** We simulated anisometropic amblyopia by having infant macaque monkeys wear defocusing lens in one eye between 3 weeks and 3 months of age. When they matured we obtained their spatial contrast sensitivity functions to determine the depth of amblyopia. We recorded action potentials from multiple nearby units with a single electrode. We employed dynamic two dimensional noise stimuli and a reverse correlation (LSRC) method to reveal subfields within the receptive field of each V2 neuron. The spatial maps of these subfields were compared between multiple nearby neurons with respect to their preferred orientations, spatial frequencies, and the maximal strength of responses. We quantified the heterogeneity of the subfield maps (heterogeneity index) for each unit (within comparison) and between units (across-unit comparison). **Results.** We found that 1) in normal monkeys, the heterogeneity index was very low both within a given unit and across nearby units. 2) In amblyopic monkeys, for the within-unit comparison, the heterogeneity index of the subfield maps driven by the amblyopic eye was similar to that for the fellow eye, but both were significantly higher than in normal monkeys. 3) For the across-units comparison, the heterogeneity index of the subfield maps of V2 neurons for the amblyopic eye was far greater than that for the fellow eye, while the index for the fellow eye was also significantly greater than that in normal monkeys. 4) The abnormally high heterogeneity indices in amblyopic monkeys did not result from weak or noisy responses in amblyopic monkeys. **Conclusion.** The results suggest that the fine circuitry supporting the feed forward connections from V1 to V2 and the local connections within V2 appear to be disrupted in amblyopic monkeys, and that robust binocular suppression may be involved, at least in part, with the "disarray" in the subfield maps of amblyopic monkeys. **Grants.** NIH R01-08128

Morris Auditorium

Morris Auditorium 9:45-10:15 A.M.

HUMAN TRAFFICKING PREVENTION THROUGH INTERDISCIPLINARY FACULTY EDUCATION

Brianna Kent, Ph.D., RN, Assistant Professor, College of Health Care Sciences
Sandrine Gaillard-Kenney, Ed.D., Associate Professor, College of Health Care Sciences
Rose Colón, Ph.D., Assistant Professor, College of Health Care Sciences

Objective. To develop an innovative victim-centered, human trafficking education program that motivated faculty in the Colleges of Health Care Sciences and Nursing to integrate human trafficking into existing curricula. **Background.** Human trafficking is a complex public health crisis. Interdisciplinary healthcare education that increases awareness is required to combat modern day slavery. Faculty need assessment and a review of college-wide curricula determined that human trafficking was absent from every course. This educational program was designed specifically to address that healthcare training need. **Methods.** The presenters developed human trafficking curriculum grounded in adult learning theory and the transtheoretical model of change (Prochaska & DiClemente, 1983). Four training modules were presented by experts on human trafficking from medicine, law enforcement, victims support agencies, and farmworkers' advocates. The modules included: human trafficking overview, victims' healthcare needs, developmental and cultural factors in the screening of victims, and instructional strategies for faculty. **Results.** Modules post-test scores showed a measurable increase in facultys' awareness of human trafficking. Outcome surveys revealed that 100% of the participants were willing to include human trafficking in their curriculum. Qualitative data confirmed that faculty gained knowledge of human trafficking and learned new skills to identify victims. **Conclusion.** Healthcare professionals need appropriate training to help victims of human trafficking. Current and future healthcare professionals knowledgeable in the signs and symptoms of human trafficking can reduce criminalization of victims and refer victims to appropriate health and social services. **Grants.** This study was funded by Nova Southeastern University 2011-2012 President's Faculty Research and Development grant.

Morris Auditorium 10:15-10:45 A.M.

ATTITUDE AND EMPOWERMENT AS PREDICTORS OF DIABETES SELF-MANAGEMENT AMONG AFRICAN-AMERICANS

Jo Ann Kleier, PhD, Professor, College of Nursing
Patricia Dittman, PhD, Associate Professor, College of Nursing

Objective. The objective of this study is to examine and describe attitude and perceived behavioral control, and to test these as predictors of diabetes self-care practices among African-American individuals. **Background.** Diabetes is a disease that is increasing in society and is affecting the African-American population disproportionately. The ill effects of diabetes and associated costs can be reduced through self-care techniques. However, such techniques appear to be inconsistently practiced and at an alarmingly low rate among the African-American population. **Methods.** This is a non-experimental, descriptive, correlational study wherein data were collected from a convenience sample of 100 African-American individuals with diabetes living in South Florida. Survey data were collected using previously developed and tested instruments; physical data consist of A1C measures. Statistical tests include descriptives, multiple linear regression and nonparametric bivariate correlation. **Results.** Among this sample, diabetes empowerment is strongly predictive of self-care activities but attitude towards diabetes is not. The relationship between self-care activities and A1C is inverse but not significant. **Conclusion.** Participants' perception of their understanding of diabetes, its treatment, and their engagement in self-care activities is high but not corroborated by their body mass index or A1C values. A1C testing, as compared to blood glucose testing, is not well understood by this sample. Patients with diabetes should receive diabetes education and this education should include frequent reinforcement of appropriate self-care activities. **Grants.** This research was funded by Nova Southeastern University Health Professions Division Research Grant.

Morris Auditorium 10:45-11:15 A.M.

PROJECT HOPE: AN INNOVATIVE APPROACH TO HOMELESS HEALTH CARE EDUCATION

Kristi Messer, MSW MPH, Assistant Professor, College of Osteopathic Medicine
Devra Cohen, MPH, Adjunct Professor, College of Osteopathic Medicine
Nadine Chipon-Schoepp, DO, Assistant Professor, College of Osteopathic Medicine
Pia Valvassori, PhD, ARNP, Guest Lecturer, Orange Blossom Health Care for the Homeless

Objective. · To explore alternative ways of adapting medical student clerkships in response to precepting physician shortages and limited placement opportunities within healthcare for the homeless projects. · To demonstrate educational techniques toward improving the identification and subsequent provision of care to individuals experiencing instability of housing. · To discuss how to integrate medical students in the outreach team, with an understanding of barriers to care and the effects that external factors can have upon street outreach as well as solutions to overcome these barriers. **Background.** Project HOPE - Homelessness in Osteopathic Pre-doctoral Education began within Nova Southeastern University's College of Medicine as a primary care initiative in 2010 funded through a HRSA pre-doctoral training grant (Federal Grant Identifying Number: D56HP20778.) This initiative was created due to a lack of formal curricula and training for medical students relevant to the needs of those experiencing homelessness. New challenges and needs have been recognized: 1) there are insufficient HCH sites with capacity to supervise medical students; and 2) as instability in housing is increasingly common second to the economic downturn, it is increasingly essential to assess the housing status of individuals across medical service points and beyond. Innovation demonstrated by Project HOPE relates to a focus on the individual rather than service setting so that medical student training can more broadly address all populations and their unique needs irrespective of clerkship rotation or setting. As a model that is collaborative and integrated by design, curriculum and project advances are informed through focus groups with students, faculty, clinicians and most importantly through the direct involvement of homeless health care consumers. The culmination of these efforts is reflected through 27 curricular hours that are integrated across all years of medical school. Included are concepts related to varying definitions of street outreach and the rationale for conducting outreach; with techniques such as motivational interviewing and an understanding of trauma informed care are key components to service delivery. In addition to evaluating change in attitudes and knowledge based upon didactic curricula and direct experience, the project seeks to disseminate curricula, research and lessons learned such that other programs within the health professions could easily replicate and implement this type of a training initiative. **Methods.** As part of this model, housing intake forms became a requirement of all monthly rotation logs to both emphasize that those experiencing instability in housing do not solely present at Health Care for the Homeless centers, and that housing status is irrefutably connected to a competent patient care plan. This was launched within rural / underserved rotations in March, 2012 and in July, 2012 for other rotations. Accordingly, all medical students' experiences in primary health care delivery to the homeless will continue to be expanded. **Results.** Data from 2284 completed logs since March, 2012, revealed a 6.9% encounter rate with individuals experiencing homelessness across all rotations, with an average of 11 patients encountered per student. **Conclusion.** As Medicaid expansion ensues, it is critical that students and professionals across the health professions are competently trained with a skill-set conducive to working with a diverse population inclusive of diverse needs. The project continues to gain momentum through student-led initiatives to provide health screenings and education within homeless shelters and safety-net programs, and in expanding curriculum to also engage professionals in the field within limited resources and trainings on emergent themes and issues (i.e. street outreach for those unaccustomed to the practice, STI prevention and treatment, all-hazards preparedness for those without stable housing, etc.) **Grants.** HRSA

Morris Auditorium 11:15-11:45 A.M.

THE LIVED EXPERIENCE OF INDIVIDUALS IN LOW-INCOME NEIGHBORHOODS WHO PARTICIPATED IN COMMUNITY GARDENS IN BROWARD COUNTY, FLORIDA

Mary Ellen Mitchell-Rosen, PhD, Assistant Professor, College of Nursing

Objective. This phenomenological research aimed to understand the lived experience of community gardeners in low-income neighborhoods residing in Broward County, Florida. The research aimed to give the gardeners a voice to express their experiences with gardening and provide an inductive description of the lived experience. This study

also aimed to understand the essence of the experience. **Background.** Broward County, Florida, has a large number of low-income families receiving food assistance. An increase in the rates of obesity and diabetes has been noted in the statistical data for the county. Community gardens can provide low-income families with a sustainable resource for healthy food choices. However, there is a lack of research on the impact of community gardens in relation to health and well-being. **Methods.** A purposive sample of low-income gardeners at three sites in Broward County was studied. Data collection occurred from semi-structured interviews that were tape- recorded, and reflective journaling was used to allow the researcher to bracket personal assumptions and reduce bias. The data was transcribed and coded to demonstrate emerging themes. **Results.** The related themes of themes of healthy living, calming, and empowering emerged as a total representation of the individuals in low-income neighborhoods who participated in community gardens in Broward County, Florida. **Conclusion.** This research study exposed the depth of the benefits of participating in community garden for low-income people. A significant dimension of this experience of community gardening was self-transcendence. The gardeners were able to face the challenge of lack of access to healthy food and make a decision to lead healthier lives. **Grants.** N/A

Morris Auditorium 11:45 A.M.-12:15 P.M.

HOME LITERACY, SUMMER SCHOOL, AND KINDERGARTEN READINESS AMONG BILINGUAL PRESCHOOLERS IN LOW-INCOME FAMILIES

Sarah Ransdell, PhD, Professor, College of Health Care Sciences
Carolyn Stevens, BA, Guest Lecturer, God's Little Lambs Preschool
Lenora Anderson, BA, Guest Lecturer, God's Little Lambs Preschool

Objective. Summer is a notorious time for decreases in school readiness, especially among younger children. The purpose of this research is to better understand the impact of summer school and home literacy among children attending voluntary preschool (VPK) in an urban area of South Florida. **Background.** Low-income children can excel in a nourishing preschool environment that sets the stage for childhood, adolescence, and adult literacy success. Preschool experiences may be able to counter known predictors of risk, such as poverty and circumstances of stress associated with home and food insecurity, (Fritters, Barron, & Brunello, 2000; Ransdell, 2011). Parents can also provide their children with summer school experiences and home literacy materials provided by the school for summer practice. **Methods.** Of 25 five-year old VPK children, 11 girls and 9 boys, 12 participated in the study by parents' home literacy self-reports provided after informed consent. Eleven children spoke no English upon entering preschool, seven spoke some English, and two were native speakers. All children but the two native speakers and one Spanish speaker are Haitian-American. All live in an area of higher than average poverty. The primary home language of the Haitian-American children is Haitian Kreyol, a dialect of French. All children were assessed on four measures of kindergarten readiness, print knowledge, phonological awareness, math, and vocabulary at four intervals over the school year by assessments of the Florida Department of Education, as do all children in the federal VPK program. All children were given home literacy bags with books and other materials to work on over the summer. Parents returned a Summer Feedback on Home Literacy questionnaire in order to assess the extent to which they provided home literacy opportunities related to the study materials. All children in the VPK class attended regular classes over an 180 day standard school year. During that year, four one-on-one assessments of print knowledge, phonological awareness, math, and vocabulary were collected as part of regular DOE VPK assessment. Half of all children attended summer school based on parent election. **Results.** A stepwise regression shows that 57% of the variance in self-reported home literacy (HL) is accounted for by summer school attendance and second language experience, $R = .81$, $t(19) = 8.89$, $p < .05$. The lack of summer school attendance appears to be a factor parents compensate for by providing more HL, especially for those children with less native English experience. HL is significantly higher for children who do not attend summer school, $t(19) = -3.97$, $p < .05$, and who have less native English experience, $t(19) = 2.60$, $p < .05$ and both are unique predictors. Despite higher HL reported in children who did not attend summer school, these children showed a significant decline in receptive vocabulary measured at time 4 in midsummer. **Conclusion.** Despite the fact that parents seemed to compensate for not sending their children to summer school by increasing home literacy activities, those children who attended summer school did better, especially in receptive vocabulary. **Grants.** none

Morris Auditorium 2:15-2:45 P.M.

VIRTUAL HEALTH ADVENTURES:
INNOVATIVE DISSEMINATION OF HEALTH-RELATED EVIDENCE TO AMPUTEES

Sandra Winkler, OhD, OT, Assistant Professor, College of Health Care Sciences

Objective. To compare two methods of disseminating evidence-based health information to amputees: e-learning and virtual world environments. **Background.** Amputation is a chronic, life-long condition. Acquiring current and evolving prosthetic and health-related information including treatment for chronic healthcare issues and secondary conditions associated with amputation will an ongoing process throughout the lifespan of the amputee. We hypothesize that a self-management intervention will help amputees manage their chronic condition by enhancing self-efficacy or a feeling of control over their illness/disability. **Methods.** Aim 1 develops an evidence-based self-management intervention for amputees. Aim 2 uses quantitative methods to compare delivery of the self-management intervention under two conditions: e-learning and virtual world. The outcomes to be measured pre and post intervention are increased use of prosthetic devices, increased community integration, improved functional status, and increased self-efficacy. Aim 3 uses qualitative methods (phenomenology) to explore the lived experiences of amputees in a virtual world. **Results.** During year one of this project, the self-management intervention was created and adapted for the two dissemination conditions. This presentation will: (1) preview self-management content in e-learning and virtual world (Second Life®) formats, (2) describe the methods for the clinical trial and (3) discuss opportunities for collaboration. **Conclusion.** This federally funded project provided three years of funding for a virtual world infrastructure at NSU led by the Occupational Therapy Department. Optimal care for amputees is multidisciplinary, thus there are opportunities for other departments to use this existing infrastructure to leverage grant funding. **Grants.** 1R24HS022021 - 01

Morris Auditorium 2:45-3:15 P.M.

THE INFLUENCE OF PEER MENTORING ON ANXIETY, SELF-CONFIDENCE AND PRIORITY SETTING OF BACCALAUREATE NURSING STUDENTS IN THE SIMULATION LAB

Heather Saifman, MSN, Assistant Professor, College of Nursing
Yvonne Thelwell, MSN, Assistant Professor, NSU College of Nursing, Baptist Health So FL
Marline Whigham, MSN, Assistant Professor, College of Nursing

Objective. This collaborative study between Nova Southeastern University and shared Baptist Health South Florida faculty was conducted to investigate the influence of peer mentoring on the reduction of anxiety, and the increase in self confidence and organizational skills in the simulation lab setting. **Background.** Mentorship and specifically the value attributed to nurse mentors are well documented. Earlier research supports the nurse mentor as integral in the preparation of novices as they develop competent practice behaviors. **Methods.** This was a two group (mentored and non-mentored), pre-test, post-test true experimental design with a control group study. A convenience sample of 36 3rd semester baccalaureate nursing students (novices) participated in a total of 2 simulations separated by several weeks within one 16 week semester. For the second simulation half of the participants were randomly assigned to peer mentors (senior nursing students). Data collected from both groups (with and without mentors) was evaluated to further the understanding of how peer mentoring influences the stressors of novice nurses **Results.** A between factors repeated-measures analysis of variance (ANOVA) was used to test the effect of mentoring on 5 measures of anxiety, self-confidence and prioritization. There were statistically significant gains on item scores from pre to post test on 4 of the 5 items. Additionally, mentors showed greater gains on 4 of the 5 items. The items measuring anxiety showed significant decreases with the mentor group ($F=3.22$, $p=.041$ and $\cdot = .087$). **Conclusion.** Study suggests mentoring positively influences the reduction of anxiety. **Grants.** No grant funding obtained

Resnick Auditorium

Resnick Auditorium 9:45-10:15 A.M.

IN VITRO COMPARISON OF VERTICAL MARGINAL GAPS OF CEREC DESIGN METAL FRAMEWORK AND CONVENTIONAL CAST METAL FRAMEWORK FOR A 3 UNIT FPD

Alba Dugarte, PG-Prosthodontics, College of Dental Medicine
Elaine Lara, DDS, Assistant Professor, College of Dental Medicine
Rafael Castellon, DDS, MS, Associate Professor, College of Dental Medicine

Objective. The purpose of this study is to evaluate if there is a significant difference in marginal gap of metal frameworks for a 3 unit FPD fabricated by two different techniques: the lost-wax and a CAD/CAM. **Background.** The accuracy of fit of dental castings is imperative for the success of any prosthodontic treatment. Smaller gaps produce less gingival irritation and decrease cement washout improving the clinical outcome and longevity of the restoration. Various methods and procedures have been advocated to improve the accuracy of fixed partial denture (FPD) fabrication. **Methods.** Twenty typodonts were used as patient analogues. Each typodont had prepared teeth on the first right lower premolar #28 and on the first right lower molar #30 for 3-unit PFM-FPD restorations (28-X-30). Two groups (Groups A and B) were made with 10 samples in each group. For the first group (Group A), impressions of the prepared teeth were made with light and heavy body PVS. They were poured in stone to produce casts where 3-unit frameworks were waxed up. For the second group (Group B) preparations were scanned using CAD/CAM CEREC InLab in order to create a digital impression that was used to fabricate the 3-unit acrylic framework for a PFM FPD by milling the VITA CAD-Waxx for in Lab using the CAD/CAM Cerec milling machine. Each pattern from groups A and B were placed in a casting ring, invested and cast with a noble metal alloy to produce all metal frameworks. Then frameworks were cemented into each typodont using dual curing luting composite cement and using a jig they were sectioned in specific points of reference to measure vertical marginal gaps between each tooth preparation and metal framework using a zoom stereomicroscope. **Results.** To be determined. **Conclusion.** To be determined. **Grants.** This study was fully funded by a grant from the Health Professions Division Research Fund.

Resnick Auditorium 10:15-10:45 A.M.

THE EFFECT OF 35% SODIUM ASCORBATE ON MICROTENSILE BOND STRENGTH OF COMPOSITE RESIN IMMEDIATELY AFTER BLEACHING

Eman Ismail, PG-Operative Dentistry, College of Dental Medicine
Cristina Garcia-Godoy, D.D.S, M.P.H, Assistant Professor, College of Dental Medicine

Objective. to assess the effect of 35% sodium ascorbate (SA) on microtensile bond strength of dentin immediately after bleaching with 35% hydrogen peroxide. **Background.** Bonding strength of composite restoration to tooth structure is significantly reduced when it's done immediately after bleaching. A delay of the bonding procedure is recommended. Some studies have investigated the possibility of using antioxidants treatment to allow for immediate bonding. Sodium ascorbate is one agent that has potentials to improve the bonding. **Methods.** Twenty-five sound human 3rd molars were collected in order to obtain one 125 specimens. Teeth were randomly divided into five groups (n=5): Grp1 (bleaching + immediate restoration), Grp2 (bleaching + delayed restoration), Grp3 (bleaching + SA + immediate restoration), Grp4 (bleaching + SA + delayed restoration), Grp5 (Control-no treatment). After bleaching, but prior to restoration, Grps 2 & 4 were stored for 1 week in deionized water at 37°C. All samples were restored using Optibond Solo Plus (Kerr) and Filtek Z250 (3M/Espe) following manufacturers' instructions. Teeth were sectioned into 1x1x8mm bars and microtensile bond strength was measured with a universal testing machine (Instron 8841) at a crosshead speed of 1.0mm/min. **Results.** Grp5 (control) showed significantly higher microtensile bond strength (37.18 ± 17.40) than Grp1 (25.83 ± 9.11), Grp2 (20.33 ± 7.06), Grp3 (26.98 ± 11.55) and Grp4 (22.48 ± 11.71). Comparison of the groups indicates that Grp3 exhibited slightly higher microtensile bond strength than Grp4, however this was not statistically significant. **Conclusion.** Restorations without bleaching or SA showed the highest microtensile bond strength. Microtensile bond strength improved after the application of 35% SA when restoring immediately after bleaching, but it was not statistically significant when compared to the delayed restoration. **Grants.** Funded by the HPD Research Committee.

Resnick Auditorium 10:45-11:15 A.M.

CHILD CARE CENTER DIRECTORS' ORAL HEALTH LITERACY AND ATTITUDES TOWARDS PEDIATRIC ORAL HEALTH.

Ajay Joshi, PG-Pediatric Dentistry, College of Dental Medicine

Objective. This study will determine if child care center directors (CCCDs) oral health literacy, knowledge, attitudes towards pediatric oral health, and self-perceived barriers in promoting oral health in child care centers (CCCs) is associated to 1) the number of already existing oral health prevention strategies (OHPS) in CCCs, and the 2) Intent to adopt OHPS by CCCDs in their centers in the next year. **Background.** There is an increasing trend of child care utilization throughout the United States. Nearly 75% of children in the United States have attended some form of non-parental child care by the age of 5. OHPS or programs in CCCs are not as much prevalent as other prevention and health promotion programs. The CCCs provide an innovative, non-traditional setting for pediatric oral health promotion. However, before this setting can be used to promote oral health, a better understanding of Florida child care center directors' oral health literacy, knowledge, and attitudes on pediatric oral health is needed. **Methods.** A cross sectional study using a 44-item online survey will be conducted using a sample of child care center directors of licensed CCCs throughout Florida. Descriptive statistics will be analyzed and regression analyses will be conducted using SAS statistical software. **Results.** To be determined **Conclusion.** To be determined **Grants.** Submitted for HPD Grant

Resnick Auditorium 11:15-11:45 A.M.

CURCUMIN INDUCES OSTEOGENIC DIFFERENTIATION IN HUMAN UMBILICAL CORD MESENCHYMAL STEM CELLS

Adam Saltz, D1, College of Dental Medicine
Umadevi Kandalam, PhD, Assistant Professor, College of Dental Medicine

Objective. The objective of this study was to investigate the potential of curcumin to induce osteogenic differentiation in human umbilical cord derived mesenchymal stem cells (hUMSCs). **Background.** Curcumin (CUR), derived from curcuma longa, a potent inhibitor of NFºB, a ubiquitous transcription factor that modulates expression several genes involved in regulation bone metabolism. **Methods.** The hUMSCs obtained from Sciencell (Carlsbad, CA) were cultured under standard culture conditions (DMEM with 10% FBS and antibiotics. Cells 5x103 per well were plated in 96 well plate and treated with increasing doses of Curcumin (0.1, 0.5, 1, and 2 and 5µM) for 24, 48 and 72 hours. The cell viability was measured using MTT assay. Cells were treated with curcumin (1, 2 or 5uM) for 2 days, and then transferred to osteogenic medium. Cells grown in medium devoid of curcumin were used as control. Osteogic differentiation was assessed by alkaline phosphatase (ALP) gene expression, osteopontin (OPN) using quantitative PCR. The ALP enzyme activity was measured by pNPP assay. Mineralization was assessed on day 21, by alizarin red staining. **Results.** Cell proliferation was significantly inhibited dose-dependent manner at all-time points. Curcumin enhanced ALP and OPN gene expression in a dose dependent manner, the maximal enhancement at 1 and 2 µM. A significant increase in ALP activity at 1 and 2 µM was observed on day 7 and 14. At day 21, enhanced matrix mineralization was observed in the cells treated with curcumin. **Conclusion.** The results of this study suggested that curcumin induces osteogenic differentiation of hUMSCs **Grants.** Grant Support NSUHPD.

Resnick Auditorium 11:45 A.M.-12:15 P.M.

EFFECTIVENESS OF A POLYMER-BASED MUCO-ADHESIVE IN THE HEALING OF AUTOIMMUNE/ULCERATIVE CONDITIONS PILOT STUDY

Ines Velez, DDS MS, Professor, College of Dental Medicine

Objective. The Aims of this study are: 1- To verify the effectiveness of MuGardTM as a mucoadhesive, capable to heal the oral autoimmune ulcers. 2- To verify the effectiveness of MuGard to decrease erythema. 3- To verify the effectiveness of MuGard to decrease pain 4- To verify the effectiveness of MuGard to decrease infection **Background.** Inflammation and ulceration of the oral mucosa occur in a number of different conditions. Oral

mucositis (OM) can be both painful and dangerous. The pain is often present both at rest and upon swallowing, or even talking. Painful swallowing can cause patients to stop eating and drinking, leading to both malnutrition and dehydration. Open wounds (ulcerations) can allow the ingress of micro-organisms, leading to infection. Quality of life for these patients is poor1. OM frequently occurs soon after the initiation of chemo- or radiation-therapy for the treatment of head and neck cancers. Previous studies have shown that an oral rinse, Mugard" , started at the beginning of such treatments, greatly reduces the incidence and severity of OM signs and symptoms2,3. The unique aspect of the present study will be to begin evaluating the ability of Mugard" to reduce the signs and symptoms of OM in patients who have already developed the condition due to having an autoimmune disease, such as Sjögren syndrome, systemic lupus erythematosus, pemphigus vulgaris, mucus membrane pemphigoid, epidermolysis bullosa acquisita, and erosive lichen planus. **Methods.** This pilot study is to gather data that will enable us to perform a sample size analysis for a future full-blown randomized control, double blind, trial (RTC). The patients recruited from the Dental Clinics at NSU, with documented diagnosis of immune mediated ulcerative or blistering conditions, who are not receiving systemic steroids, participate in the study. Exclusion criteria: Patients using other oral rinses to coat the mucosa, patients taking systemic steroids, infants and pregnant patients, because there have been not studies regarding these users. Two outcome measures were employed. The first was the Oral Mucositis Assessment Scale (OMAS), introduced by Sonis, et al, 1999; and validated as reliable. The second outcome measure was a visual analogue scale (VAS) in which patients rate subjectively the pain they are experiencing. Since pain due to mucositis is experienced both at rest as well as on speaking and swallowing, patients rated their pains separately for all three conditions (Appendix B). Each of these measures was obtained: 1) At initial intake, that is, prior to being randomized into either of the two groups (experimental or placebo) and therefore before treatments begin. 2) These measures were repeated three times, namely on days 2, 7, and 14 following the initiation of treatment. Blinding After each patient's initial evaluation, he/she was randomly assigned to either treatment group by a research assistant who is not otherwise involved with patient treatment or evaluation. This assistant assigned each patient a unique ID number which only the assistant knew. Based on this ID number, the assistant supplied the patient with the appropriate “medication”, which is either the Mugard itself, or the placebo Mugard. Thus, the patient did not know his/her treatment, and the investigator performing all subsequent evaluations did not know the patient's treatment category.After all data have been collected, but still without knowing treatment assignments, Drs. So-and-so and so-and-so will compile, for each patient, his/her initial OMAS scores and VAS ratings, and also their three subsequent follow-up studies. Only after all such individual evaluations and scores were determined, the code was broken so that the subjects were placed into their assigned treatment categories. Next, the initial OMAS and VAS scores of the two groups was compared using the nonparametric Mann-Whitney test to determine if the two groups were statistically similar before actual treatments began. Each group was first be compared to its own baseline values using the Friedman's test, which is a non-parametric equivalent of the repeated measures ANOVA. This gave light on whether either group improved statistically compared to its own baseline (a within-group measure). Then, the final values (i.e., those after 14 days of treatment) were compared statistically, again using the Mann-Whitney test, to determine if a significant difference was present. **Results.** The preliminary results are promising.The initial analysis shows that there is a statistically significant difference between the placebo and the MuGard group **Conclusion.** At this point, this research suggests that MuGard is effective in the healing of autoimmune ulcerative conditions. **Grants.** HPD

Resnick Auditorium 2:15-2:45 P.M.

AN ASSESSMENT OF ACCULTURATION ON DIABETES TYPE II OUTCOMES AMONG MEXICAN AMERICANS

Kathleen Pierre, Other, Other
Alexandra Perez, PharmD, Assistant Professor, College of Pharmacy

Objective. To evaluate the relationship between low and high levels of acculturation and Type 2 Diabetes Mellitus (T2DM) standards of diabetes care on Mexican Americans. **Background.** Evidence suggests a possible relationship between acculturation and certain health outcomes. The effect of acculturation on Mexican Americans and diabetes standards of care is not well documented. **Methods.** Demographic and clinical data of individuals self-reported as Mexican American aged e20 years with T2DM were obtained from the NHANES federal database (2001-2002 and

20032004 cohorts). Preference of Spanish or English language use as a child, at home, with friends, thinking, reading or speaking was used as proxy for acculturation and was categorized into high (English preference) and low (Spanish preference). Select standards of diabetes care included control of hemoglobin A1c, medication use and prevalence of eye disease. Chi-squared and independent t-tests were used to compare outcomes across acculturation level (alpha=5%). **Results.** 85 Mexican Americans were included: 40 with low and 45 with high acculturation. Overall, the mean age was 62.5+/-12.2 years, and 49.4% were female (p>0.05 for all baseline characteristic comparisons). The mean A1c was 7.3+/1.7% and 7.6+/-1.8% and achieving A1c goal of <6.5% was 40% and 40% for low and high acculturation. Those currently on insulin were 15% and 22.2% and oral antidiabetic pills were 85% and 68.2% and with retinopathy were 22.5% and 28.9% for low and high acculturation, respectively (p>0.05 for all comparisons). **Conclusion.** No relationship between acculturation and select diabetes outcomes was found. Language preference may not reflect true acculturation level. **Grants.** No funding was obtained for this study

Resnick Auditorium 2:45-3:15 P.M.

ASSESSMENT OF A DENTAL CLINIC AND A DENTAL SCHOOL CURRICULUM ESTABLISHED TO IMPROVE ORAL HEALTH FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS

Vinodh Bhoopathi, BDS, MPH, DScD, Assistant Professor, College of Dental Medicine
Romer Ocanto, DDS, MPH, MEd, Professor, College of Dental Medicine

Objective. To assess the level of parent satisfaction with special needs pediatric dental clinic (PDC) and the effectiveness of a dental school curriculum established to improve oral health among children with Autism Spectrum Disorders (ASDs). **Background.** Nova Southeastern University College of Dental Medicine (NSU-CDM) developed a didactic curriculum and established a clinic, funded by the Health Resources and Services Administration (HRSA), to educate and train pediatric dental residents to acquire skills and knowledge in meeting the dental care needs of children with ASDs. **Methods.** Data for this study was collected through: 1) A 42-item survey was sent to the parents/caregivers of children receiving services at PDC to assess parent satisfaction, 2) Pre-test and post-tests instruments were used to assess knowledge gain among residents, and 3) A 13-item impact survey was administered to residents to assess their opinions and satisfaction on the curriculum. **Results.** Almost all responded parents were satisfied (97%) with the PDC and the services provided. A significant difference in mean class knowledge and percent change in knowledge (P<0.05) during the post-tests was observed among the residents. 100% of responding residents strongly agreed/ agreed that the didactic curriculum increased their knowledge and that they received adequate clinical exposure to manage children with ASDs. **Conclusion.** The services provided at PDC exceeded or met the expectations of the responding parents. Residents were highly satisfied with both the ASD clinical and didactic training **Grants.** This study was funded by a grant from HRSA.

Steele Auditorium

Steele Auditorium 9:45-10:15 A.M.

DOC, I HAVE BLUE EYES! & BLUE SCLERA:
DIFFERENTIAL DIAGNOSIS AND SYSTEMIC ASSOCIATIONS

Lisbet Abrante, Doctor of Optometry, Guest Lecturer, College of Optometry

Introduction. Blue sclera indicates localized or diffuse thinning of the sclera that permits visualization of the underlying bluish choroid. Typically, blue sclera is associated with underlying collagen/skeletal disorders, high urine excretion, or chromosomal disorders. It is essential to differentiate blue sclera from other ocular conditions that present with a blue tint to the sclera. Differential diagnoses include scleromalacia perforans, congenital ocular melanocytosis (naevus of Ota) or sclera thinning secondary to trauma. **Case presentation.** A twenty nine-year-old black female presents to clinic with a complaint of irritated, burning eyes for the past five years. Clinical examination demonstrated moderate meibomian gland disease, corneal arcus and bilateral blue sclera. **Deviation From the Expected.** The patient has a positive family history for Osteogenesis Imperfecta. Her younger sister has experienced several bone fractures in the past. However, she reports having no previous bone fractures/injuries and has not been worked up for the condition thus far. **Discussion.** Osteogenesis Imperfecta has 12 genetic classifications that display either autosomal-dominance or autosomal-recessive patterns of inheritance with a broad spectrum of clinical manifestation from mild to severe. From clinical examination of the patient it is suspected she exhibits the Type I phenotype (mildest form): normal stature, blue sclera, corneal arcus and minimal to no bone deformity. However, the patient was advised to undergo evaluation for the condition to obtain a conclusive diagnosis and classification. **Conclusion.** It is essential to differentiate true, bilateral "blue sclera" from separate ocular manifestations of bluish tint to the sclera for appropriate management of the condition. **Grants.** N/A

Steele Auditorium 10:15-10:45 A.M.

MOBILE LEARNING FOR MARITIME WORKERS
MITIGATING MARITIME CHEMICAL INCIDENTS

Jason Cohen, Master's of Science, Business Leadership, M.S.L. , Adjunct Professor, Nova Southeastern University,
COM Kelley Davis, Ph.D. Microbiology, Associate Professor, College of Medical Sciences

Objective. The majority of workers in the maritime industry include dock workers, stevedores, laborers, longshoremen, dock and ship supervisors, and law enforcement personnel. They receive a wide range of health and safety training, primarily to reduce injuries related to falls, falling objects, crushing incidents, lifting techniques, and hoisting and rigging. However, training specific to hazardous chemical materials is severely lacking. **Background.** The Institute for Disaster and Emergency Preparedness (IDEP) at Nova Southeastern University's College of Osteopathic Medicine (NSUCOM), in partnership with MetaMedia Training International, has developed interactive scenario-based exercises to help prevent, mitigate, and respond to tragic and avoidable incidents related to hazardous materials in the maritime industry (e.g., docks, ports, oil rig platforms, vessels). **Methods.** Qualitative and Quantitative surveys and pre-tests to post-test score comparisions from those participants from courses that had use of the mLearning compared to those who did not receive the mLearning component of courses. **Results.** This presentation will highlight the development of mLearning real-life simulations; technologies employed, and initial evaluations of the SBIR Phase 1 effort. Furthermore, qualitative survey comments, which were collected and recorded, have provided more feedback from participants and also included potential recommendations for future use of the mLearning platform. **Conclusion.** Although final analyses is still being processed through 6-9 month post follow up surveys; results show a positive impact to learning impacts from a participant perspective. The first round of surveys produced (surveys given during day of course) concluded that participants who received the mLearning platform seemed to feel that it enhanced their learning. **Grants.** Funded through a Small Business Innovation Research (SBIR) award from the National Institute for Environmental Health Sciences

ETHICAL BOUNDARIES IN RESEARCH:
PUBLIC HEALTH AND CLNICAL RESEARCH CASE STUDIES

Akiva Turner, Phd, JD, MPH, Associate Professor, College of Health Care Sciences

Introduction. This is a presentation of two controversial research studies. Using these two studies, the audience will explore the ethical boundaries of clinical and public health research. **Case presentation.** Study 1) The Kennedy Krieger lead paint study included 108 houses in 5 groups of children living in Baltimore homes. Three of the groups were children living in homes that used new lead abatement procedures but the extent and cost of abatement varied between the 3 groups. The 2 comparison groups were made up of children living in housing that had been abated by the city of Baltimore and children living in housing built after 1978. Study 2) In the 1990s the National Institute of Health and the Centers for Disease Control funded clinical trials funded to determine if there were less expensive ways to prevent transmission of perinatal HIV transmission by using lower doses of AZT. Research was conducted in Africa, Thailand and the Dominican Republic. Some women were given doses of AZT that were less than the doses used in the United States at that time. Other women received placebos. **Deviation From the Expected.** These two cases created much controversy among researchers and bioethicists. In the first case some children continued to be at risk of some lead exposure and in the second case study some women did not receive the dosage of AZT known to be effective in the United States. **Discussion.** Study 1) Is it ever ethical to conduct research on less expensive interventions that may not be as effective as existing treatment, but are more cost effective and likely to be more widely implemented? Study 2) What are the ethical boundaries for using placebos and lower doses in studies designed to find less expensive treatment/prophylaxis? **Conclusion.** Research that may meet real world and community specific conditions--as well as research funding constraints--may challenge traditional research ethics. Before dismissing or championing such research designs, all ethical considerations should be explored and understood. These two case studies represent controversial designs where the limits of ethical research may have been stretched and from which ethical boundaries can be described. **Grants.** None

VIDEO REVIEWS OF CLINICAL ENCOUNTERS: CAN AUTHENTIC FEEDBACK IMPROVE THIRD YEAR STUDENT PHYSICIANS' INTERPERSONAL SKILLS?

Heather McCarthy, DO, Assistant Professor, College of Osteopathic Medicine
Janet Roseman, DO, Assistant Professor, College of Osteopathic Medicine

Objective. To offer innovative curriculum for third-year medical students to help improve their interpersonal skills during patient encounters. It is hoped that through video review encounters with simulated patients, medical students will obtain an increased consciousness of the importance of interpersonal communication with patients. This presentation will describe the video feedback program, show a video presentation of a standardized patient encounter, and offer opportunities for attendees to participate in offering feedback. **Background.** The M3 Come Home Day Program originated in 2009 at Nova Southeastern University College of Osteopathic Medicine as an opportunity for third-year medical students on rotation at various sites to return to campus to reconnect with the medical school, receive career guidance, and improve clinical skills, osteopathic manipulation techniques, and interpersonal skills. Medical students experience mannequin simulation as well as standardized patient encounters with feedback provided by faculty and complete questionnaires. **Methods.** A one page anonymous questionnaire was given after the students participated in the mannequin simulation and the standardized patient encounters with feedback. This questionnaire documented participants' opinions concerning the efficacy of the feedback session. The medical students also added comments and suggestions on the anonymous questionnaire form. **Results.** Based on the results of the three questions, over 85% of the medical students indicated that this program was highly effective. **Conclusion.** The data examined from 2011-2013 indicated that participants felt that the feedback portion of the program was an overwhelming positive experience. **Grants.** N/A

Steele Auditorium 1:45-2:15 P.M.

THE SIDNEY PROJECTTM IN SPIRITUALITY AND MEDICINE AND COMPASSIONATE CARE

Janet Roseman, Ph.D., Assistant Professor, College of Osteopathic Medicine

Objective. This on-going program provides training in humanism of medicine and offers tools for residents at various Nova affiliated hospitals. Participants learn strategies for self-care, compassion, "breaking bad news", and how to offer medicine with heart. The program offers participants opportunities to engage in meaningful discussion in a culture that often negates the value of compassionate/spiritual care. They learn how to engage patients in the holistic dimension of a human being; mind, body and spirit. **Background.** The Sidney ProjectTM in Spirituality and Medicine and Compassionate Care began as a pilot program at two local hospitals for residents from various disciplines participating. The program was created to honor my father. The program has now expanded to 9 hospitals participating. **Methods.** Participants filled out questionnaires before and after the program to measure the efficacy of the program. Through lectures and discussion, residents learn skills in spirituality and medicine and compassionate care as well as self-care. At the end of the program residents presented papers on any area of interest in spirituality and medicine/compassionate care and were awarded certificates. **Results.** Results : Residents valued the program and believed that they were practicing more compassionate medicine. The themes will be presented during the podium presentations. **Conclusion.** The data indicates that there is both a yearning and a willingness to integrate spirituality and compassionate care into medicine in a focused, acknowledged approach. "Patient knows that I care about them as a whole and not just as a person with an illness that needs to be treated."
Grants. Submitted a grant but no response yet.

Steele Auditorium 2:15-2:45 A.M.

CREATING A HPD INTERPROFESSIONAL CULTURE IN EDUCATION AND CLINICAL PRACTICE

Cecilia Rokusek, Ed.D., R.D., College of Osteopathic Medicine
Sandra Dunbar, DPA, OTR/L, FAOTA, College of Health Care Sciences
Abbie Brodie, DDS, MS, College of Dental Medicine

Objective. At no other time in academic history is the timing more ideal than now for the integration of interprofessional education and practice into the curriculum and in the clinics at Nova Southeastern University. Currently there are over 60 health professions disciplines whose professional academic accreditations require interprofessional education in the curriculum. As a result of a 3-year ongoing initiative started in the College of Osteopathic Medicine and now fully integrated in the Health Professions Division, interprofessional education is occurring and faculty development programs are being offered throughout the academic year. **Background.** This presentation will discuss the interprofessional initiatives that are now available to students and faculty in the Health Professions Division. **Methods.** Results of attitude and knowledge surveys from students participating in interprofessional case studies will be discussed. Recommendations for the future to sustain the interprofessional culture will be examined. Participants will have the opportunity to discuss logistical challenges and future possibilities to expand the interprofessional learning opportunities within the community. Evaluative strategies will be discussed. The integration of interprofessional practice in the community setting and follow-up assessments will be explored. **Results. Conclusion. Grants.** N/A

NSU-COM VIRTUAL CLINIC AND ART OBSERVATION CENTER

Elizabeth Oviawe, MSc, MMIS, MSBI, Adjunct Professor, College of Osteopathic Medicine
Marti Echols, Ph.D, Assistant Professor, College of Osteopathic Medicine
Dianna Silvagni, J.D., Clinical Assistant Professor, College of Osteopathic Medicine

Objective. Both technology and time limitations in medicine have challenged healthcare to keep humanism in patient care. NSU-COM's innovative solution is providing instructional tools for students to develop observation skills and reinforce the learning using virtual encounters with patients. **Background.** Student observation skills have declined, with 20 medical schools developing courses or workshops incorporating art observation. NSU-COM developed a pilot program in collaboration with the NSU Museum of Art (MOA) as well as utilizing a 3-D instructional tool in Second Life (SL) virtual world. **Methods.** During orientation first year students participate in an observation skills experience at the MOA. The observation skills are reinforced in the NSU-COM Virtual Clinic and Art Observation center in second life. This provides a flexible instructional medium where students can practice patient-centered clinical skills in a fun way anywhere and relate this experience to patient care. Students complete pre and post tests. Feedback has been very positive. **Results.** The results of the pilot program were encouraging and expanding the experience is a first step in teaching students additional ways to improve patient care. Student comments about the experience were decidedly positive and built camaraderie among colleagues. The results of the testing data will be shared with attendees as a basis for expanding inter-professional approaches across HPD. **Conclusion.** SL virtual world is a way to advance a new pattern in medical education. Using the art museum and virtual world, the potential to create a longitudinal thread through healthcare professions curriculum could be adapted for any of the HPD colleges. SL could foster inter-professional research with in-world discussion and collaboration. Combining SL and Art, Medicine and Observation is a unique and forward thinking way to teach and reinforce the patient experience through cutting edge curriculum. **Grants.** This study is currently seeking funding at inter-professional level.

Terry Auditorium

Terry Auditorium 9:45-10:15 A.M.

REPEATABILITY OF PREBRUSH AND POSTBRUSH DENTAL PLAQUE MEASURED VIA IMAGE ANALYSIS

Nohora Duque, A.A., Clinical Research Coordinator, Guest Lecturer, College of Dental Medicine
Cristina Garcia-Godoy, D.D.S., Professor, College of Dental Medicine

Objective. This research used image analysis to evaluate the reproducibility of natural plaque accumulation and removal measured instrumentally. **Background.** High levels of plaque contribute to gingivitis that affects more than half of the U.S. adult population. **Methods.** After institutional review and informed consent, healthy adults were enrolled in a study to assess the between-visit consistency of plaque measurement for overnight and post-brush plaque. At Day 1, subjects with overnight (unbrushed) plaque swished with a fluorescein rinse and expectorated, cheek retractors were inserted, and a single digital image was collected under standardized lighting conditions. After routine hygiene with a regular anticavity dentifrice (Crest® Cavity Protection) and standard manual toothbrush, disclosing and imaging were repeated. Approximately 1-week later, the imaging-brushing-imaging sequence was repeated. Each digital image was analyzed blind to visit sequence to determine area (%) plaque coverage, and paired images were compared to assess between-visit correlation. **Results.** A total of 51 subjects had prebrush and postbrush plaque measurements at both visits, and all data were included in the analysis. Mean (SD) age was 37.4 (15.4) ranging from 18-71 years. Plaque coverage varied across visits, ranging from 2.2-79.2% before brushing and 2.5-42.0% after brushing. Both the prebrush (r=0.84) and postbrush (r=0.80) plaque areas were well-correlated. **Conclusion.** Use of image analysis demonstrates a high level of between-subject variability in natural plaque accumulation and removal, that is highly reproducible between-visits. Grants. This study was fully funded by the Procter and Gamble Company. **Grants.** This study was fully funded by the Procter and Gamble Company.

Terry Auditorium 10:15-10:45 A.M.

EVIDENCE BASED CLINICAL KNOWLEDGE IN DENTAL SEALANT UTILIZATION AMONG DENTISTS

Sirisha Govindaiah, PG-Pediatric Dentistry, College of Dental Medicine

Objective. To determine dental sealant utilization rate and evidence based clinical knowledge pertaining to dental sealant placement among Florida's dentists **Background.** The most common childhood disease is dental caries. Roughly 90% of the caries lesions in children occur in pits and fissures of posterior teeth which can be prevented by sealants. Despite evidence of sealants' effectiveness in both primary and secondary prevention of dental caries, and the existence of evidence-based guidelines for sealant placement, the prevalence of dental sealants used among U.S. children is low **Methods.** For this cross-sectional study we used a 25-item pretested, self-administered questionnaire at the 2013 Florida National Dental Convention. Univariate, and bivariate statistics were run. Multivariate linear regression model predicting evidence based clinical knowledge on sealant placements was created **Results.** 163 dentists completed the survey. Majority of the respondents were males (63%), whites (73%), and non-Medicaid providers (78%). Majority (98%) reported to use sealant as a routine preventive measure. Clinical knowledge regarding teeth selection and sealant placement was low, with dentists answering on average only one question correctly, out of three possible knowledge questions. Linear regression model showed males (p=0.001), and those accepting new Medicaid children (p=0.0045) had higher knowledge compared to their counterparts **Conclusion.** Though sealant utilization rate among Florida's dentists is high, the evidence based clinical knowledge about sealant placement is low **Grants.** This study was funded by the Nova Southeastern University Health Professions Division

Terry Auditorium 10:45-11:15 A.M.

MESENCHYMAL STEM CELLS IN BONE TISSUE ENGINEERING

Umadevi Kandalam, kandalam@nova.edu, Assistant Professor, College of Dental Medicine

Objective. To evaluate bone regeneration potential of mesenchymal stem cells **Background.** Bone fracture repair and regeneration is a complex phenomenon. Of the several approaches, stem cell based bone regeneration is gaining momentum. Owing to their multiple differentiation property and immune privilege, mesenchymal stem cells (MSCs) are appealing candidates for bone tissue engineering. The progression of stem cells to osteogenic (bone) precursor cells is spatio-temporally regulated event, involving stage expression of molecules that regulate a variety of signaling cascades. **Methods.** MSCs derived from human umbilical cord (HUMSCs) and gingival tissue (HGMSCs) were isolated and cultured in growth medium supplemented with antibiotics. Cells were guided to differentiate into various lineages (osteogenic, adepogenic and chondrogenic) to confirm their multipotential nature. The HGMSCS were grown as monolayers and encapsulated in a self-assembled hydrogel scaffold. Cell proliferation and osteogenic differentiation was measured using standard protocols. The scaffold impregnated with HGMSCs pre-programmed for osteogenic differentiation was delivered in vivo in ectopic bone regeneration model of rat. The bone regeneration was assessed over a period of period of 2-8 weeks. **Results.** Our studies revealed that HUMSCS and HGMSCS have multilineage potential. HGMSCs growth was significantly enhanced in the cells encapsulated in the scaffold. The bone formation was observed HGMSCs implanted in the hydrogel scaffold. **Conclusion.** HUMSCs and HGMSCs that were isolated by minimally invasive method showed equipotent ability to differentiate in to osteogenic lineage as those derived from bone marrow. Therefore, these cells can be employed for bone tissue engineering.
Grants. This research was supported by HPD and PFRDG.

Terry Auditorium 11:15-11:45 A.M.

ASSESSMENT OF THE ROLE THAT SECOND MOLARS PLAY IN BITE-OPENING DURING ORTHODONTIC TREATMENT: A RETROSPECTIVE, CEPHALOMETRIC STUDY

Shikha Karmakar, D3, College of Dental Medicine
Shadzi Jebraeili, D3, College of Dental Medicine
Jagdesh Dudani, D4, College of Dental Medicine

Objective. To investigate the role that second molars play in increasing the facial vertical dimension. To compare vertical changes experienced in patients that had their second molars incorporated into the orthodontic appliance to the vertical changes experienced in patients that did not. To investigate associations between the vertical changes experienced through treatment and the initial vertical classification of the patients (normo-, hypo-, and hyperdivergent). **Background.** Many studies have investigated the changes in the vertical dimensions that occur in orthodontic treatment. It has been shown that almost all orthodontic appliances produce extrusion whether desired or not. This extrusion is capable of increasing the skeletal vertical dimension. Conventional wisdom says that second molars play a significant role in vertical control during treatment. Some practitioners advocate incorporating the second molars as soon as possible in treatment to help open the bite. It is also thought that it may be wise to not incorporate the second molars during treatment at all in cases with an open bite tendency. **Methods.** 80 de-identified pre-treatment cephalometric radiographs (40 with second molars bonded and40 without second molars bonded) from the orthodontic clinic at Nova Southeastern University will be analyzed and compared to their post-treatment analogs. Twelve linear and angular measurements will be made (Overbite, Maxillary molar to palatal plane, Mandibular molar to mandibular plane, Upper anterior dentoalveolar height, Lower anterior dentoalveolar height, Upper Anterior Facial Height, Lower Anterior Facial Height, Total Posterior Facial Height, Lower Posterior Facial Height, UAFH/LAFH ratio, Mandibular Plane Angle, and Y-axis). **Results.** A Fisher's exact test and a Cramer's Vtestwere performed. The results showed statistical significance between the change in bone of the incisors and the change in their inclination at the buccal 6mm, buccal apex, lingual 6mm and lingual apex. There was also statistical significance found between the change in bone between the buccal apex and lingual apex of the LR1, LR2, LL1, and LL2. **Conclusion.** Our results showed that the change in bone of the lower incisors is correlated to the change in their inclination. This suggests that incisors were tipped within the confines of the mandibular anterior alveolar process, or the alveolar process bent and remodeled around the incisors in the same direction of tooth movement or a combination of the two. **Grants.** This study was awarded a grant by the Health Professions Division at Nova Southeastern University.

Terry Auditorium 11:45 A.M.-12:15 P.M.

ACCURACY OF SLOT DIMENSION WITHIN SETS OF ORTHODONTIC BUCCAL TUBES

Sergio Real Figueroa, D.D.S M.S, Assistant Professor, College of Dental Medicine

Objective. Objective: This study aims to evaluate the dimensional precision of orthodontic buccal tubes slots from different orthodontic companies using the Scanning Electron Microscope (SEM). **Background.** Orthodontic appliances have evolved significantly over the past century from Angle's E-arch to CAD-CAM manufactured customized brackets. The original Edge-wise Appliance was introduced by Angle in 1928 after several years of experimentation.1 Angle chose the dimension of 0.022x0.028 inches as the optimal size for orthodontic bracket slot to ensure proper distribution of forces ¬¬¬to dentition. Since Angle emphasized maintaining a full of complement of teeth, achievement of ideal occlusion depended on ensuring "ideal" position of each tooth within the dental arch. Mastering the skills of wire bending was essential in the practice of orthodontics at the time. First-order or in and out bends compensated for variations in labio-lingual contour and thickness of teeth to achieve proper alignment of dentition. Second-order bends (tip) ensured root parallelism and third-order (torque) bends placed teeth in their proper facio-lingual inclination. **Methods.** Four of the most popular orthodontic companies within the US who manufacture and distribute molar tubes to orthodontists were selected for this study including Opal (Ultradent), Ormco(Damon), American Orthodontics and 3M Unitek. Each company was asked to send 20 molar tubes, 022 slot (.0225 x .0285 inches), which have been manufactured within the past 2 months to be used in this study. We measured the accuracy of individual tube dimensions in relation to their respective company catalogs, as well as document any defects observed within these tubes. Descriptive statistics, means and standard deviations were calculated for all buccal tubes from the four companies and for each wall of the respective tubes. **Results.** : All four companies produced slots that were on average over-sized. There was no consistency in meeting the standards of dimensions when comparing each of the four walls for each company. However, a higher percentage of American orthodontics and 3M tubes met the standards of measurement of the occlusal and gingival walls. All tubes were convergent from mesial to distal and lingual to buccal direction. **Conclusion.** All companies manufactured over-sized tubes.There was no consistency in dimensional accuracy of tubes produced by any of the four companies. All tubes were convergent from mesial to distal and lingual to buccal dimension. **Grants.** HPD

Terry Auditorium 2:15-2:45 P.M.

HUMAN TRAFFICKING PREVENTION THROUGH INTERDISCIPLINARY FACULTY EDUCATION

Brianna Kent, Ph.D., RN, Assistant Professor, College of Health Care Sciences
Sandrine Gaillard-Kenney, Ed.D., Associate Professor, College of Health Care Sciences
Rose Colón, Ph.D., Assistant Professor, College of Health Care Sciences

Objective. To develop an innovative victim-centered, human trafficking education program that motivated faculty in the Colleges of Health Care Sciences and Nursing to integrate human trafficking into existing curricula. **Background.** Human trafficking is a complex public health crisis. Interdisciplinary healthcare education that increases awareness is required to combat modern day slavery. Faculty need assessment and a review of college-wide curricula determined that human trafficking was absent from every course. This educational program was designed specifically to address that healthcare training need. **Methods.** The presenters developed human trafficking curriculum grounded in adult learning theory and the transtheoretical model of change (Prochaska & DiClemente, 1983). Four training modules were presented by experts on human trafficking from medicine, law enforcement, victims support agencies, and farmworkers' advocates. The modules included: human trafficking overview, victims' healthcare needs, developmental and cultural factors in the screening of victims, and instructional strategies for faculty. **Results.** Modules post-test scores showed a measurable increase in facultys' awareness of human trafficking. Outcome surveys revealed that 100% of the participants were willing to include human trafficking in their curriculum. Qualitative data confirmed that faculty gained knowledge of human trafficking and learned new skills to identify victims. **Conclusion.** Healthcare professionals need appropriate training to help victims of human trafficking. Current and future healthcare professionals knowledgeable in the signs and symptoms of human trafficking can reduce criminalization of victims and refer victims to appropriate health and social services. **Grants.** This study was funded by Nova Southeastern University 2011-2012 President's Faculty Research and Development grant.

TWO-YEAR RETROSPECTIVE ANALYSIS OF THE IMPLANT SURVIVAL RATE AT NOVA SOUTHEASTERN UNIVERSITY POST GRADUATE PERIODONTOLOGY CLINIC

Sasan Sani, DMD, Research Associate/Instructor, NSU CDM
Maria Hernandez, DDS, Professor, College of Dental Medicine
Kyle DeLuca, D4, College of Dental Medicine

Objective. Objective: To determine the 2-year implant survival rate in the NSU postgraduate periodontology clinic and assess the effect of various patient and surgical factors on implant survival. **Background.** Background: In the US the number of dental implants placed has steadily increased and is projected to continue at 12% annually. The survival rates for implants are high, the most recent systematic review suggesting 97.7%. Despite the predictability of dental implants, a small but significant subset of patients experience implant failure. Identifying patients most at risk of failure and surgical factors affecting survival is essential to reducing failures. **Methods.** Methods: Electronic records for all implant surgeries from January 3, 2008 to December 31, 2010 were reviewed. Implants with a 2-year follow-up were included and classified as "survived" if they were restored and in function at the end of the 2-year period. Factors considered were: patients' age, gender, smoking status, and surgical factors: immediate placement, location, site grafting or sinus augmentation, submerged cover screw and non-submerged healing abutment, immediate temporization and loading, preoperative antibiotic use, and academic year of resident placing the implants. **Results.** Results: 52 out of 1,282 implants failed, a success rate of 95.9%. Males were 1.7 times more likely to have failures. Implants in smokers were four times as likely to fail compared to non-smokers. Patients not given pre-operative antibiotics were 2.3 times more likely to have failures than patients given pre-operative antibiotics. Those with sinus lifts produced a significantly greater number of failures versus no sinus lifts. **Conclusion.** Conclusions: The NSU postgraduate periodontal clinic implant survival rate was comparable to published standards. Statistically significant factors affecting implant survival included gender, smoking, pre-operative antibiotics, and sinus lifts.
Grants. No.

UPP 113

UPP 113 9:45-10:15 A.M.

NATIONAL ESTIMATES OF UTILIZATION AND EXPENDITURES FOR PATIENTS WITH DIABETES AND CANCER.

Abdullah Alfaifi, Other, Other
Leanne Lai, Ph.D, Professor, College of Pharmacy

Objective. To investigate the prevalence of cancer comorbidity in individuals with diabetes, and its association with health care utilization and expenditures. **Background.** The connection between cancer and diabetes has been explored comprehensively and most found that diabetes is associated with an increased risk of cancer in several sites. Most published data, however, ignored the effect of confounders in order to come up with accurate estimates. **Methods.** Our study was conducted with a quasi-experimental design. Subjects included patients who had ever been diagnosed with diabetes in 2010 Medical Expenditure Panel Survey (MEPS). The propensity scores technique was utilized to reduce selection bias by controlling risk factors such as age, sex, race/ethnicity, physical activity, smoking and body mass index. Further, a series of weighted inferential statistics were used to test the effect of cancer comorbidity on the variables associated with health care use and expenditures. **Results.** Estimated 21 million non-institutionalized adults were reported having diabetes in the US, 2010. Among them, 3.89 million (18.5%) had cancer comorbidity. Patients with diabetes were twice likely to encounter cancer compared with non-diabetes individuals (crude odds ratio 2.1, 95% CI 1.9-2.49). After controlling for the shared risk factors with propensity score, the odd ratio remained significant (odds ratio 1.33, 95% 1.146-1.554). Variables associated with health care use and expenditures for individuals with cancer were significantly higher than those without cancer ($p< 0.0001$). **Conclusion.** Our study findings indicate that diabetes patients have higher prevalence of cancer comorbidity, thus resulting in increased health care utilization and expenditures. **Grants.** No grants.

UPP 113 10:15-10:45 A.M.

THE EVOLVING FACE OF MS; NEW PRESENTATIONS, NEW PROGNOSIS, NEW PERCEPTIONS.

Valerie Fiordilino, PAS-2, College of Health Care Sciences

Introduction. We are taught to follow rule books, recipes, and manuals to complete tasks effectively. However, in medicine, we often need reminders to think 'outside the box.' Sometimes the most simple cases can be missed because we are troubled with the deviation from the expected presentation. This discussion will illustrate a case that was overlooked for months, with a prognosis that only a few years ago, would have been a hopeless cause. **Case presentation.** A 27 year old healthy female, marathon and triathlon athlete presents with an isolated disturbance lasting approximately one month upon flexion of the neck. The female experienced a shock-like sensation down both legs with the movement. No other symptoms existed including any evidence of weakness, fatigue, or loss of sensation. No trauma was associated as well. **Deviation From the Expected.** The most common presenting sign of Multiple Sclerosis, MS is unilateral vision loss (from optic neuritis) or transient muscle weakness, paralysis, or neuropathy in an extremity. The symptom the female experienced was L'Hermittes sign, often associated with late stages of MS. This is very rarely the presenting symptom. **Discussion.** As upcoming clinicians and health care participants, it's so critical to understand that patients are not always going to present with "textbook" presentations of diseases. Furthermore, the prognosis, treatments, and perceptions of MS has changed dramatically over the last few years. **Conclusion.** We must be reminded that not all cases present with a orderly pattern. Many are missing several pieces of the puzzle, and it is up to us to decipher what the greater picture is. MS has drastically changed in its disease progression thanks to the life changing disease modifying agents. As awareness and knowledge grows, so will with perception of MS. The promise of "New Face" to MS is no longer a hope, it's a reality. **Grants.** No grants have been provided for this presentation.

UPP 113 10:45-11:15 A.M.

PERIORBITAL BASAL CELL CARCINOMA

May Jarkas, Doctorate in optometry, Lecturer, College of Optometry

Introduction. See below **Case presentation.** See below **Deviation From the Expected.** See below **Discussion.** Basal cell carcinoma (BCC) is the most common periorbital malignancy. Their incidence can be reduced with the use of sun protection. BCC rarely metastasizes, however when left neglected and has been longstanding it can continue to grow and lead to significant local destruction, disfigurement and sometimes orbital invasion. Therefore, early detection of its clinical presentation is crucial in order to provide adequate and timely patient care. A skin biopsy is then required to confirm the diagnosis and determine the histologic subtype of BCC. Laboratory and imaging studies may be necessary when suspecting involvement of deeper structures. Treatment vary depending on the tumor size, depth and anatomic location. Moreover, surgical excision remains the standard of care for the majority of periocular malignancies, with Mohs micrographic surgery (MMS) being the preferred method of treatment. It provides a combination of high cure rate and tissue conservation but it is costly. The other treatment modalities include radiation therapy, chemotherapy, cryosurgery, electrodessication and curettage (EDC), topical medication and photodynamic therapy (PDT). **Conclusion.** See above **Grants.** See above

UPP 113 11:15-11:45 A.M.

RARE OVARIAN TERATOMA PRESENTATION OF LIMBIC ENCEPHALOPATHY: A CASE STUDY

John W. Rafalko, Ed.D., PA-C , Associate Professor, College of Health Care Sciences

Introduction. In female patients there is now the emergence of a previously under diagnosed disorder with severe neurological complications of limbic encephalopathy (LE) resulting from ovarian teratomas. The abnormal presentation can lead to a primary diagnosis of a behavior medicine disorder. Clinicians need to be aware of this autoimmune disease. **Case presentation.** A 15-year-old Caucasian female was transported to the emergency department by ambulance after an acute loss of consciousness, seizure activity, and severe temporal lobe headaches. Associated symptoms included episodes of altered awareness, depersonalization, confusion and memory loss. Diagnosis focused on LE and paraneoplastic syndrome. Surgical consultation ordered an abdominal ultrasound because of a previous ovarian teratoma removed by laparoscopy two years prior. A diagnosis of a recurrent ovarian teratoma was made. **Deviation From the Expected.** Despite high morbidity and mortality rates associated with limbic encephalopathy (LE) aggressive surgical management resulted in symptoms dramatically improved after the excision of the right ovary. **Discussion.** Labs were negative for both anti N-methyl-D-asparate (NMDA) receptor antibody and paraneoplastic syndrome. Pathology obtained imunohistological stains demonstrated positive mature neuroepithelium tissue consistent with a ovarian benign teratoma. A review of the literature revealed ovarian teratoma LE with neurological and psychological symptoms consistent with this case. **Conclusion.** The surgical treatment of this condition was laparoscopy with ovarian teratoma excision that resulted in immediate improvement of the patient's condition. Clinicians in an acute setting must maintain a high index of suspicion for ovarian teratoma LE in female patients that present with neurological and bizarre psychological symptoms. **Grants.** none

UPP 113 11:45 A.M.-12:15 P.M.

DIFFERENTIATING RETINAL TUMORS: WHAT YOU NEED TO KNOW

Alexandra Schuette, Doctor of Optometry, Lecturer, College of Optometry

Introduction. Encountering a retinal tumor is extremely rare, and on occasions when one is stumbled upon during fundus examination, most cases are benign. Tumors arising in the retina have their origins in retinal cells, which include retinocytes and glial cells, the retinal vasculature, or the retinal pigment epithelium. This presentation will provide an overview of the retinal tumors including description, presentation, and proper diagnosis and treatment. With the majority of these tumors having a strong association with a genetic condition, the need for early detection and management is critical to ensure the best prognosis for these patients. **Case presentation.** Our patient presented

to the clinic for a comprehensive eye examination stating no visual or ocular complaints. Visual acuities were 20/20 OD, OS and anterior segment was unremarkable. Upon fundus biomicroscopy, a calcified, yellowish, raised lesion was noted adjacent to the optic nerve head in the right eye. Fundus photography, OCT, HVF, and B-scan were performed to best determine and manage this condition. **Deviation From the Expected.** No deviation from expected for this case. **Discussion.** Different types of retinal tumors will be discussed in detail, including description and presentation, managament, and extensive systemic workup testing if indicated. **Conclusion.** It was determined that our patient presented with a unilateral, single astrocytoma of the right eye. Photos, OCT, and HVF were taken as baseline to compare for future management of this condition. No systemic workup testing was performed. **Grants.** No grants were obtained.

UPP 113 2:15-2:45 P.M.

ATTITUDE AND EMPOWERMENT AS PREDICTORS OF DIABETES SELF-MANAGEMENT AMONG AFRICAN-AMERICANS

Jo Ann Kleier, PhD, Professor, College of Nursing
Patricia Dittman, PhD, Associate Professor, College of Nursing

Objective. The objective of this study is to examine and describe attitude and perceived behavioral control, and to test these as predictors of diabetes self-care practices among African-American individuals. **Background.** Diabetes is a disease that is increasing in society and is affecting the African-American population disproportionately. The ill effects of diabetes and associated costs can be reduced through self-care techniques. However, such techniques appear to be inconsistently practiced and at an alarmingly low rate among the African-American population. **Methods.** This is a non-experimental, descriptive, correlational study wherein data were collected from a convenience sample of 100 African-American individuals with diabetes living in South Florida. Survey data were collected using previously developed and tested instruments; physical data consist of A1C measures. Statistical tests include descriptives, multiple linear regression and nonparametric bivariate correlation. **Results.** Among this sample, diabetes empowerment is strongly predictive of self-care activities but attitude towards diabetes is not. The relationship between self-care activities and A1C is inverse but not significant. **Conclusion.** Participants' perception of their understanding of diabetes, its treatment, and their engagement in self-care activities is high but not corroborated by their body mass index or A1C values. A1C testing, as compared to blood glucose testing, is not well understood by this sample. Patients with diabetes should receive diabetes education and this education should include frequent reinforcement of appropriate self-care activities. **Grants.** This research was funded by Nova Southeastern University Health Professions Division Research Grant.

UPP 113 2:45-3:15 P.M.

HOW DO MEDICAL STUDENTS RESPOND TO THE CONCEPT OF COMPASSION WITHOUT BEING CUED ON ITS IMPORTANCE? WHAT IS THE ROLE OF COMPASSION?

Janet Roseman, Ph.D., M.S., Assistant Professor, College of Osteopathic Medicine
Arif M. Rana, Ph.D., Ed.S., Assistant Professor, College of Osteopathic Medicine

Objective. The objective of this study is to identify medical students awareness of “patients” as human beings and to see if they were conscious of the lack of information provided that would address the patient as “human being” including lack of statistics for various cultures, removal of information on complementary medicine as well as providing medical information that was without “heart.” **Background.** The role of compassion is usually not well addressed in medical education. The authors were keenly interested in finding out how medical students would respond to the omission of pertinent patient information that would create a holistic model of a “person” including mind, body and spiritual concerns. Several scenarios of breast cancer and the use of medical informatics were presented to the participants without referring to any of the progression of the disease as anything but stages without identifiable human beings. We were especially interested in knowing if medical students would notice this blatant lack of concern. Dr. Roseman is a specialist in Spirituality and Medicine and Compassionate Care. Dr. Rana is a specialist in Biomedical Informatics and Medical Education. Both Assistant Professors share an interest in the development of humanistic physicians. **Methods.** Two presentations were given to the participants. The first half of

the presentation by Dr. Rana was on the “Role of Informatics in Detecting Breast Cancer”. The second half of the presentation was on the topic of “The Compassionate Physician” by Dr. Roseman. After the informatics section of the presentation, the 40 second year medical students were asked to fill out a brief questionnaire with 9 questions. Participation in the questionnaire was anonymous. The questionnaire was later analyzed to find out students' perceptions of whether the informatics portion of the presentation ignored cultural and compassionate aspects of case studies. **Results.** Two presentations were given to the participants. The first half of the presentation by Dr. Rana was on the “Role of Informatics in Detecting Breast Cancer”. The second half of the presentation was on the topic of “The Compassionate Physician” by Dr. Roseman. After the informatics section of the presentation, the 40 second year medical students were asked to fill out a brief questionnaire with 9 questions. Participation in the questionnaire was anonymous. The questionnaire was later analyzed to find out students' perceptions of whether the informatics portion of the program ignored cultural and compassionate aspects of case studies. **Conclusion.** We believe that most medical students are so used to scientific presentations that it is a deeply instilled philosophy that is often supported by the medical educational culture to view their patients as “their disease”. Although, medical students indicate a keen awareness of the importance of “compassion” for patients, they were not able to identify the lack of “compassion”. Results of the questionnaire from the medical students indicated the lack of identifiable cultural statistics and the purposeful lack of discussion of any integrative/complementary medicine treatments. We find this to be problematic particularly because it is not unique to the prominent model of medicine. However, we were pleased to read the humanistic themes identified by most participants relating to the importance of compassion. **Grants.** N/A

POSTER PRESENTATIONS

Atrium

Atrium - Poster 1 12:15-1:15 P.M.

ANGIOTENSIN II AND ANGIOTENSIN III INDUCE P38 MITOGEN ACTIVATED PROTEIN KINASE IN CULTURED RAT ASTROCYTES

Ahmed Alanazi, Ph.D. in Pharmacy, College of Pharmacy
Paras Patel, Entry Level P2, College of Pharmacy
Michelle A. Clark, Ph.D., Associate Professor, College of Pharmacy

Objective. In these studies, we determined whether angiotensin (Ang)II and Ang III induce p38 MAP kinase protein phosphorylation in rat astrocytes. **Background.** Previously we showed that these peptides induced phosphorylation of ERK1/2 and JNK mitogen activated protein (MAP) kinases in rat astrocytes. **Methods.** We used brainstem rat astrocytes as a model system to determine whether Ang II and Ang III induce p38 MAP kinase protein phosphorylation using western blotting techniques. **Results.** Treatment of astrocytes with increasing concentrations of both peptides caused a dose-dependent increase in p38 MAP kinase protein phosphorylation. The effects of Ang II and Ang III were maximal between 10 nM and 100 nM concentrations. The peptides effects were rapid and significant, occurring within minutes of treatment. Ang II's ability to induce this kinase was significantly different (~2x as great) as compared to Ang III, suggesting that Ang II was more potent than Ang III in this effect. Ang AT1 receptor mediated the actions of the peptides since pretreatment with losartan prevented p38 MAP kinase phosphorylation by Ang II and Ang III. In addition, blockade of Ang II metabolism to Ang III with the aminopeptidase A inhibitor, glutamate phosphonate, was ineffective in ameliorating Ang II phosphorylation of p38 MAP kinase, suggesting that Ang II directly stimulated p38 MAP kinase phosphorylation. **Conclusion.** These findings provide insight into the molecular nature of the actions of these peptides and offer possible mechanisms by which these Ang peptides physiological and possibly pathological actions occur in astrocytes. **Grants.** Funded by PFRDG grant# 335465.

Atrium - Poster 2 12:15-1:15 P.M.

DEVELOPMENT AND VALIDATION OF HPLC METHOD WITH PDA DETECTOR FOR SIMULTANEOUS QUANTIFICATION OF CO-ELUTED COMPOUNDS IN PHARMACEUTICAL SAMPLES

Lina Alaydi, Ph.D. in Pharmacy, College of Pharmacy
Alhussain Aodah, Ph.D. in Pharmacy, College of Pharmacy
Mutasem Rawas-Qalaji, B.Pharm, PhD, Assistant Professor, College of Pharmacy

Objective. To develop and validate an HPLC method for the separation and quantification of co-eluted dipivefrine, a prodrug, and its active form, epinephrine, in a standardized pharmaceutical sample. **Background.** The current USP methods for determination of individual compounds are not suitable for their detection when co-eluted. To our knowledge, there is no published analytical method using HPLC with Photo-Diode-Array (PDA) detector for the simultaneous detection of the co-eluent which is required for the development of novel dipivefrine dosage form. **Methods.** Different strengths of mobile phases were evaluated using methanol and acetonitrile. Several reversed-phase C18 and Hilic columns at various pressures and flow rates using Waters Alliance System with PDA detector were evaluated. A 2.0 mg/mL standard stock solution of each compound was prepared in 0.0015N HCL solvent. Standard calibration curves ranging from 20 - 200¼g/mL were injected and plotted for both compounds. The linearity of the injections, the reproducibility of quantification, the minimum detection limit, and the intra and inter assay variation for each compound were tested and validated. **Results.** Separation was achieved using C18 column

(3.9mm X 300mm, 10¼m) with a flow rate of 2.0 ml/min at wavelength of 254 nm at ambient temperature. (More data are being collected and will be presented in the poster). **Conclusion.** A reliable and sensitive reversed-phase HPLC method was developed and validated for the quantification of dipivefrine and epinephrine from one sample. (Project in progress, more data will be provided to confirm conclusion). **Grants.** President's Faculty Research & Development Grant FY2014.

Atrium - Poster 3 12:15-1:15 P.M.

THE EFFECT OF CURCUMIN ON IL-6 EXPRESSION OF UMBILICAL-CORD STEM-CELLS

Reem Almashat, PG-Pediatric Dentistry, College of Dental Medicine
Umadevi Kandalam, PhD, Assistant Professor, College of Dental Medicine

Objective. The objective of the present study is to investigate the regulation of IL-6 expression in curcumin induced human mesenchymal stem cells derived from umbilical cord (HUMSCs) **Background.** Studies in our laboratory have demonstrated that curcumin enhances osteogenic differentiation of HUMSCs. Interleukin (IL)-6 and its soluble receptor IL-R are reported to play an important role in osteoblast formation. **Methods.** The hUMSCs obtained from Sciencell (Carlsbad, CA) were cultured in culture medium containing low glucose Dulbecco's modified eagle medium with 10% of fetal bovine serum and 1% antibiotic and antimycotic solution at 37°C in 5% CO2. Cells in culture medium were treated with curcumin (1 µM, 2 µM and 5 µM) for 2 days, and then transferred to osteogenic medium. The cells in culture medium or osteogenic medium devoid of curcumin were used as control. After one week the expression of IL-6 were measured using quantitative PCR. **Results.** Our results demonstrated that curcumin exhibited dose dependent inhibition of IL-6 expression. However, the decrease in IL6 expression was not drastic as seen in cells treated with dexamethasone. **Conclusion.** Curcumin influences osteogenic differentiation of HUMSCs by modulating expression of IL6 and other genes such as alkaline phosphatase, osteopontin and RUNx2, OPG, through signaling cascades that are probably different from the traditionally used dexamethasone. **Grants.** HPD

Atrium - Poster 4 12:15-1:15 P.M.

INSURANCE STATUS AND HEALTH-CARE EXPENDITURES FOR ARTHRITIS IN US

Diena Almasri, Other, Other
Leanne Lai, Ph.D, Professor, College of Pharmacy

Objective. To compare the effect of insurance coverage on health-care related expenditures among patients with arthritis in the United States. **Background.** N/A **Methods.** A cross-sectional analysis was conducted. Subjects were derived from the National Medical Expenditures Panel Survey (MEPS) for those whom reported having any type of arthritis in 2009. A series of weighted univariate statistics were applied to examine patient's demographic characteristics and insurance coverage. We further employed a generalized linear regression model to compare the health-care expenditures among different insurance status. All analyses utilized SAS PROC SURVEYs' application to adjust for the complex sampling design employed by MEPS database. **Results.** There were an estimated 55.99 million arthritis patients from 2009 MEPS. It is estimated that the majority of the arthritis patients 34.9 million (62.35%) were covered by private insurance, 16.5 million (29.5%) were covered by public plans and 4.5 million (8%) were uninsured. The total medical expenditure for patients with arthritis in 2009 was $522.6 billion. Total prescription expenditures among arthritis patients were $122.1 billion. Per capita medical care expenditures among private, public and uninsured arthritis patients averaged $8,751, $12,093 and $3,730 respectively ($P<0.0001$). Also, there is a significant difference ($P<0.0001$) in the prescription expenditures among private, public and uninsured arthritis patients. Average prescription expenditure is $1982.6, $2991.6 and $748 respectively. **Conclusion.** Our findings indicate that uninsured arthritis patients had significant lower costs in total health-care expenditure than insured patients. Such underutilized situation may place uninsured people at risk of a serious disability complication. **Grants.** N/A

GROWTH POTENTIAL OF CELLS ENCAPSULATED IN DIFFERENT ALGINIC ACID SALTS

Lina Alsad, D4, College of Dental Medicine
Mudasar Mirza, Other, Other
Hossein Omidian, PhD, Associate Professor, College of Pharmacy
Umadevi Kandalam, kandalam@nova.edu, Assistant Professor, College of Dental Medicine

Objective. The objective of this study was to assess survival of cells in different salts of alginic acid. **Background.** Alginates are versatile natural polymers that are used for various biomedical applications. They also serve as scaffolds for encapsulation of cells and other labile bioactive components. **Methods.** Human osteoblast cells (CRL1427) and HeLa cells (ATCC, Manassas,VA) were cultured under standard culture conditions. Cells (1×106 cells/ml) suspended in a 1.2% (w/v) solution of sodium, potassium and triethanolamine alginates (1.2% w/v), and were extruded through a syringe fitted with 26G-needle into a solution of 100mM CaCl2 under constant stirring. The beads were collected by gravity sedimentation, and washed with phosphate buffered saline. The cell viability was measured using a colorimetric MTT assay. The data was analyzed using analysis of variance (ANOVA) and $P<0.05$ was considered statistically significant. **Results.** The percent viability of the encapsulated HeLA and CRL1427 varied with the alginate salt used. Encapsulated HeLA cells in Triethanolamine alginate showed 1.2 fold greater viability compared to cells encapsulated in sodium alginate. In potassium alginate, the cell survival was significantly increased compared to the ones in sodium alginate. However, there was no significant difference in the survival of CRL1427 cells in various alginate salts used in the study. **Conclusion.** Our studies showed that the cell viability within the alginate is cell type dependent. Furthermore, potassium or triethanolamine salts of alginic acid are promising scaffold materials for the use of various cell types, and can potentially be used for cell- based tissue engineering applications. **Grants.** HPD Grant

VALIDATION OF HPLC METHOD AND ULTRA VIOLET DETECTION FOR THE QUANTIFICATION OF ATROPINE SULFATE IN AQUEOUS SAMPLES

Alhussain Aodah, Ph.D. in Pharmacy, College of Pharmacy
Lina Alaydi, Ph.D. in Pharmacy, College of Pharmacy
Mutasem Rawas-Qalaji, B.Pharm, Ph.D., Assistant Professor, College of Pharmacy

Objective. To validate a USP HPLC method for the quantification of Atropine Sulfate (AS) in aqueous samples. **Background.** AS IM injection is the recommended antidote for management of organophosphate toxicity. We hypothesized that AS sublingual administration can result in similar pharmacokinetic profile as AS IM injection. **Methods.** An HPLC system and ultra violet detector (Perkin Elmer, MA, USA) were used for the separation and quantification of AS according to USP method for AS injection. AS stock solution (2mg/mL in water) was used to prepare several standard calibration curves ranging from 5¼g/mL to 200¼g/mL at various days to calculate the intra- and inter-assay variability. An increasing injection volumes ranging from 10¼L to 100¼L were injected to test for injection linearity. To test for method and instrument accuracy, the lowest (5¼g/mL) and highest (200¼g/mL) standards were injected 5 times. Mean, standard deviation, and relative standard deviation (RSD%) have been calculated for each validation test. **Results.** The Calibration curves were linear with a mean (SD) R2 of 0.9966±0.00085 (n=6). The RSD% (n=2) intra-and inter-assay at 5 ¼g/mL were 7.24% and 7.69%, respectively, and at 200 ¼g/mL were 0.076% and 0.83%, respectively. RSD% (n=5) of instrument and method accuracy for the lowest and highest standards (5 ¼g/mL and 200 ¼g/mL) were 3.915% and 0.359%, respectively. The instrument injection was linear with R2 of 0.99998 and the minimum detection limit was 50ng/mL with RSD% (n=5) of 0.86%. **Conclusion.** A reproducible and sensitive USP HPLC method was validated for the quantification of AS from Aqueous samples. **Grants.** This study was funded by Saudi Arabian Cultural Mission Grant

NUCLEOTIDE EXCISION REPAIR REGULATION MAY BE MEDIATED BY MIRNAS IN BREAST CANCER

Homood As Sobeai, Ph.D. in Pharmacy, College of Pharmacy
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Manasi Pimpley, Ph.D. in Pharmacy, College of Pharmacy
Mam Mboge, BS in biology, Research Associate/Instructor, Nova Southeasern University
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Stephen Grant, Ph.D, Associate Professor, College of Osteopathic Medicine
Jean Latimer, Ph.D, Associate Professor, College of Pharmacy

Objective. The overall objective of the study is to determine the mechanism of reduced DNA repair in early stage sporadic breast cancer. We are focused on finding potential microRNAs (miRs) that regulate nucleotide excision repair (NER) in breast cancer. **Background.** We have shown that sporadic stage I breast tumors exhibit deficient NER capacity relative to normal breast tissue explants. Five established, stage IV commercially available breast tumor cell lines; MDAMB-231, MCF-7, BT-20, Cama-1, and SK-BR-3, had significantly higher NER capacity compared with 17 early stage tumors. We hypothesize that the molecular mechanisms by which NER is regulated, is through miRs, a regulatory class of small noncoding RNAs that govern gene expression. **Methods.** Using MiRWalk, we found candidate miRs capable of binding to the 20 canonical NER genes. We performed Nanostring profiling for 4 established cell lines; MDA-MB-231, MCF-7, BT-20, and SK-BR-3, and 2 early stage breast cancer cell lines (JL BTL-10, JL BTL-29). We will transfect specific miRs into our cell lines to determine whether functional repair and gene expression are altered in a predictable way. **Results.** Using miRWalk, we found that miR-145 significantly binds to 4 out of the 20 canonical genes; RPAp14 ($p=0.045$), hHRAD23B ($p=0.0024$), CSB ($p=0.0006$), TFIIHp52 ($p=0.0347$). Moreover, down-regulation of miR-145 was statistically significant in 2 early stage cell lines compared to the 4 established cell lines ($p= 0.035$). **Conclusion.** MiR-145 is a promising miR by which NER may be regulated. **Grants.** PFRDG, Florida Breast Cancer Foundation, NIH/NCI and Department of Defense CDMRP

IMPROVING QUALITY OF LIFE IN A PATIENT WITH TRAUMATIC BRAIN INJURY

Surbhi Bansal, OD, Clinical Professor, College of Optometry
Alexandra Espejo, OD, FAAO, Assistant Professor, College of Optometry

Introduction. The Center for Disease Control reports that at least 1.7 million traumatic brain injuries (TBI) occur every year. In 2000, the United States incurred $76.5 billion dollars in medical and other related costs such as loss of productivity. **Case presentation.** A 44 year old Caucasian Veteran male presented with complaints of extreme photophobia, abnormal gait and mobility, and visual discomfort with prolonged near work. He had previously been diagnosed with TBI at a local VA Medical Center. Following a comprehensive eye exam, a TBI evaluation was performed. Appropriate tinted lenses were prescribed, single vision spectacles for distance and near vision were given, and vision therapy was initiated to address his binocular and accommodative deficits. **Deviation From the Expected.** Despite previous routine eye care, our patient continued to be symptomatic which profoundly impacted his quality of life. With appropriate referral and diagnostic testing, an adequate treatment plan was implemented successfully addressing his presenting complaints. **Discussion.** Typically, presbyopic patients do well with bifocal or progressive spectacles. In patients with TBI, however, these types of lenses are contraindicated secondary to possible lens distortions which may negatively impact gait and mobility. As opposed to conventional sunglasses, these patients respond to particular tint colors and densities to successfully remediate symptoms of photophobia. **Conclusion.** Interdisciplinary management and communication between all disciplines, such as neuro-ophthalmology, psychology or psychiatry, and cognitive and rehabilitation therapy is essential for the well-being of our patients presenting with TBI. **Grants.** N/A

INVESTIGATION OF FLUORIDE INTERACTION WITH THE ACTIVE SITE OF THE ENZYME MYELOPEROXIDASE USING MAGNETIC RESONANCE

Ronald Block, Ph.D., Professor, College of Medical Sciences

Objective. This study was conducted in order to determine the nature of the interaction of fluoride with the active site of myeloperoxidase. A secondary issue is to address whether fluoride could act as a means of modulating the activity of this enzyme in vivo. **Background.** Although myeloperoxidase is beneficially involved in antimicrobial and cytotoxic activities, it is also thought to be involved in causing and destabilizing cardiovascular plaques. In recent years, techniques have been developed to image myeloperoxidase in situ in plaques, and measurement of plasma concentrations of the enzyme has been suggested as a means of detecting cardiovascular disease. Since fluoride is known to be an inhibitor of myeloperoxidase, it is of interest to study the interaction of fluoride with the active site. **Methods.** In this study proton and 19F nuclear magnetic resonance as well as electron spin resonance approaches were utilized. Spin-lattice relaxation times of solvent water protons and fluoride ions were measured in the presence and absence of myeloperoxidase. Electron spin resonance spectra of myeloperoxidase were obtained in the presence and absence of fluoride. **Results.** The presence of fluoride has a minor effect on diminishing the proton relaxation rate of solvent water protons in myeloperoxidase solutions. The presence of fluoride has a dramatic effect upon electron spin resonance spectra of the enzyme causing the rhombic splitting to be reduced. **Conclusion.** These data suggest that fluoride does not block water exchange with the heme site, but diminishes the asymmetry of the charge distribution in the plane of the heme. **Grants.** NSU Faculty Research Grant.

MCA-APK(DNP) IS NOT A SELECTIVE SUBSTRATE OF ANGIOTENSIN-CONVERTING ENZYME-2

Eduardo Carrera, Other, Other
Robert C. Speth, Ph.D., Professor, College of Pharmacy
Malaika Jean-Baptiste, Other, Other
Arline Joachim, Other, Other
Andrea Linares, Other, Other

Objective. This study was conducted to ascertain the specificity of MCA-APK(Dnp) for angiotensin-converting enzyme2 (ACE-2). **Background.** MCA-APK(Dnp) is a fluorogenic substrate used in assays of ACE-2 metabolism. Cleavage of the Pro-Lys bond splits off the quenching Dnp group, allowing the MCA to fluoresce. **Methods.** Frozen rat tissues were homogenized in 19 volumes of 50 mM sodium phosphate at pH 7 with 0.05% Triton X-100 detergent and centrifuged at 48,000 x g. The supernatant was then diluted 20-fold in assay buffer for a final concentration of 50 mM sodium phosphate at pH 6, 6.5, 7, or 7.5 and 100 mM NaCl. Substrate metabolism was measured in the presence or absence of the ACE-2 inhibitor MLN-4760. 20 µL of diluted supernatant, 10 µl of 50 µM MLN-4760, and 20 µl of 125 µM substrate were added to each well for a reaction volume of 50 µL. Metabolism of MCA-APK(Dnp) was recorded at 37°C at a wavelength of 393 nm with excitation at 328 nm. **Results.** Breakdown of MCA-APK(Dnp) attributable to ACE-2 represented only 21%, 28%, 44%, and 56% of total enzymatic activity at pH 6, 6.5, 7, and 7.5, respectively. Total enzymatic activity also increased with decreasing pH. **Conclusion.** Our results suggest that MCA-APK(Dnp) is not selective for ACE-2. When using MCA-APK(Dnp) as a surrogate substrate for determination of ACE-2 activity, it is critical to use a selective inhibitor of ACE-2 activity such as MLN-4760 to differentiate ACE-2 versus non-ACE-2 mediated metabolism. **Grants.** This study was funded by NIH-NHLBI HL113905.

IMPACT OF INTERPROFESSIONAL HEALTH FAIRS ON STUDENTS' WILLINGNESS TO WORK TOGETHERON INTERPROFESSIONAL PROJECTS: IMPLICATION FOR FUTURE PRA

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Carisa Champion-Lippmann, OMS-III, College of Osteopathic Medicine
Cecilia Rokusek, Edd RD, Professor, College of Osteopathic Medicine

Objective. With increasing focus on interprofessional education, there has been an emphasis in health professions education to integrate interprofessional education throughout the curriculum. Interprofessional education is difficult given the many logistical barriers involved in coordinating the learning of several professions together. A rural-based health fair serving a large diverse population brought together students from nine health professions for a two-day health fair where students worked side by side. The interprofessional health fair is an ideal opportunity to measure the impact of underserved health fairs on students' willingness to work on interprofessional projects and future teams. **Background.** While the interest in promoting interprofessional is not new there have now been studies instituted by the Institute of Medicine on optimizing health care resources that demonstrate the importance of inteprofessional approach to health care. With widespread patient error becoming costly mistakes for hospital it became clear for the IOM that it was just as important how health care is delivered as what health care is delivered.11 With further studies established by the Agency for Healthcare Research and Quality in 2008 it quickly became clear that interprofessional health care would provide better team work and quality of health care. The passing of Recovery and Reinvestment act of 2009 and Patient Protection and Affordable Care Act of 2010 further emphasized the importance of improved interprofessional teamwork and team based care play for primary care approaches.11 The collaborative efforts of American Association of Medical Colleges, American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, Association of School of Public Health, American Association of Colleges of Pharmacy, and American Dental Education Association resulted in the development of core competencies for interprofessional collaborative practice. The core competencies are as follows: · Values/ethics for Interprofessional Practice · Roles/Responsibilities · Interprofessional Communication · Teams and teamwork11 Values/Ethics Values of ethics focuses on the emphasizing the talent and appreciating the expertise that is inherent with each profession. The most important aspect is to place the importance of the patient and population at the center of Interprofessional health care delivery. Respect for one another is an important factor in values. Respecting the patient and the health care team is the core thought process for value and ethics core competency. Roles/Responsibilities Understanding ones role in a health care team is crucial in reducing redundancies. With growing health care cost the importance of preventing redundancies from multiple different sources can be achieved by understanding the scope of one's practice. Individualizing each health care team depending on the patients need is best accomplished by understanding limitation, knowledge, and ability of each health care profession. Another important aspect is to continuously engage and provide feedback to each other to enhance team performance. Interprofessional Communication The importance of communicating with patient and other health professional in a responsive and responsible manner that supports a team approach to the maintenance of health and treatment of disease. Emphasizing the right medium for communication and having an open dialogue between health care team and patient is an important part of interprofessionalism. For effective communication having timely, sensitive feedback is important in raising performance and respect for one another. The importance of consistent communication to building a positive interprofessional working relationship is crucial in developing an efficient health professional team. Team and Teamwork Competencies The last competency ties together role and practice and communication by focusing on establishing an effective team. Integration of knowledge and establishing leadership are two major components for teamwork. As a health care team sharing accountability makes the team honest and invested. Elaborating upon the other core competencies the teamwork should be flexible and able to adapt to a variety of roles and settings. In the publishing by the Interprofessional Education Collaborative there are three steps in implementing interprofessional education; exposure, immersion, and competence.11 Exposure focuses on knowledge of each health profession and what their scope of practice is. Without exposure and understanding the second step of immersion cannot occur. With immersion comes skill in handling interprofessionalism. This step comes into play in actual clinical practice where a health professional will learn through practice how to work with and develop a health professional team. As experience levels grows competence is achieved. At this level maintaining a good relationship and continuing to foster good conflict resolution. - While institutions have invested significant effort and resource in designing interprofesional curricula, little attention has

been given to attitutdes, perceptions and practice that reproduce hierarchies amongst professions and can affect team functioning.- They go on to say that those who want to protect their identity can interfere with their ability to learn in a collaborative manner. - so do it in a way that is initated by them Context of community served - Belle Glade The rural - based health fairs serving a large underserved diverse population in central Florida brought together students from audiology, optometry, physical therapy, occupational therapy, nursing, physician assistant, pharmacy and osteopathic medicine students for a 2-day health fair where students worked side by side in fair participant interviews and screenings. The health fair is unique in its setting and provides students the opportunity to work with other health professions. In doing so students will better identify the scope of their practice and learn to work with other health professions. It further provides insights into students' readiness to work on interprofessional projects and for identifying opportunities to introduce interaction with other health care professionals on projects in a students' medical career. The overarching goal of the Reach fair is to serve the population of Clewiston and Belle Glade with the aid of various health profession students of Nova Southeastern University. Audiology, optometry, physical therapy, occupational therapy, dental, nursing, physician assistant, vascular sonography, pharmacy, and osteopathic medical students come together for a weekend to serve in a unique multicultural environment that encourages the different health divisions within Nova Southeastern University to work together. The students at the Reach fair will be given a Readiness for Interprofessional Learning Scale (RIPLS) pre test to observe his/her position on interprofessional learning while working together on projects outside of the classroom. Following the fair, the students will be given the posttest at the end to see changes in their score. With the federal Health Resources and Services Administrations' (HRSA), a division of the U.S. Public Health Services, increasing the focus on interprofessional education, there has been a new emphasis in health professions education to integrate interprofessional education and clinical experiences throughout the educational curriculum. Interprofessional education is difficult given the many logistical barriers involved in coordinating the learning of several professions together. The Reach Fair is an annual interprofessional health fair run by the health professions division students of Nova. The fairs are located in Clewiston and Belle Glade, Florida. These underserved, rural area communities have a high Hispanic population at 48.7% for Clewiston and 27.57% for Belle Glade. The interprofessional health fair serves as an ideal opportunity to measure the impact of rural, underserved health fairs on students' willingness to work in an interprofessional team. The rural- based health fairs serving a large underserved diverse population in central Florida brought together students from audiology, optometry, physical therapy, occupational therapy, nursing, physician assistant, pharmacy and osteopathic medicine students for a 2-day health fair where students worked side by side in fair participant interviews and screeings.. The health fair Is unique in its setting and provides students the opportunity to work with other health professions. In doing so students will better identify the scope of their practice and learn to work with other health professions. It further provides insights into students readiness to work on interprofessional teams and for identified needs in the health professions curriculum related to interprofessional education and practice. The measurements will be assessed using an established survey known as the Readiness for Interprofessional Learning Scale (RIPLS) developed by Parsell et al1. By providing evidence for the importance of interprofessional health fairs on enhancing future physicians' ability to work in a health care team, this research may help to demonstrate the importance of having early interprofessional team interaction in a student's medical career to improve health care delivery to patients in the future. **Methods.** Students volunteering at the health fair were given a RIPLS pretest to observe his/her position on interprofessional projects and learning. Following the fair, students were given a posttest to see changes in their score. The eighteen question survey is analyzed by three subscales: 1) team work and collaboration, 2) professional identity, and 3) roles and responsibilities. Research has indicated that these three domains are key to interprofessional collaboration, education, and planning. Qualitative data was collected as to students' attitude and knowledge of interprofessionalism. Data was examined to measure the willingness of students to work on interprofessional projects and in a health care team. The questions were on a scale of 1 to 7 with 1 being strongly disagree and 7 being strongly agree. Scores were tested for significance using the t-test for each question then combined into subcategories and tested again. The study was done across two years. The two years were compared to observe reproducibility and any factors that may have changed the outcomes. **Results.** The results showed statistically significant changes in three different aspects of the study. 1. Different Health profession 2. Subcategories 3. Year to year **Conclusion.** All aspects of the survey showed significant changes demonstrating the importance of interprofessional health fairs in encouraging future health professionals' willingness to work on interprofessional projects and in interprofessional teams. Students showed increased willingness to work in a team and understood the impact it may have on patient care. The participants better understood professional identity and their role in a greater capacity. With promising trends in all aspects of the study the importance of early interactions with other health care professions in interprofessional projects is emphasized. **Grants.** N/A

DENTISTS RECOMMENDATIONS TO INCREASE SEALANT PREVALENCE IN FLORIDA'S CHILDREN

Jordana Contrucci, D3, College of Dental Medicine

Objective. To examine dentists' recommendations to increase sealant prevalence in Florida's children. **Background.** Dental caries, the most common childhood disease, when left untreated can lead to serious health consequences. Despite evidence on its effectiveness to reduce carious lesions, dental sealants are the most underutilized preventive measure. Less than 15% of Floridian children received any type of preventative dental services in 2010, including dental sealants. **Methods.** For this cross-sectional study, a 25-item self-administered pre-tested survey was distributed to the general and pediatric dentists attending the 2013 Florida National Dental Convention (FNDC). SAS statistical software was used to conduct descriptive statistics. **Results.** 163 dentists completed the survey. The most common recommendation to increase sealant prevalence was parental education campaigns (80%), followed by television and newspaper advertisements (42%), enhanced reimbursement for Medicaid patients (38%), school-based sealant programs (35%), clear guidelines for sealant placement (26%), formal training for dental assistants (26%), more research on sealant effectiveness (25%), formal training in sealant application for themselves (20%), and more trained dental hygienists (16%). **Conclusion.** Majority of the surveyed dentists believed educating parents through campaigns and advertisements will increase sealant prevalence in Florida. Despite existing evidence on sealant effectiveness and evidence based clinical guidelines for sealant placement; at least one fourth of responding dentists still indicated a need for the same. **Grants.** This study was funded by Nova Southeastern University Health Professions Division Research Grant.

ATTITUDES & BEHAVIORS TOWARDS SMOKING POLICIES OF THE ELDERLY LIVING IN LOWINCOME MULTI-UNIT HOUSING

Nicole Cook, Ph.D., Doctor of Philosophy in Epidemiology, Assistant Professor, College of Osteopathic Medicine
Lucas Hollar, Ph.D., Doctor of Philosophy Public Administration, Assistant Professor, College of Osteopathic Medicine
David Quinn, M.P.H., Other, Other
Summer Jones, OMS-IV, College of Osteopathic Medicine

Objective. This study was conducted to understand smoking practices, exposure to second-hand smoke and support for smoke-free multi-unit housing (SFMUH) policies in public housing and low-income senior properties. **Background.** Involuntarily, residents of multi-unit housing complexes may be exposed to higher levels of secondhand smoke due to building factors. Implementing smoke-free housing policies may be effective in reducing second-hand smoke exposure; thereby improving health related mortality and morbidity. **Methods.** Seniors living in 16 large (>50 units) low-income apartment complexes in Broward and Miami-Dade counties, Florida were surveyed between March 2013 and September 2013. **Results.** Smoking prevalence among senior, low-income residents is lower than the county smoking rate (9% vs. 14%). More than 30% of residents reported SHS in their unit. Overall, the majority of residents support no-smoking policies: 75.2% support no-smoking policies for individual units; 76.8% support no-smoking policies in common areas (such as hallways, laundry room, lobbies) and 67.9% support no-smoking policies in outdoor areas such as courtyards. **Conclusion.** Overall, 76% of residents support indoor SFMUH policies (79% common areas, 71% outdoor policies.) Results suggest overwhelming support for SFMUH policies, among both smokers and non-smokers. Survey results contributed to 15 properties adopting smoke-free policies as of October 1, 2013. At least 15 smokers in these properties are currently attending smoking cessation programming. Follow-up surveys will take place beginning summer 2014. **Grants.** Made possible with funding from the Centers for Disease Control and Prevention through funding Grant Award #: U58DP003661.

Atrium - Poster 14 12:15-1:15 P.M.

TREATMENT PLAN OF DISCOLORED SINGLE CENTRAL INCISOR. UNDERSTANDING THE DECISION MAKING PROCESS.

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Eman Ismail, PG-Operative Dentistry, College of Dental Medicine
Luana Oliveira Hass, Ms, PhD, Clinical Assistant Professor, College of Dental Medicine
Patrick Hardigan, PhD, Professor, College of Health Care Sciences

Objective. To compare clinical decision-making of NSU dental school faculty, postgraduate, and undergraduate when presented with a discolored single central incisor scenario and reasons of making their choices. **Background.** Many clinicians consider the matching of a discolored single central incisor one of the most challenging procedures in restorative dentistry. The patient's aesthetic expectations are normally very high and the final result is heavily dependent on the dental technician. **Methods.** : A survey with clinical scenario of discolored single central incisor was randomly presented to NSU dental school members. Participants were given four clinical pictures, periapical X-Ray, description of clinical scenario, and were asked to choose and/or suggest treatment-plan and reasons why they based their choices **Results.** 165 responses were generated (51 faculty, 62 postgraduate and 52 undergraduate). 60.7% faculty reported more than 15 years of clinical experience and 51.6% postgraduate less than 5 years. Eleven treatment-plan options were suggested: Porcelain veneer #8 (26.06%), porcelain crown #8 (21.81%), porcelain veneers #8 and 9 (18.18%), whitening and direct composite (16.36%), porcelain veneers #6, 7, 8, 9, 10 and 11 (9.69%); porcelain crowns #8 and 9 (6.06%), other (1.84%). The two most important factors taken into consideration during the decision-making process were: patient high esthetic expectations (51.5%), conservative dentistry approach (37.5%), other (11%). No statistical difference was found between groups. **Conclusion.** Treatment recommendations of discolored single tooth demonstrated lack of consistency in regards to treatment-planning. For all groups, the more aggressive treatment plan options were attributed to patient high aesthetic expectations and recommended by less experienced professionals. **Grants.** None

Atrium - Poster 15 12:15-1:15 P.M.

CANDIDATE INTERVIEW EXPERIENCE USING SIMULATION

Marti Echols, PhD, Assistant Professor, College of Osteopathic Medicine
Heather McCarthy , DO, Assistant Professor, College of Osteopathic Medicine
DeYoung Adam , OMS-II, College of Osteopathic Medicine

Objective. The objective of the research was to provide applicants an opportunity to give feedback on the overall interview experience and to determine if the simulation experience would impact their decision to attend NSU-COM. **Background.** Prior to the 2012-2013 admissions season, the medical education dept was approached by Drs. Packer & Thomas to complete a hands-on interactive experience during the candidate's interview day. Drs. Echols, McCarthy & Hill determined that this would be a good an opportunity for an educational research project. Does the simulation experience impact their decision to attend NSU-COM? **Methods.** The Med Ed Dept faculty created a survey asking a number of questions about the interview experience at NSU-COM. All applicants to NSU-COM were provided a copy of the survey to complete at the end of the interview day. The survey was optional for applicants to complete. The survey data was collected by a peer mentor who turned them in to Med Ed. **Results.** Preliminary Conclusions: " Three-quarters of candidates (75.29%) had been on other admissions interviews prior to NSU-COM, while 24.14% of candidates had not. " More than half of all candidates (64.05%) had no experience with simulation prior to their visit to NSU COM. " Nearly all candidates (98.04%) had a chance to work with other candidates as a result of the simulation experience. " Nearly all candidates (99.02%) learned about NSU COM from the simulation experience. " Nearly all candidates (95.98%) found the simulation positively impacted their decision to choose NSU COM as their medical school. " As a result of this experience, nearly all candidates (96.21%) reported that NSU COM has moved up on their choice of medical school **Conclusion.** As a result of this experience, there is considerable data to support continuing the simulation experience as part of the interview day. There is also good information about the best part of interview day as well as suggestions on how to improve it. This data should be summarized and presented to the admissions committee prior to the start of another admission season
Grants. Funding provided for this research from the American Association of Colleges of Osteopathic Medicine

INTERNET-BASED INSTITUTIONAL ANTIMICROBIAL STEWARDSHIP PROGRAM RESOURCES IN LEADING AMERICAN ACADEMIC MEDICAL CENTERS

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Alexander Heyliger, P4, College of Pharmacy
Xavier Thompson, P4, College of Pharmacy
Timothy Gauthier, Pharm.D., Assistant Professor, College of Pharmacy

Objective. This study investigates the prevalence and characteristics of publicly accessible web-based resources offered by institution-based antimicrobial stewardship programs (ASPs). **Background.** Challenges related to the management of patients with infectious diseases has produced increased interest in ASPs. **Methods.** The list of University HealthSystem Consortium (UHC) members was selected for analysis as a representation of the leading academic medical centers. Internet searches were performed to identify the existence of hospital and health-system web pages dedicated to ASPs. Websites were reviewed noting the presence of the following characteristics: ASP personnel involved, program description, hyperlinks to external resources, antibiogram, institution-specific clinical pathways/guidelines, formulary restriction policies or procedures, parenteral to oral conversion protocol, and dose optimization. The content was considered "comprehensive" when a program description accompanied resources for at minimum, three ASP elements. **Results.** The UHC membership list analysis produced 407 hospitals for evaluation. Of these, 29 (7%) were found to have online ASP resources through 24 unique websites. Fourteen (48%) of these were appraised as comprehensive. A general program description was available on 18 (75%) sites. Pharmacist and physician involvement was noted by 16 (67%) and 15 (63%) websites, respectively. Half of the websites provided an antibiogram or listed external hyperlinks related to antimicrobial use. Fourteen (58%) provided the list of restricted antimicrobial agents. Dosing recommendations and clinical pathways/guidelines were provided by 15 (63%) and 13 (54 %) sites, respectively. **Conclusion.** Publicly accessible web-based resources provided by ASPs of UHC hospitals exist in limited numbers and vary in structure and content. **Grants.** No grants were received.

DIFFERENTIAL RESPONSE OF ANGIOTENSIN II ON INTERLEUKIN-6 MRNA EXPRESSION IN SPONTANEOUS HYPERTENSIVE AND NORMOTENSIVE WISTAR RATS ASTROCYTES

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Michelle Clark, PhD, Associate Professor, College of Pharmacy

Objective. To determine if Angiotensin (Ang) II differentially affects Interleukin-6 (IL-6) mRNA levels in astrocytes isolated from Spontaneous Hypertensive rats (SHR) as compared to normotensive Wistar rats. **Background.** Ang II is an effector peptide of the renin angiotensin system that mediates hypertension. It is also a key hormone, growth factor and proinflammatory molecule. IL-6 is a multifunctional cytokine known to mediate inflammatory responses in the body. Ang II has been shown to induce IL-6 secretion from various cell types. In IL-6 knockout mice, Ang II-mediated hypertension is decreased, suggesting a link between Ang II-mediated hypertension and IL-6 expression. **Methods.** Astrocytes isolated from SHR were used as a genetic hypertension model to examine the effect of Ang II on central IL-6 mRNA expression. These results were compared to astrocytes isolated from normotensive Wistar rats. Astrocytes cultured from cerebellum (CB) and brainstem (BS) regions of the rat brain were treated with 100 nM Ang II time-dependently, and IL-6 mRNA expression measured using quantitative polymerase chain reaction (qPCR). **Results.** Ang II induced IL-6 mRNA expression in CB and BS astrocytes of both Wistar and SHR rats. However, Ang II's ability to induce IL-6 mRNA expression was greater in Wistar astrocytes as compared to SHR astrocytes at most time points examined. **Conclusion.** Our findings suggested that in the SHR, the IL-6 pathway may be dysregulated and may represent a nonclassical pathway by which Ang II may contribute to hypertension in this hypertension model **Grants.** This study was supported by PFRDG grant # 335889.

GENDER DIFFERENCES INFLUENCE IMMUNE RESPONSE IN LOCALIZED AGGRESSIVE PERIODONTITIS

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Hong Huang, Other, Other
Patricia Gonçalves, Ph.D., Research Associate/Instructor, University of Florida College of Dentistry
Ikramuddin Aukhil, M.S., Professor, University of Florida College of Dentistry
Shanonn Wallet, Ph.D., Associate Professor, University of Florida College of Dentistry
Luciana Shaddox, Ph.D., Associate Professor, University of Florida College of Dentistry

Objective. The purpose of this study was to investigate whether females (F) are at a higher risk for localized aggressive periodontitis (LAP) than males (M) **Background.** Our group has previously reported studies on high local inflammatory markers, and systemic hyper-inflammatory response to bacterial endotoxin in patients with localized aggressive periodontitis (LAP). Because 67% of our LAP cohort is composed of females, the purpose of this study was to investigate whether females (F) are at a higher risk for LAP than males (M) by assessing the disease severity as well as local and systemic inflammatory response in patients with LAP. **Methods.** A cohort of 82 African-American participants (27 M and 55 F) were diagnosed with LAP included in this study. Peripheral blood samples and gingival-crevicular-fluid (GCF) from diseased and healthy sites were collected. Whole blood was stimulated with ultrapure P.gingivalis (Pg) and E.coli (Ec) LPS for 24h. Fluorescence kits were used to detect and quantify 14 cyto/chemokines in GCF and serum. **Results.** No significant differences were observed between M and F for clinical parameters and for the majority of cyto/chemokines analyses. Significant differences between GCF from healthy and diseased sites were found in M for IL1², IL10 and MIP1± and in F for IL1², IL6, and IL10 ($p < 0.05$). Additionally, F presented higher Pg induced levels of Eotaxin and Ec induced levels of eotaxin, IFN³, and IP10. Unstimulated levels of IL6 in the serum were also higher in F ($p < 0.05$). **Conclusion.** Although no differences were found between the genders in local inflammatory response and the severity of clinical parameters of LAP in this cohort, females presented a higher systemic inflammatory response to LPS than males. **Grants.** Supported by NIH/NIDCRR01DE019456

ELEVATED EXPRESSION OF NUCLEOTIDE EXCISION REPAIR GENES UPON RELAPSE OF ACUTE LYMPHOCYTIC LEUKEMIA

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Omar Ibrahim, Other, Other
Homood As Sobeai, Other, Other
Jean J. Latimer, Ph.D., Associate Professor, College of Pharmacy

Objective. The overall goal of this project is to assess the role of Nucleotide Excision Repair (NER) in pediatric Acute Lymphocytic Leukemia (ALL) relapse using genomic methods. We hypothesize that ALL relapse in the patient, after a period of remission driven by primary chemotherapeutic treatment with genotoxic chemotherapy agents, will show increased expression of NER genes and therefore increased capacity for repairing DNA damage. **Background.** Deficiencies in NER genes are responsible for the hereditary cancer-prone diseases xeroderma pigmentosum and Cockayne syndrome, and we have previously demonstrated functional and molecular alteration of this pathway in breast cancer. **Methods.** We performed a detailed analysis of gene expression microarray data from 41 matched primary and relapsed pediatric ALL samples from colleagues in the Netherlands. We analyzed expression data for the 20 canonical NER (a.k.a. “long-patch” DNA repair) genes. **Results.** Our findings demonstrate that 18 of the 20 genes studied had higher expression in the relapsed samples ($P = 0.003$). Six genes showed an individual significant increase in gene expression, CCNH ($P = 0.020$), DDB1 ($P = 0.026$), CSA ($P = 0.033$), ERCC1 ($P = 0.015$), hHRAD23B ($P = 0.039$), and CDK7 ($P = 0.012$), with two additional genes very close to statistical significance, XPB ($P = 0.094$) and RPAp70 ($P = 0.080$). **Conclusion.** These data are similar to what we have found in breast tumors of increasing stage, and are consistent with the idea that relapsing neoplastic disease is inherently capable of greater DNA repair, resulting in functional drug resistance. **Grants.** This work was supported by a grant from the National Children's Leukemia Research Association to JJL.

MODULATION OF THE CANNABINOID-1 RECEPTOR BY ANGIOTENSIN II IN ASTROCYTES ISOLATED FROM SPONTANEOUSLY HYPERTENSIVE RATS

Dhanush Haspula, Ph.D. in Pharmacy, College of Pharmacy
Michelle Clark, PhD, Associate Professor, College of Pharmacy

Objective. To determine whether a mediator of neuroprotection, the Cannabinoid Type 1 receptor (CB1R), is altered by Angiotensin (Ang) II in astrocytes. **Background.** Along with an elevated Ang II level, neuroinflammation in the brainstem (BS) has been shown to shift the balance towards an augmented sympathetic drive, the latter being associated with hypertension. Astrocytes play a central role in the bidirectional modulation of inflammation **Methods.** BS astrocytes isolated from Spontaneously hypertensive rats (SHR) were used as a hypertension model to determine whether Ang II induces CB1R protein and mRNA expression. The results were compared to normotensive Wistar rats. The cells were treated with 100nM Ang II in a time-dependent manner, and the effect of Ang II on CB1R protein and mRNA levels were measured using Western blotting and qt-PCR techniques, respectively. **Results.** In Wistar astrocytes, Ang II raised the CB1R protein and mRNA levels in a time-dependent manner. In SHR astrocytes, Ang II down-regulated or had no effect on CB1R protein and mRNA levels. Compared with Wistar astrocytes, the CB1R protein and mRNA levels in SHR astrocytes were significantly different. **Conclusion.** Our findings suggest that the CB1R is differentially regulated in SHR versus normotensive astrocytes. Further experiments would be conducted to determine whether this modulation has a neuroinflammatory component. These experiments may reveal a potential target to restore an elevated sympathetic drive in hypertension. **Grants.** This study was funded by the President's Faculty R & D Grant (Grant#335309) from Nova Southeastern University.

EVALUATION OF 30-DAY READMISSION RATES AND DISCHARGE MEDICATION MANAGEMENT IN HEART FAILURE AND NON-ST-ELEVATION MYOCARDIAL INFARCTION

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Larisa Ruiz-Serrano, P4, College of Pharmacy
Marta Miyares, PharmD, Assistant Professor, University of Miami

Objective. The purpose of this investigation is to evaluate the care provided to heart failure (HF) and non-ST-elevation myocardial infarction (NSTEMI) patients by a group of hospitalists at a large academic affiliated tertiary care center, and relation to 30-day readmissions. **Background.** HF and NSTEMI diagnoses are two of the most common causes of hospitalization and readmissions. Reimbursement is tied to management according to guidelines established for these disease states, and also to readmission rates. **Methods.** Four hospitalist services managing HF and NSTEMI patients were retrospectively evaluated April 2013 to June 2013. Discharge medications, insurance, readmissions, and length of stay were gathered to evaluate quality of care. A scoring system validated at another academic medical center was used to investigate readmission rates and whether a similar relationship existed. All institutional review board procedures were followed. **Results.** Thirty-five HF and thirty-five NSTEMI diagnoses were identified. 77% of HF patients received guideline directed therapy (GDT) and 14% were readmitted within 30 days. GDT was provided to 43% of the NSTEMI group, no readmissions identified. Appropriate documentation was found in 64% of HF diagnoses and 60% of the NSTEMI diagnoses. No relationship was identified regarding the scoring system and 30-day readmissions for this study. **Conclusion.** Most patients received GDT upon discharge. Initiatives for standardization of documentation, investigation with a larger sample size and a longer time period are areas of opportunity. Development of a validated hospital-specific tool would be valuable. Continual involvement of pharmacy students in such initiatives may be beneficial. **Grants.** None

SUCCESS OF A MULTIDISCIPLINARY DISEASE MANAGEMENT PROGRAM IN LONG TERM SYSTOLIC HEART FAILURE CARE

Elyse Julian, OMS-III, College of Osteopathic Medicine
Kathy Hebert, MD, MPH, MMM, Clinical Professor, University of Miami

Objective. The aim of this study was to evaluate the use of a standardized protocol in a heart failure disease management program (HFDMP) to improve medical adherence, blood pressure control and vaccination rates among patients with systolic heart failure. **Background.** Heart failure (HF) is becoming a major public health problem with a 1-year mortality rate that ranges from 28% in the youngest patients with minimal co morbidities to 61% in the oldest population with high risk factors. In spite of new diagnostic and therapeutic tools, the prognosis for a new diagnosis of heart failure is still poor. In an effort to reduce the morbidity, mortality, and economic cost of HF, several organizations, including the American College of Cardiology and the European Society of Cardiology have developed evidence-based HF management guidelines. **Methods.** We conducted a cross sectional study that included 561 patients, (56% Hispanic, 4.5% non-Hispanic Caucasian and 39% non-Hispanic African American), who were enrolled from September 2007 to January 2009 into a HFDM at the Jackson Memorial Hospital (JMH), an urban 1600 bed safety-net hospital, in Miami, Florida. The inclusion criteria were age e 18 years with systolic heart failure defined as ejection fraction d 40% by echocardiography. Medical adherence, blood pressure control and immunization state were assessed at baseline and follow up visits. **Results.** At baseline 82% of Hispanics, 75% of White and 79% of Black patients were taking ACEI/ARB. The percentage of White and Black patients taking ACEI/ARB increased over the four visits. There was also a significant difference in comparing baseline to fourth visit in Hispanic patients for the total dose ($p=0.002$) and target dose ($p <0.001$) for beta blocker therapy. Patients enrolled in the HFDMPs with untrolled BP experienced a significant decrease in their BP levels and those whose BP was under control at baseline remained within JNC VII recommendations throughout the study. The baseline prevalence of vaccination against influenza and pneumococcal disease was 28.3% and 30.7% respectively. Within the mean follow up period of 2- 4.6 months between the first and second visit to the HFDMP, vaccination prevalence improved for both influenza (50.4%) and pneumococcal disease (65.5%) with the combined prevalence improving to 60.5%. **Conclusion.** Enrollment into the HFDMP was effective in improving medical adherence, in achieving better blood pressure control and in increasing immunization prevalence without creating disparities.
Grants. N/A

THE CYTOTOXIC EFFECTS OF POLYVINYL ALCOHOL ON HELA CELL MODEL

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Srinath Muppalaneni, Ph.D. in Pharmacy, College of Pharmacy
Hossein Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The objective of this study was to investigate the cytotoxic effects of different concentrations of this cryogel hydrogel on HeLa cells. **Background.** Polyvinyl alcohol (PVOH) is a synthetic hydrophilic linear polymer with unique properties such as water-retention, hydrophilicity, biodegradability, mechanical stability, and capability of forming a 3D structure, allowing its safe use in many biomedical applications **Methods.** Cryogel hydrogels were prepared from PVOH (Mw 124-186K, 99% hydrolyzed) solutions (3, 5, 8, and 10 wt%) subjected to two freeze-thaw cycles of freezing (4 hrs @ -10oC) followed by thawing (2hrs @ 25oC). HeLa cells (a cervical cancer cells) grown in 24 well plate at 20 ×104 were exposed to 50mg of sterile PVOH cryogels. Cell survival was estimated after 48hr of incubation at 37°C in 5% CO2. The survival of cells exposed to cryogels was compared to that of the cells without hydrogel treatment. The cytotoxic effect of the hydrogel was assessed by determining the viability of the cells using MTT- a mitochondrial assay. **Results.** The cells exposed to hydrogel displayed excellent viability in all concentrations. Slight decrease in the number of cells grown in the presence of 5% gel was insignificant compared to that of control or at any other concentrations. **Conclusion.** Results showed that PVOH cryogels of this study are not cytotoxic, and have the potential to be used in cell-based therapy, however further studies are needed to evaluate the cell survival in a 3D environment. **Grants.** The research was supported by PFRDG

CELL BASED MODEL FOR STUDYING THE REGULATION OF HUMAN ANGIOTENSINOGEN GENE.

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Syed AA Rizvi, PhD, Assistant Professor, College of Pharmacy
Rais A Ansari, PhD, Assistant Professor, College of Pharmacy

Objective. To address the underlying mechanism of increase in blood pressure and fibrotic transformation of liver by studying the regulation of AGT after ethanol exposure using cell based model. **Background.** Alcohol usage is linked to increased blood pressure and fibrotic transformation of the liver. Angiotensin II (Ang II), an octapeptide, is involved in blood pressure regulation and fibrotic transformation of the liver due to ethanol mediated death of hepatocytes. Ang II is produced from its precursor, AGT, by sequential action of renin followed by angiotensin converting enzyme. The blood AGT levels are less than the Michaelis-Menten constant (Km) of renin. Therefore, an increase in blood AGT levels would result in a corresponding increase in Ang II levels that might play crucial role in blood pressure regulation and fibrogenic activity. Increasing the AGT copy number in transgenics increases blood pressure by 8 mm Hg/copy and increased blood AGT levels are observed among hypertensives. Moreover, alcohol metabolism by the liver produces acetaldehyde by alcohol dehydrogenase and reactive oxygen species (ROS) by CYP2E1. Increased ROS mediated oxidative stress activates hypoxia inducible transcription factor-1alpha (HIF-1alpha). In addition, alcohol-mediated hepatic injury results in immune responses, where the levels of interleukin(IL)-1beta and other cytokines become elevated. IL-1beta and acetaldehyde activate nuclear factor-kappa B (NF-kB) transcription factor. Due to lack of alcohol metabolism by hepatocytes, these transcription factors can be activated by treatment of hypoxia mimetics and relevant cytokines to study human AGT gene regulation. **Methods.** In addition to regular HepG2 which loses alcohol metabolism after several passages, a variant of HepG2 with stably expressing alcohol dehydrogenase (ALD) and Huh7 cell lines were used to study the alcohol mediated effects on AGT. To mimic HIF-1alpha and NF-kB activation, hypoxia mimetics and NF-kB activators were employed to investigate the effects on AGT secretion with normal hepatocytes. HepG2 and Huh7 hepatocytes were treated with deferoxamine (60nM and 120 nM), cobalt chloride (10nM and 20 nM), IL-1beta (10 ng/ml) and phorbol 12-myristate 13-acetate (PMA) (50 ng/ml) respectively for 4 and 12hrs. The HepG2 expressing ALD were exposed with 25, 50, and 100 mM ethanol for 4 hrs. After treatments, effects on AGT secretion were studied by western blotting. **Results.** It was observed that alcohol metabolism by HepG2 stably expressing alcohol dehydrogenase caused increased secretion of AGT. Moreover, deferoxamine, cobalt chloride, IL-1beta and PMA treatment also increased the secretion of AGT. Huh7 cells were less sensitive compared to HepG2 cells with HIF-1alpha and NF-kappaB mediated activation of human AGT. **Conclusion.** It is concluded that cell based model can be employed to study the human AGT regulation by alcohol metabolism as well as HIF-1alpha and NF-kappaB activation.
Grants. HPD Grant

ARE GRADUATE RECORD EXAMINATION SCORES PREDICTIVE OF SUCCESS ON THE PHYSICIAN ASSISTANT NATIONAL CERTIFICATION EXAMINATION?

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Jeffrey Alexander, PhD, Associate Professor, AT Still University
Denice Curtis, DHSc, DDS, MPH, Adjunct Professor, AT Still University
Richard Davis, EdD, MS, PA-C, Professor, College of Health Care Sciences

Objective. To determine if there was a correlation between Graduate Record Examination (GRE) scores and Physician Assistant National Certification Examination (PANCE) scores of Nova Southeastern University PA Program Southwest Florida and Fort Lauderdale graduates, and if GRE scores were predictive of success on the PANCE. **Background.** PA programs receive more than twice the number of applicants per seat in their programs making it essential that PA programs choose the candidates for admission that are most likely to succeed. The GRE is the most widely utilized standardized test for PA admissions. A review of the literature reveals studies are inconclusive as to the predictive value of GRE scores in graduate school. There is a paucity of PA-specific research regarding the validity of the GRE in PA education. **Methods.** Data were acquired from archival records (N = 655) of the classes of 2007 through 2011 from the two PA programs. Data were analyzed via a Kolmogorov-Smirnov test, a Mann Whitney U Test, Spearman's Rank Correlation Coefficients, and logistic regression. Statistical significance

was set at $p < 0.05$. **Results.** There were significant correlations for all sections of the GRE with PANCE scores. Significant differences were found in the GRE verbal scores of those who passed the PANCE and the GRE verbal score significantly predicted passing of the PANCE on the first attempt. **Conclusion.** GRE scores correlate with passing the PANCE and are relevant as a means of screening for the candidates most likely to succeed during the admissions process of PA educational programs. **Grants.** None

Atrium - Poster 26 12:15-1:15 P.M.

THE EFFECTS OF MODIFIED COMPLETE DECONGESTIVE THERAPY STATUS POST DESMOID TUMOR SURGICAL EXCISION WITH SUBSEQUENT LEFT UPPER EXTREMITY LYMP

Kunkel Kevin, Phd, MSPT, MLD-CDT, Assistant Professor, College of Health Care Sciences

Introduction. Traditional treatment for Breast Cancer Related Lymphedema involves the use of Complete Decongestive Therapy (CDT) to remove excessive interstitial fluid from the involved limb by utilizing adjacent watershed or drainage regions. However, in this case, after undergoing bilateral mastectomy and reconstruction, the patient later developed an axillary desmoid tumor on the affected side. This required extensive surgical dissection of ipsilateral additional axillary lymph nodes, removal of 75% of the pectoral muscle, removal of multilevel ribs with graft and proximal posterior thorax graft host site. This, along with extensive thixotrophy made traditional lymphatic drainage methods ineffective. An alternative methodology was developed to address her impairments.
Case presentation. The subject was a 66 year old women diagnosed with breast cancer in 2006. She underwent chemotherapy in 2007 followed by axillary lymph node removal. She then continued chemotherapy along with radiation therapy. Following 2 weeks of successful treatment for lymphedema, the patients experienced increased pain and increasing edema. She was referred back to her Oncologist who found and the desmoid tumor was surgically excised. In October 2010 she developed additional lymphedema one month after the tumor was removed. She also had impairments in her left UE including pain, loss of range of motion, decreased strength, advanced thixotrophy resulting in limitations in her ability to perform daily living and work activities. **Deviation From the Expected.** Because drainage through the axillary watersheds was limited, the CDT intervention was modified to use the watersheds in the neck and back. Due to extensive thixotrophy, high pressure manual therapy was used and she wore 4 layers of short stretch with compressive pads under 20-30 mmhg compression sleeves during her home exercise regime. Compression required use of ribbed cotton padding rather than foam due to irritation of skin. Scar mobilization and myofascial release to the pectoral region with chest wall expansion exercises as well as shoulder rotator cuff and scapular strengthening exercises were performed. The patient also joined Crossfit (an elite strength and core condition gym chain)and aggressively continued with a home exercise regime while wearing her compression garment. **Discussion.** The modification of traditional CDT with the addition of an intense exercise regime was successful in decreasing edema and pain while increasing strength and range of motion. Addressing the orthopedic and soft tissue deficits along with the edema was imperative for the long term success of this patient outcome. **Conclusion.** The aggressive exercise regime did not exacerbate the edema but effectively assisted in the tissue mobility and function of the arm. The limitation of Medicare's benefit to 2 weeks or 10 days for CDT forced the patient into self pay for continues CDT but did cover the therapy intervention for the other impairments. **Grants.** None

Atrium - Poster 27 12:15-1:15 P.M.

THE SOMATIC DYSFUNCTIONS CORRELATED WITH WEIGHT BEARING AND LEG LENGTH INEQUALITIES

Andrew Kusienski, D.O., Assistant Professor, College of Osteopathic Medicine
Yasmin Qureshi, DPT, MPT, MHS, Assistant Professor, College of Osteopathic Medicine
Julie Bemski, OMS-III, College of Osteopathic Medicine
John Luksch, D.O., Guest Lecturer, Rowan University School COM/Kennedy Hospital
Lacy Knowles, D.O., Guest Lecturer, Baton Rouge Medical Center

Objective. To investigate whether somatic dysfunctions (SDs) of the pelvis, sacrum and lumbar spine are correlated with weight bearing (WB) and leg length discrepancies (LLD) between the lower extremities (LEs).
Background. LLD and WB asymmetry may contribute to the development of SDs in the pelvis, sacrum and lumbar spine. There is minimal literature to identify the specific SDs that can lead to a LLD or WB discrepancies.
Methods. 98 participants were enrolled in the study. The participants' leg lengths were measured with a measuring

tape and WB was assessed through each LE using a specialized quadruped scale. **Results.** The most common pelvic dysfunction is a superior shear (25%) where the most common sacral dysfunction was a left on left sacral torsion (34%). There was a significant association between right anterior innominate rotation dysfunctions and WB ($p = 0.02$). A higher percentage of patients with a right anterior innominate dysfunction WB more on their left (45%) than on their right (27%) or neither (27%). Participants with right anterior innominate dysfunctions, exhibited a shorter leg when measured in supine on the left. Furthermore the participants with a left superior shear exhibited a left shorter leg in supine, $p=0.05$. For sacral SDs, participants with a left on left sacral torsion tended to exhibit a shorter left leg in standing, $p=0.02$. **Conclusion.** Osteopathic physicians performing an osteopathic structural examination on health individuals can expect that specific pelvic and sacral SDs may exist with expected minor leg length discrepancies. Furthermore, certain SDs may exist with specific WB differences through the LEs. **Grants.** none

Atrium - Poster 28 12:15-1:15 P.M.

AUDITORY STEADY STATE RESPONSE FALSE NEGATIVE AND FALSE POSITIVE RATES

Lachelle Lazarus, AUD-2, College of Health Care Sciences
Teri Hamill, Ph.D., Professor, College of Health Care Sciences

Objective. The objective of the study is to establish the false positive and false negative rates when stimulating one ear with no stimulation to the other while conducting Auditory Steady State Response (ASSR) testing using the Bio-logic MASTER, and to determine whether a minor increase in activity level affects the error rates. **Background.** The auditory steady state response (ASSR) is a test that assesses hearing of children too young to take other forms of testing. It involves monitoring neural signals generated when the sound is heard. On occasion, the test will falsely report a sound as heard when it is not or lack of hearing when the sound is heard. **Methods.** Normal-hearing subjects are used for this study. The effect of frequencies presented by the Bio-logic and the state of the subject is examined to determine the influence of these factors on the false results. **Results.** The false negative rates are statistically significant for both effects of frequency presented and state of the patient. The false positive rates showed no main effects. **Conclusion.** One would expect a false positive rate of 5% when testing a normal subject with the earphone not coupled to the ear. The rate of false positives during this study was found to be significantly higher (Chi-square = 16.4, df=1, $p<.001$). This supports the findings that false reports of normal hearing occur more often than one would anticipate. The false negative rate found in this study adds to existing literature. **Grants.** N/A

Atrium - Poster 29 12:15-1:15 P.M.

INHIBITION OF ANGIOTENSIN-CONVERTING ENZYME-2 (ACE-2) ACTIVIT AND RADIOLIGAND **BINDING OF A PUTATIVE ACE-2 INHIBITO**R

Andrea Linares, Other, Other
Eduardo Carrera, Other, Other
Robert C. Speth, Ph.D., Professor, College of Pharmacy

Objective. This study was conducted to test the efficacy of novel ACE-2 inhibitor JFS101. **Background.** A potent inhibitor of ACE-2 (MLN-4760) was developed, but then abandoned when it became clear that ACE-2 metabolizes angiotensin II (Ang II) to form Ang 1-7. We developed a radioiodinizable analog of MLN-4760 (JFS101) that would more closely mimic Ang II. **Methods.** Both the uniodinated and monoradioiodinated as well as the S,S versus the S,R analogs were tested for their ability to inhibit ACE-2 metabolism of an artificial ACE-2 substrate (MCA-APK[Dnp]) using recombinant human ACE-2 (rhACE-2) and for their ability to bind to ACE-2 in rat lung and kidney membranes. **Results.** The S,S isomer of JFS101 inhibited rhACE-2 in the nanomolar range and was 5-10% as potent as MLN-4760. The S,R isomer inhibited rhACE-2 activity in the low micromolar range. Radioligand binding assays using 125I-JFS101 (S,S isomer) revealed a high level of binding to lung and kidney membranes; however, less than 10% of this binding was displaceable by 1 µM MLN-4760. In contrast, 2 mM EDTA inhibited ~80% of total binding at 3-35 nM 125I-JFS101. **Conclusion.** The EDTA displaceable 125I-JFS101 binding was not saturable, suggesting that the KD of 125I-JFS101 for lung membranes is >> 35 nM. The inability of MLN-4760 combined with the ability of EDTA to inhibit 125I-JFS101 binding suggests that 125I-JFS101 is not selective for ACE-2, but that it does bind to another metallopeptidase. **Grants.** This study was funded by NIH-NHLBI HL113905.

PROMOTING CULTURAL COMPETENCY IN PHYSICAL AND OCCUPATIONAL THERAPY STUDENTS THROUGH A COLLABORATIVE COMMUNITY BASED SERVICE LEARNING ACTIVITY

Bini Litwin, PT DPT PhD MBA, Associate Professor, College of Health Care Sciences
Nicole Quint, Dr OT, OTRL, Assistant Professor, College of Health Care Sciences

Objective. The purpose of this activity is to promote cultural competency in physical and occupational therapy students through a community based collaborative service learning activity that also enhances understanding of the roles of the respective disciplines as they provide health screens to an underserved population. This enables students from both disciplines to practice clinical skills in field conditions, fostering collaboration and mutual respect for strategies utilized in screening adult and pediatric participants that are primarily African American and Caribbean Black. **Background.** As an activity that is integrated into cultural competency curriculum for physical and occupational therapy students, the screenings seek to enhance student understanding of the impact of cultural diversity on access to, and delivery of health care as well as to enable students to identify how physical and occupational therapy clinicians can actively promote change related to cultural diversity issues. The students volunteer for the Sistrunk Festival with the intent of improving their cultural competence abilities through completing patient screenings. **Methods.** Health screening by the physical and occupational therapy academic programs are provided to those attending a festival honoring James Sistrunk, the first African-American physician in the greater Fort Lauderdale community. Screens are conducted by physical (PT) and occupational therapy (OT) students, and supervised by faculty in an outdoor pavilion adjacent to festival activities. Screens include: blood pressure and posture (PT) and pediatric development (OT). Health and wellness educational materials are distributed, with referrals for follow up as indicated. Following the activity, PT and OT students reflect on their experience and submit a journal/assignment in which they consider how the experience enhanced their understanding of the population served, including healthcare practices and beliefs, and how this activity promotes their understanding of diverse populations. **Results.** This activity has been conducted for the past 6 years in partnership with Sistrunk Festival community organizers. It has been seen as a benefit to the community as well as to the students participating by promoting cultural competency and enhancing interdisciplinary collaboration. On average, 50-60 participants/year are screened, with abnormal findings generally noted in five to six of those screened, who are then referred for follow-up. Additionally, student journals and reflective papers note challenges presented to think outside the box when performing in a non-structured laboratory environment. Perhaps, most importantly, students perceive enhanced skills relied on to communicate, inform and provide a service to a population that often displays a belief system different from their own concerning health and wellness. **Conclusion.** This community partnership activity provides an opportunity for students to collaborate across disciplines through a mutual commitment to serving the needs of an underserved population, while promoting greater awareness of the challenges of working in a non-laboratory or clinical setting. The outcomes support the APTA (American Physical Therapy Association Committee on Cultural Competence, 2008) Blueprint for Teaching Cultural Competency in Physical Therapy Education commitment to develop cultural competence in the PT profession, as well as the AOTA Code of Ethics supporting beneficence and social justice (AOTA, 2010; American Occupational Therapy Association Advisory Opinion for the Ethics Commission, 2011). **Grants.** N/A

ASSESSMENT OF OPTOMETRY STUDENTS VERSUS OTHER HEALTH PROFESSIONAL STUDENT AWARENESS OF THE CLASSIFICATION OF CONTACT LENSES AS MEDICAL DEVICES (CCLAM) STUDY

Jessica Luu, OD-4, College of Optometry
Heidi Wagner, O.D., Professor, College of Optometry

Objective. This study was conducted to compare first and second year optometry students' baseline knowledge of contact lenses as a medical device to that of other health professional students. **Background.** Contacts lenses are worn to correct vision, enhance visual function, and for cosmetic reasons. It is important that contact lens wearers are aware that contact lenses are considered a medical device and should not be worn without first seeking guidance

from an eye care provider. **Methods.** For this study a one-time survey was administered to both optometry and other non-optometry health professional students. A six to seven question survey (branched logic) was created. The designated link for each group was posted to each health professional's Facebook (Menlo Park, CA) group with a brief paragraph explaining the survey. Data was collected with SNAP software (Portsmouth, NH). **Results.** The optometry group had similar baseline knowledge that contact lenses with prescription are a medical device (82% versus 88%) and less baseline knowledge that contact lenses without a prescription are a medical device (12% versus 46%) as compared to the other students. Twelve percent of the optometry group and six percent of the other students reported purchasing lenses without a prescription. **Conclusion.** Understanding heath professional student awareness of contact lenses as medical devices can be important in how we educate our students and how they in turn educate their future patients. Further efforts are needed to educate the public that decorative contact lenses are medical devices that require a prescription. **Grants.** N/A.

Atrium - Poster 32 12:15-1:15 P.M.

MODIFICATION OF THERAPEUTIC GLYCOPROTEINS THROUGH SPECIFIC ENZYMATIC OXIDATION

Wael Mahdi, Ph.D. in Pharmacy, College of Pharmacy
Young Kwon, Ph.D, Assistant Professor, College of Pharmacy

Objective. To develop a method for chemical modification of glycoproteins by using galactose oxidase. **Background.** Despite growing interest in therapeutic biologics, there still are unmet needs in optimal delivery. Conjugation of other functional entities to therapeutic proteins has potential to change their disposition and increase efficacy. Among biologics, glycoproteins represent significant portion and often contain significant amount of terminal galactoses, which can be specifically modified to offer better control of biological activities. **Methods.** Using tPA as a model glycoprotein, two chemical modification schemes are compared using well-known thiolating agents: 1) Random modification through primary amino groups on lysines. tPA was treated with 5~10-fold molar access of N-Succinimidyl 3-(2-pyridyldithio) propionate (SPDP); and 2) enzymatic oxidation of terminal galactose by using galactose oxidase/horseradish peroxidase, followed by adding 3-[2-pyridyldithio] propionyl hydrazide (PDPH). The resulting thiolated tPAs were further conjugated with thiolated oligoanions, followed by ion-exchange chromatography. Enzyme activities of the conjugates were determined using indirect chromogenic assay with/without protamines to evaluate degrees of reversible control of enzyme activities. **Results.** Method 1 resulted in 2-3 thiolations/tPA whereas Method 2 resulted in ~1 thiolation/tPA. In both cases, retention of enzyme activity was ~95% of native tPA. Protamine treatment resulted in ~55% inhibition of tPA activity in Method 1 whereas ~90% inhibition was observed in Method 2. Upon removal of protamine by heparin, enzyme activities were fully recovered in both cases. **Conclusion.** Site-specific modification though enzymatic oxidation offered a superior control of enzyme activity of tPA. **Grants.** This work was supported in part by HPD Research Grant.

Atrium - Poster 33 12:15-1:15 P.M.

PDK1 PARTICIPATES IN THE CHAPERONE-MEDIATED RESCUE OF THE POLARITY COMPLEX ATYPICAL PKC IN INTESTINAL EPITHELIA.

Anastasia Mashukova, Ph.D., Assistant Professor, College of Medical Sciences
Radia Forteza, Ph.D., Assistant Professor, University of Miami
Pedro Salas, Ph.D., Professor, University of Miami

Objective. Atypical protein kinase C (aPKC) has a well-established role in the development of epithelial polarity. This study was conducted to determine the identity of the kinase responsible for rephosphorylation of aPKC activation domain after chaperone-mediated rescue from degradation. **Background.** To become active and fully functional in the cell all PKC family members need to acquire a special active conformation, which is achieved through phosphorylation. This phosphorylation is necessary not only for newly synthesized molecules, but also for kinase molecules that become dephosphorylated and need to be refolded and rephosphorylated. This “rescue” mechanism is responsible for the maintenance of the steady-state levels of aPKC. There is consensus that phosphoinositide-dependent protein kinase 1 (PDK1) is the activating kinase for newly synthesized PKC molecules.

We have hypothesized that PDK1 is involved in rescue rephosphorylation in addition to its role in activating newly synthesized aPKC. **Methods.** To test our hypothesis we inhibited protein synthesis and analyzed the stability of the remaining aPKC pool in the cells where function of PDK1 was abolished with specific inhibitors or by shRNA-mediated knockdown. **Results.** PDK1 knockdown and application of two different PDK1 inhibitors destabilized the pool of active aPKC. PDK1 coimmunoprecipitated with aPKC in cells without protein synthesis, confirming that the interaction is direct. In addition, we showed that PDK1 aids the rescue of aPKC in in vitro rephosphorylation assays. **Conclusion.** PDK1 is the kinase that rephosphorylates aPKC after chaperone-mediated rescue and refolding in polarized epithelial cells. **Grants.** This work was supported by NIH Award R01DK087359 to Pedro Salas.

Atrium - Poster 34 12:15-1:15 P.M.

ETHANOL DOSE DUMPING AND RHEOLOGY OF ABUSE-DETERRENT EXTRACTS

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Yogesh Joshi, Ph.D. in Pharmacy, College of Pharmacy
Arghavan Kariman, Entry Level P2, College of Pharmacy
Hossein Omidian , Ph.D., Associate Professor, College of Pharmacy

Objective. The goal of this research was to determine the ability of three pharmaceutical polymers (hydroxypropylcellulose, polyethylene oxide, Carbopol 940) to maintain a high viscosity in hydroalcoholic solutions under different rates of mixing. **Background.** Abuse-deterrent formulations often contain materials which form a gel or highly viscous liquid when in contact with water or hydroalcoholic solutions. Increase in viscosity and gelling is done to prevent the drug from rapidly being released (dose dumping) and also prevent the product from being dissolved and drawn-up into a syringe. Evaluation of polymers for this purpose have not been extensively tested over a range of alcoholic concentrations and mixing (shear rates). **Methods.** Continuous shear rheometry was performed using a Wells-Brookfield cone-and-plate rheometer. Measurements were taken with an attached cone of radius 2.4 cm, and cone angle of 0.8 at a constant temperature. Polymer solutions (2% w/v) were subjected to increasing shear rates ranging from 37.5 to 1425 sec-1 to generate individual rheograms. **Results.** Carbopol 940 and polyethylene oxide displayed higher viscosities at shear rates close to that of slow mixing and stirring (10-100 sec-1) but displayed significant loss of viscosity at higher shear rates. Comparatively, hydroxypropylcellulose displayed extremely low viscosities over all shear rates. However, all solutions showed higher viscosities in hydroalcoholic solutions (5-20% v/v) than water. **Conclusion.** The effectiveness of pharmaceutical polymers for abuse deterrence in hydroalcoholic solutions appears to be dependent on the ethanol concentration and shear rate. **Grants.** Funding for this project was provided by NSU's grants # 335867 and 335489

Atrium - Poster 35 12:15-1:15 P.M.

TISSUE DIELECTRIC CONSTANT (TDC) MEASUREMENTS AT 300 MHZ AS A METHOD TO CHARACTERIZE LOCALIZED TISSUE WATER IN ARMS OF WOMEN WITH AND WITHOUT BREAST CANCER RELATED LYMPHEDEMA

Harvey Mayrovitz, PhD, Professor, College of Medical Sciences

Objective. To compare tissue dielectric constant (TDC) values between lymphedematous and non-lymphedematous tissue. **Background.** Quantitative measurements to early detect breast cancer (BC) treatment-related lymphedema (BCRL) can aid clinical evaluations. Earliest BCRL changes likely occur in skin and subcutis and might be detected via local skin-tissue water (LTW) changes assessed by TDC measurements at 300 MHz. **Methods.** TDC measurements were made in both forearms (2.5 mm depth) of three groups of women (80 subjects per group); 1)healthy women with no BC (NOBC), 2)women with BC but with TDC measurements made prior to their surgery and 3)women with unilateral lymphedema (LE). **Results.** Except for affected arms of the LE group, measured TDC values for all other arms were on average close to each other, ranging (mean±SD) between 24.8±3.3 to 26.8±4.9. Contrastingly, TDC values for the LE affected arms were 42.9±8.2 which was significantly greater than all other arm TDC values ($p<0.001$). Arm TDC ratios, dominant/non-dominant for NOBC, were 1.001±0.050 and at-risk/contralateral for BC were 0.998±0.082 with both significantly less ($p<0.001$) than LE group affected/control arm ratios (1.663±0.321). **Conclusion.** TDC values, used as an index of local tissue water, show that breast cancer

per se does not significantly change arm tissue water and also shows that the presence of BCRL does not significantly change local tissue water of non-affected arms. Further, based on the standard deviation of measured arm TDC ratios, an at-risk arm/contralateral arm TDC ratio between 1.165 and 1.200 is suggested as a possible threshold to detect pre-clinical lymphedema. **Grants.** NONE

Atrium - Poster 36 12:15-1:15 P.M.

INTER-ARM SYSTOLIC BLOOD PRESSURE (IASBP) DIFFERENCES IN YOUNG ADULTS

Harvey Mayrovitz, PhD, Professor, College of Medical Sciences
Francis Brlit, OMS-III, College of Osteopathic Medicine
Rebecca Desfor , OMS-III, College of Osteopathic Medicine

Objective. To test the hypothesis that IASBP differences do not differ between right hand (RH) and left hand (LH) dominant persons and determine the dependence of IASBP differences on gender, total body water and fat, arm fat, arm muscle mass and arm local tissue water (LTW). **Background.** Prior reports have documented IASBP differences among various subject groups but the role of handedness has not been systematically examined. **Methods.** Bilateral paired-simultaneous systolic (SBP) and diastolic (DSP) blood pressures were measured in triplicate in 75 mostly young adults (39 female, 36 male, 30 LH and 45 RH). Average age (±SD) was 27.7±9.3 years. Body composition parameters were measured with bioimpedance and LTW estimated by tissue dielectric constant (TDC) values at 1.5 and 2.5 mm depths on forearms and biceps. **Results.** SBP and DSP were greater for males vs. females (124.6±12.9/74.9±8.7 vs. 109.2±10.1/68.2±9.5, $p<0.001$) but within gender, dominant vs. non-dominant arm pressures were not different and were unrelated to body composition parameters. Average absolute IASBP differences (5.0±4.2 mmHg) did not differ with respect to handedness being 5.2±4.4 mmHg for RH and 4.8±3.8 mmHg for LH, $p=0.447$. Absolute IASBP differences for all measurements (n=225) were >= 5 mmHg in 48.9% of measurements, >= 10 mmHg in 16.4% and >= 15 mmHg in 2.7%. These percentages did not depend on gender, handedness, or body composition parameters. **Conclusion.** Handedness, gender and body composition appear not to be important determinants of IASBP differences in young adults. However, it is noteworthy that IASBP differences greater than 10 mmHg occur 16.4% of measurements. **Grants.** None

Atrium - Poster 37 12:15-1:15 P.M.

SEQUENTIAL PATTERN CHANGES IN TISSUE DIELECTRIC CONSTANT (TDC) TO ASSESS LOCAL SKIN-TO-FAT WATER CHANGES IN WOMEN TREATED FOR BREAST CANCER

Harvey Mayrovitz, PhD, Professor, College of Medical Sciences
Daniel Weingrad, M.D., Guest Lecturer, Cancer Healthcare Associates
Lidice Lopez, P.A., Guest Lecturer, Cancer Healthcare Associates
Luiza Capriolla, P.T., Guest Lecturer, Healing Hands of Lymphatics

Objective. To assess the utility of sequential TDC measurements to characterize temporal changes in skin-to-fat tissue water as a potential way to detect lymphedema in its earliest stages. **Background.** Non-invasive quantitative measurements useful for early detection of breast cancer (BC) treatment-related lymphedema (BCRL) are needed. Earliest BCRL changes may occur in skin and subcutis and might be detectible via local skin-tissue water (LTW) changes assessed by TDC measurements at 300 MHz. **Methods.** Bilateral TDC measurements were made in forearms, biceps, axilla and lateral thorax of 80 women treated for unilateral BC. Also, whole arm water was assessed via bioimpedance. All 80 women were evaluated prior to their surgery (month 0) and followed for up to 24 months post-surgery with 35 evaluated at 3, 6, 12, 18 and 24 months post-surgery. **Results.** Forearm TDC values monotonically decreased with increasing depth at all months. At-risk (A) and control side (C) ratios (A/C) were near 1.00 at month 0 and showed a peaking at forearm and thorax at 6-months post-surgery but was sustained through 24 months only at thorax. Axilla TDC values showed a minimum at 6-months that was also sustained through 24 months. There was no significant change in whole arm A/C bioimpedance ratio at any month. At 24 months post-surgery, 23% of patients exceeded an A/C threshold ratio of 1.20 at thorax compared to 8.2% at forearm and 8.8% for the bioimpedance. **Conclusion.** TDC side-to-side ratios at the lateral thorax emerge as the most likely and sensitive parameter for potentially detecting early BCRL. **Grants.** None

Atrium - Poster 38 12:15-1:15 P.M.

ACETAMINOPHEN RELEASE FROM POLYVINYL ALCOHOL CRYOGEL PLATFORMS

Srinath Muppalaneni, Ph.D. in Pharmacy, College of Pharmacy
David Mastropietro, Ph.D. in Pharmacy, College of Pharmacy
Hossein Omidian, PhD, Associate Professor, College of Pharmacy

Objective. The main objective of this study was to characterize release profile of a water soluble drug model from polyvinyl alcohol (PVOH) cryogels made at different polymer concentrations and thicknesses. **Background.** PVOH is a hydrophilic linear polymer, and its aqueous solutions can form a gel when exposed to repeated freeze-thaw cycles. The cryogels prepared as such possess unique mechanical, elastic and swelling properties which can be applicable for pharmaceutical and biomedical applications. **Methods.** Aqueous PVOH solutions were prepared by dissolving the polymer in deionized water at 90oC under mechanical mixing. Acetaminophen (10mg/g), a water soluble drug model was dissolved in two different PVOH solutions (5 and 10 wt%), and the corresponding cryogels were prepared by subjecting the solutions to two freeze-thaw cycles of freezing at -10oC for 4 hr and thawing at 25oC for 2 hr. Acetaminophen release from the cryogels was evaluated using a USP dissolution apparatus type II @ 37±20C and 50rpm, and a UV-Visible spectrometer @243nm. **Results.** After six hours, the amount of acetaminophen released from 2.4mm, 3.6mm and 4.8mm cryogel slabs were found to be 100, 80 and 50%, respectively. Difference in acetaminophen release from cryogels with same thickness prepared at different polymer concentrations was found statistically insignificant. Acetaminophen-loaded cryogels also swelled in the dissolution medium, which suggests a diffusion-controlled mechanism for the drug release. **Conclusion.** Drug release from a PVOH-based cryogel can successfully be controlled by varying the cryogel dimensions, so that an immediate to controlled release profiles can be achieved when a water-soluble drug such as acetaminophen is loaded into such platform. **Grants.** NSU grants# 335867 and 335489

Atrium - Poster 39 12:15-1:15 P.M.

MANAGEMENT AND TREATMENT OPTIONS IN INFANTILE ESOTROPIA: A CASE STUDY

Nicholas Onken, O.D., Guest Lecturer, College of Optometry
Rachel Coulter, O.D., Clinical Professor, College of Optometry

Introduction. Management options for infantile esotropia abound and research has yet to identify the most optimal approach for treatment. Diagnosing these patients is not hard yet understanding how best to manage them with such inconclusive research can be daunting for any clinician. **Case presentation.** This case demonstrates the natural history of infantile esotropia in one patient and discusses the current treatment options. **Deviation From the Expected.** Research of common treatment options of infantile esotropia has revealed no clear optimal treatments of the condition. Variability in the response to treatment is typical. **Discussion.** This patient displayed first an intermittent, alternating esotropia with onset at around 6 months of age, which then progressed under observation to a constant strabismus of a much larger magnitude. Patching was started to attempt to equalize fixation and address any amblyopia. Spectacles were not prescribed due to the low amount of hyperopia and little impact that they had on the strabismus when trial framed. No stereopsis was able to be elicited from the patient. This patient is a candidate for muscle surgery as a result. **Conclusion.** Infantile esotropia has not proven to respond equally to every treatment, evidenced in the difficulty of identifying one or a few consistent, optimal treatments. This case demonstrates the management of one case of infantile esotropia which may provide some insight into the continued discussion on the treatment of this type of strabismus. **Grants.** This study was not funded by any grants.

THE RELIABILITY OF THE DIAGNOSIS OF THORACIC OUTLET SYNDROME

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Wendy Song, D.O. PGY I, Guest Lecturer, Beth Israel Medical Center
Ron McInnis, MEd, RDMS, RVT, RT, Assistant Professor, College of Health Care Sciences
Matthew Denson, OMS-III, College of Osteopathic Medicine
Tara Nowhaktar, OMS-IV, College of Osteopathic Medicine
Lindsay Lacorte, D.O., M.P.H PGY II, Guest Lecturer, Good Samaratin Hospital
Heather McCarthy, D.O., Assistant Professor, College of Osteopathic Medicine

Objective. This study assessed the reliability of the special tests used to diagnose thoracic outlet syndrome (TOS) by comparing them with Doppler ultrasound (US). **Background.** TOS refers to a condition of obstruction of the subclavian vessels and brachial plexus. This results in a classic presentation of numbness and weakness in the upper extremity (UE). The underlying cause of compression due can be identified clinically with 3 special tests. Using US, blood flow velocity changes, alludes to the subclavian artery being narrowed. **Methods.** 31 participants were entered into the study. They had the three special tests performed on them, while a sonographer concurrently used US to evaluate blood flow velocity through the subclavian artery. **Results.** Left Adson's exhibited 42% agreement with Doppler. Right Adson's test depicted slightly better agreement at a 52% agreement with a Kappa coefficient of 0.064. Left Halstead's test demonstrated a 48% agreement and a Kappa of 0.053. Halstead's test on the right UE rated 42% in agreement with a Kappa of -0.029. Left Wright's test exhibited 32% agreement with a Kappa of -0.254. Right Wright's test performed the best at a 68% agreement with Kappa at 0.23. **Conclusion.** The special tests utilized in clinical practice to diagnose TOS demonstrate poor reliability when compared to blood velocity changes on US. It may be that the condition of TOS, since symptoms and compression can be intermittent and related to poor posture, does not compress on the subclavian artery enough to actually alter the pulse intensity unless in severe cases. **Grants.** President's Faculty Research and Development Grant 2011-2012

ABSORPTION OF TASTE-MASKED RAPIDLY-DISINTEGRATING SUBLINGUAL EPINEPHRINE TABLETS FOR PEDIATRIC USE FOR THE TREATMENT OF ANAPHYLAXIS

Mutasem Rawas-Qalaji, Ph.D., Assistant Professor, College of Pharmacy
Ousama Rachid, Ph.D., Lecturer, University of Manitoba
F Estelle Simons, M.D., Professor, University of Manitoba
Keith Simons, Ph.D., Professor, University of Manitoba

Objective. to evaluate the sublingual (SL) bioavailability of E 30mg as a potential pediatric dose from RDSTs in comparison with IM E 0.15 mg from the EpiPen Jr. **Background.** Epinephrine (E) is life-saving treatment for anaphylaxis in community settings and E auto-injector (E-autos) are routinely prescribed. We developed rapidly-disintegrating sublingual tablets (RDST) of E as a potential alternative dosage form. **Methods.** RDSTs containing E 30mg were manufactured by direct compression. Dissolution was evaluated in vitro using our validated apparatus and method (AAPS PharmSciTech 2011;12(2):544-52). We studied the rate and extent of E absorption from the RDSTs in our validated rabbit model (n=5) using a parallel-dose design. The positive control was IM E 0.15mg from an EpiPen Jr. The negative control was a placebo RDST. Blood samples were collected at frequent intervals and E concentrations were measured using HPLC with electrochemical detection. **Results.** RDSTs resulted in total in vitro release of E within 60sec. The mean±SEM maximum plasma concentration (Cmax) of 16.7±1.9ng/mL at a peak time (Tmax) of 21min after SL E 30mg did not differ significantly ($p>0.05$) from the Cmax of 18.8±1.9ng/mL at a Tmax of 36min after IM E 0.15mg in the thigh. The Cmax of both doses was significantly higher than the Cmax of 7.5±1.7ng/mL of endogenous E after placebo. Area under the curves (AUC) after SL E 30mg RDST, placebo RDST, and EpiPen Jr were significantly different. **Conclusion.** These taste-masked RDSTs containing E 30 mg dose are suitable for Phase I studies in humans. **Grants.** No financial or in-kind support for this study was provided by any corporate sponsor.

EFFECT OF PARTICLES SIZE ON EPINEPHRINE SUBLINGUAL DIFFUSION FOR THE POTENTIAL FIRST-AID TREATMENT OF ANAPHYLAXIS: IN VITRO AND EX VIVO STUDY

Mutasem Rawas-Qalaji, B. Pharm, Ph.D., Assistant Professor, College of Pharmacy
Annette Losada, P3, College of Pharmacy
Belacryst Mendez, P3, College of Pharmacy

Objective. To evaluate the in vitro and ex vivo diffusion of epinephrine microcrystals (Epi-MC) from our rapidly disintegrating sublingual tablets (RDSTs). **Background.** Epi 0.3 mg IM injection in the thigh is the drug of choice and the only available dosage form for the treatment of anaphylaxis in community settings. Previously, we showed that Epi 40 mg from RDST is bioequivalent to 0.3 mg IM Injection in our validated rabbit model. We hypothesized that substantial reduction in Epi particles size would significantly enhances its sublingual diffusion. **Methods.** Epi-MC were prepared by top-down technique using LV-1 Microfluidizer. RDSTs were manufactured by direct compression using our previously developed and published formulation. The in vitro and ex vivo diffusion of Epi 10, 20, and 40 mg RDSTs, and Epi-MC 10, 20 mg RDSTs (n=4) through dialysis and excised sublingual porcine mucosal membranes respectively, were evaluated using Franz cells. Epi 10 mg solution was used as a control. **Results.** Mean (SD) JAUC0-90 of diffused Epi, Jmax, and Epi influx (J) from Epi 40 mg RDSTs (484,185±29,656µg/cm2/min, 7,508±569µg/cm2, 234±100µg/cm2/min, respectively) and Epi-MC 20 mg RDSTs (402,852±55,299µg/cm2/min, 6,727±736µg/cm2, 172±50µg/cm2/min, respectively) were not significantly different in vitro ($p>0.05$). Mean (SD) JAUC0-90 of diffused Epi, Jmax, and Epi influx (J) from Epi 40 mg RDSTs (264,556±182,820µg/cm2/min, 4,796±2,988µg/cm2, 106±82µg/cm2/min, respectively) and Epi-MC 20 mg RDSTs (211,369±116,025µg/cm2/min, 3,527±1,755µg/cm2, 91±55µg/cm2/min, respectively) were not significantly different ex vivo ($p>0.05$). **Conclusion.** The Epi-MC RDSTs improved Epi diffusion two-fold and have the potential to reduce the bioequivalent dose of sublingually administered Epi by 50%. **Grants.** This study was funded by the Health Professions Division Grant and the President's Faculty Research & Development Grant, Nova Southeastern University.

NUTRITION COUNSELING PRACTICES IN THE EYE CARE SETTING

Kimberly Reed, O.D., FAAO, Associate Professor, College of Optometry
Diana Shechtman, OD, FAAO, Associate Professor, College of Optometry

Objective. The primary aim of this project was to ascertain eye care practitioners' current trends regarding nutritional counseling for patients, and to identify potential barriers to its widespread practic. A secondary goal was to increase awareness of the need for nutritional counseling for patients with various ocular conditions, including age-related macular degeneration (AMD), glaucoma, diabetes and related eye disease, dry eye syndrome/ocular surface disease, and cataracts. **Background.** Type II diabetes mellitus (DM) is another urgent public health concern; it is estimated that currently, 40% of U.S. adults is either diabetic or "pre-diabetic." If current trends continue, that number may reach 50% by the year 2020. The cost of caring for diabetic patients is estimated to reach $500 billion annually by that time. Since Type II DM is nearly entirely a preventable illness, it is essential that every member of the health care delivery team participate in measures to reduce the incidence of this disease. Further, it is well-established that the incidence and severity of diabetic retinopathy are closely linked not only to blood sugar control, but also to other nutritional factors such as vitamin D insufficiency and deficiency. Cataract removal is one of the most prevalent surgical procedure performed in the U.S. today (AHRQ.gov http://www.hcup-us.ahrq.gov/reports/statbriefs/sb86.jsp), representing a large proportion of health care dollars. Non-invasive interventions - including body weight management, smoking cessation, limiting UV exposure, and appropriate nutritional intake - have the potential to delay the onset and/or severity of cataracts. (separate sheet reference list) PLUS our 20 It is clear that the connection between sub-optimal nutrition and an increased prevalence of ocular disease is well-established in the literature. Despite the impressive volume of scientific literature in these, informal data suggest that many eye care providers do not routinely discuss this important aspect with their AMD patients (10,21), and even when vitamin supplements are recommended by eye care providers, patients with AMD often do not understand the importance of such supplementation (13). Far fewer practitioners discuss the connection between nutrition and glaucoma with their patients. Perhaps more importantly, much data supports the preventative benefit of adequate nutrient intake in these

and other ocular conditions, in addition to the potential use of nutrition and supplementation in complementing traditional medical therapy once patients have developed the disease. Unfortunately, the frequency of patient education efforts for those individuals who may be at risk for the development of many age-related conditions is likely even less than for patients who are already diagnosed. **Methods.** A link to an anonymous, web-based survey instrument was sent to 35,000 eye care practitioners who had email addresses registered with the Jobson Group's Review of Optometry publications. The survey instrument (Figure 1) was designed and adminstered on Nova Southeastern University's proprietary Opinio® software, after obtaining IRB exemption for the work. The survey remained open for 12 months. A total of 636 responses were captured and analyzed. **Results.** 83% of doctors surveyed make nutritional recommendations at least some of the time to their patients. Primary factors influencing the decision to counsel or not counsel include medical history, family history, smoking status, and age. Recommendations for omega-3 fish oil supplementation for dry eye patients is the most common counseling achieved in the optometric practice, while recommendations for patients with macular degeneration, glaucoma, diabetes, and hypertension are less frequent. Barriers to not counseling patients are many, but the primary influence is a lack of understanding and information for the practitioner to feel competent in making such a recommendation. **Conclusion.** Optometrists need better access to trustworthy information and education regarding the potential benefit of nutrition and lifestyle counseling and ocular disease. A lack of understanding and knowledge is a significant barrier to optometrists routinely making these recommendations in clinical practice. **Grants.** This study was supported in part by an HPD Research grant.

Atrium - Poster 44 12:15-1:15 P.M.

DIFFERENTIAL DIAGNOSIS OF PIGMENTED CHOROIDAL LESIONS

Kimberly Reed, O.D., FAAO, Associate Professor, College of Optometry
Alexandra Espejo, O.D., FAAO, Assistant Professor, College of Optometry

Introduction. Pigmented lesions of the choroidal layer of the eye are challenging to diagnose, yet proper identification is critical due to the potential life-threatening risk of malignant melanoma. Lesions that appear benign may in fact be primary or secondary malignancies, while lesions that initially appear ominous are benign. This poster will present two different cases of pigmented posterior segment lesions along with a strategy for differential diagnosis, management, and follow up. **Case presentation.** Case 1 is a 65 YO WM with a 25 year history of heavy smoking presenting for routine care. A raised suspicious lesion was detected in the posterior pole of one eye. The lesion was evaluated by a retinologist and was diagnosed as a choroidal nevus. The patient was remanded to yearly follow up. Case 2: A 61 YO HF presented for routine care with complaints of blurry vision in both eyes, with a past history of laser vision corrective surgery in one eye. Examination of the fundus showed a pigmented lesion involving 60% of the posterior segment in the left eye, and a similar but smaller lesion in the right eye. Ultrasonography revealed that both lesions were moderately elevated with high acoustical signaling. An Optical Coherence Tomography (OCT) analysis showed unusual contouring of the posterior segment in the left eye, with moderate thickening of the peri-macular space in the right eye. The patient was referred for a retina consult, but due to financial constraints the appointment was not immediately scheduled. **Deviation From the Expected.** Case 2 presents with very large basal diameter lesions in the absence of visual symptoms. Typical growth would involve not only the basal dimension but also a dramatic increase in apical height. Case 1 presented with an expected basal and apical size relationship, yet the lesion was deemed to be benign. **Discussion.** Analysis of pigmented posterior segment lesions should include an evaluation of size, height, presence or absence of drusen, lipofuscin, subretinal fluid, and associated disruptions to adjacent tissues' structure and function. Ancillary testing may include OCT, ultrasonography, visual field analysis, fluorescein angiography, photography, and possibly CT and/or MRI in certain cases. A discussion of prevalence of malignant lesions is included, along with a review of the Collaborative Ocular Melanoma Study (COMS). **Conclusion.** A careful approach to diagnosis of pigmented posterior segment lesions is essential for proper management and follow up. Improperly managed malignant melanoma can results in catastrophic vision loss, loss of independence, and death. **Grants.** N/A

Atrium - Poster 45 12:15-1:15 P.M.

EVALUATION OF VARIABILITY BETWEEN INTRAVENOUS COLISTIN THERAPY INVESTIGATIONS IN CURRENT LITERATURE

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Hoda Masmouei, P4, College of Pharmacy
Gloria Huh, P4, College of Pharmacy
Timothy Gauthier, Pharm.D, Assistant Professor, College of Pharmacy

Objective. To evaluate inconsistencies regarding colistin publications. **Background.** Due to the progression of antimicrobial resistance, colistin is being used more in clinical practice; however, discrepancies in data reporting have led to much confusion. **Methods.** Scopus and PubMed databases were accessed August 28, 2013. Queries incorporated the following limits: publication date between January 1990 and July 2013, human subjects, English language and abstract available. Keywords used were: colistin and colistimethate. Publications not reporting original research or outcome data for a cohort of adult patients who received intravenous colistin treatment were excluded. **Results.** Electronic queries provided 2,021 studies and 51 met inclusion criteria. Studies originated from 21 unique countries, with the United States and Greece being most frequent. The study medication was referred to as colistin, CMS (colistimethate sodium), and CBA (colistin base activity) in 25, 16, and 6 studies, respectively. Articles reporting colistin used IU or mg 88% of the time while 2 did not report units. For articles reporting CMS, 10 used IU and 5 used mg. Variability was present for comorbidity indices employed, nephrotoxicity definitions, and mortality endpoints. APACHE II was most frequently measured (n=33). Nephrotoxicity and mortality rates ranged from 0% to 57% and 20% to 62%, respectively. **Conclusion.** Extensive variability exists between studies of intravenous colistin from across the globe, complicating translation of outcomes into usable data for making clinical decisions. Future investigations of this nature must address such barriers to produce results pertinent to global health in this era of bad bugs, no drugs. **Grants.** N/A

Atrium - Poster 46 12:15-1:15 P.M.

CHARACTERISTICS OF PRIMARY LITERATURE FOCUSED ON ANTIMICROBIAL STEWARDSHIP FROM JANUARY 2000 TO MARCH 2013

Melissa Santibanez, P3, College of Pharmacy
Melissa V. Veulens, P3, College of Pharmacy
Tatiana Jenistova, P3, College of Pharmacy
Timothy P. Gauthier, Pharm.D., Assistant Professor, College of Pharmacy

Objective. This project was conducted to describe characteristics of primary literature on antimicrobial stewardship (AS) to better understand the state of research on this topic. **Background.** Antimicrobial resistance, infection control measures, and the scarcity of new antimicrobial agents are important to nations worldwide, sparking global interest in AS. **Methods.** A PubMed search of the term “antimicrobial stewardship” was conducted in 6/2013 with these filters: abstract available, human species, English language, and publication range 1/1/2000-3/31/2013. Publications not reporting AS intervention outcomes were excluded. Collected data included basic identifiers in addition to publication year, journal professional affiliation(s), author discipline(s), and core and supplemental AS elements used. Three student pharmacists documented initial findings in a Microsoft® Excel® database. Final results were cross-referenced with a second student pharmacist for accuracy. **Results.** Out of 218 publications, 58 (27%) met inclusion criteria. No study prior to 2007 was included. Medical and pharmacy journals published most (69% and 26%, respectively). Fifty-five percent of studies featured collaborations between physicians and pharmacists. Overall, 47% of studies assessed at least one of the two core AS strategies, and 66% examined multiple AS elements. The most frequently assessed AS elements were: comprehensive multidisciplinary antimicrobial management programs (40%), guidelines/clinical pathways (40%), and the two core AS strategies (26% each). **Conclusion.** Further studies are required to elucidate optimal management of the numerous potential AS endeavors. Moreover, development of an AS-specific interprofessional journal may be warranted. **Grants.** All authors have no financial assistance disclosures to report.

ANALYSIS OF BODY MECHANICS DURING OPTOMETRIC EYE EXAMINATIONS: ARE OPTOMETRISTS AT RISK?

Donald Shaw, PT, Ph.D., Professor, College of Health Care Sciences
Brittany Anderson, Other, Other
Kaitlin Chittenden, Other, Other
Dustin Doren, Other, Other
Alexander Scharman, Other, Other
Kelly Meehan, O.D., Clinical Assistant Professor, Midwestern University
Kaila Osmotherly, O.D., Clinical Assistant Professor, Midwestern University

Objective. Purpose of the present study was to evaluate presence of forward head posture as a factor in the production of pain for optometrists during eye examinations. **Background.** During a typical eye wellness exam, an optometrist assumes various atypical and challenging postures for up to 30 minutes at a time. These postures frequently result in work related discomfort and/or injury usually manifesting in the neck, shoulders, and back. **Methods.** Seven licensed optometrists employed by the Midwestern University Eye Institute participated in the study. Three procedures were initially determined as contributory to head and neck discomfort: phoropter exam, slit-lamp exam, and binocular indirect ophthalmoscopy (BIO). Subjects were first affixed with fluorescent markers on the external auditory meatus and the acromion process. These landmarks were used to identify the extent of forward head posture in degrees. Photographs were then obtained on each subject and analyzed via the Postural Analysis System Software (PASS) developed at Hardin-Simmons University. Subjects' postures were compared to a reference head position of 0 degrees as described by Kendall. **Results.** Mean resting posture was 15.5 ± 8.3 degrees from zero (2 subjects were not assessed for resting head posture). Other results are as follow: phoropter - 34.4 ± 17.4 degrees, slit-lamp - 20.9 ± 9.1degrees, and BIO - 25.1 ± 14.5 degrees. **Conclusion.** These results appear to confirm that optometrists assume a forward head posture during a typical eye exam. This forward head posture can lead to narrowing of the intervertebral foramina, abnormal compression of the zygapophyseal joints, and can lead to capital extensor muscles becoming ischemic given the sustained isometric contraction. Given these physical mechanisms, it follows forward head position can lead to work-related pain and discomfort. **Grants.** N/A

COMPARISON OF WATER OVERFLOW VOLUMETRY TO THE SEGMENT-ZONE METHOD FOR LIMB VOLUME DETERMINATION

Donald Shaw, PT, Ph.D., Professor, College of Health Care Sciences
Rogan Adams, Other, Other
Jenny Lewellen, Other, Other
Kelsey Ross, Other, Other
Nate Wilkinson, Other, Other

Objective. This study was conducted to compare foot/ankle volumes obtained by the Segment-Zone Method (SZM) to those obtained by water overflow volumetry (WOV) on the same subjects. **Background.** Measurement of limb volume is frequently employed to follow changes in both upper and lower extremity edema. Water overflow volumetry (WOV) is often chosen for this purpose. However, given that limb segments must be immersed, not every patient is a candidate for this procedure. **Methods.** Both SZM values (based on segment height, length, and breadth dimensions) and WOV values were acquired by separate investigators on 36 physical therapy students (25 males, 11 females). Geometric volumes were calculated using the formula for a standard wedge while water displacement volumes were determined by weighing the overflow and dividing by water density corrected for temperature. **Results.** A significant difference was found between the two methods (mean±SD; SZM = 884.8±158.6 ml, WOV = 958.2±167.7 ml; $p < 0.01$)). Data were further analyzed by dividing all subjects scores into 4 groups by appointment time (first 9, next 9, etc.) for analysis via ANOVA. No significant differences manifested as a function of appointment time for either geometric ($p = .885$) or volumetric ($p = .499$) groups. **Conclusion.** Although volume discrepancies were noted, both techniques correlated positively with each other ($r = .71$, $p < 0.01$). We therefore conclude either method can be used to follow foot/ankle edematous changes when serial trends, and not exacting volume calculations (i.e., in ml), are indicated. **Grants.** N/A

DO DIFFERENT PULSE AND HEART RATE MEASUREMENT METHODS RENDER THE SAME RESULTS?

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Donald Shaw, PT, PhD, Professor, College of Health Care Sciences
Eder Eder Garavito, PT, DPT, Lecturer, Duke University Hospital - PT/OT Department
Sudhindra Gadagkar, PhD, Assistant Professor, Midwestern University

Objective. This study was conducted to determine if significant differences exist among four different rate measurement devices and four different rate measurement time periods when each device was used in combination with each time period at rest. **Background.** Clinically, the words "heart rate" (electrical event) and "pulse rate" (mechanical event) are often used interchangeably. However, some contractions of the left ventricle fail to produce peripheral pulse waves and occasionally manually palpated rates are estimated using abbreviated (10 s, 15 s, 30 s) counts; either scenario raises possible documentation consistency and patient safety concerns. **Methods.** Thirty-two (9 males, 24.7±2.1yrs; 23 females, 24.1±2.1yrs) physical therapy students were randomly selected to participate in the study. Following acquisition of informed consent, subjects were positioned supine while the heart and pulse rates were obtained simultaneously at 10, 15, 30, and 60 s from four sources: radio telemetry ECG (RT ECG); hand held ECG (HH ECG); pulse oximeter (PO) and, manual palpation of the radial artery (MP). **Results.** Data analysis revealed significant overall differences ($p \sim 0$) in the pulse rate measurements among the devices and among the time periods. Within-subject contrasts revealed that all rate measurements were significantly different ($p \sim 0$) for all the devices when compared to RT ECG with all rate measurements significantly different ($p \sim 0$) from 60 s as well. Within-subjects contrasts also indicated significant interaction terms between the device and time-period. The following interaction terms were significant ($p < 0.03$): RT ECG v HH ECG at time periods 10 s v 60 s and 30 s v 60 s; RT ECG v MP at time periods 10 s v 60 s and 15 s v 60 s. Effect size analysis revealed medium to high effect sizes among device contrasts and medium effect sizes for time-period contrasts **Conclusion.** We conclude, that although rate differences between methods were small, they were non-the-less significant and appear worthy of clinical consideration - especially for the elderly and for those with cardiac dysrhythmias. Of particular interest was the inconsistency seen between most all methods, whether pulse or heart rate. This appears to support the notion that rates should be obtained from the same device whenever possible to minimize variations due to method. The rate differences observed between ECG methods cannot be explained. However, 60 s MP rates calculated from abbreviated 10 s and 15 s counts clearly lacked precision since they are estimates only. **Grants.** N/A

THE ROLE OF OXIDATIVE STRESS ON AUTISTIC BEHAVIOR

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Shannon Koch, Entry Level P4, College of Pharmacy
Alyssa Sweet, OT-2, College of Health Care Sciences
Jordan Spaw, Ph.D. in Pharmacy, College of Pharmacy
Sheila Montalvo, Entry Level P3, College of Pharmacy
Irina Rozenfeld, ARNP, Clinical Assistant Professor, College of Osteopathic Medicine
Ana Maria Castejon, Ph.D, Associate Professor, College of Pharmacy

Objective. Plasma levels of GSH/GSSG redox ratio are analyzed to assess their correlation to autism severity. **Background.** Recent studies are finding lower levels of glutathione in autistic patients, but are lacking behavioral data compared with glutathione levels. **Methods.** Autism subjects are selected based on the following inclusion criteria: age 3 to 5 years old, autism diagnosis, and no other medical conditions. Reduced glutathione plasma levels are quantified by isolating and lysing white blood cells from whole blood samples of each patient; absorbance values are used in order to obtain the derived GSH and GSSG concentrations. Eight different diagnostic tests are performed by clinical psychologists in order to assess their correlation to the GSH/GSSG redox ratio. Microsoft Excel and QI Macros 2013 programs were used to calculate variation, correlation coefficient, and p-value for each subset of data. **Results.** There is a statistically significant negative correlation of 65.7% for the gold standard, ADOS, overall test score (p=0.028); specifically, the subset of Reciprocal Social Interaction shows a significant 65% negative

correlation (p=0.03), and the subset of Imagination and Creativity shows a significant 62.6% negative correlation (p=0.039) to the GSH/GSSG redox ratio. **Conclusion.** It can be stated that there is an inverse relationship between GSH antioxidant levels and the overall severity of autistic behaviors, specifically in reciprocal social interaction and imagination and creativity subsets, but further participant enrollment is necessary. **Grants.** This study was funded by Immunotec® and HPD Research Grant #335732.

Atrium - Poster 51 12:15-1:15 P.M.

BLOOD FACTOR SUCCESS IN REVERSAL OF BLEEDING IN PATIENTS ON DABIGATRAN

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Catherine Harrington, Pharm.D., Ph.D., Associate Professor, College of Pharmacy

Objective. This study was conducted to review the available literature on the success of blood factor products in reversal of bleeding in patients on dabigatran. **Background.** The use of newer oral anticoagulants(OAC),such as dabigatran, has rapidly increased given their convenient dosing and the absence of constant testing. However, these agents still have a high risk of bleeding, and there is limited data on how to adequately reverse this complication. **Methods.** Two investigators independently conducted a literature search using the EMBASE/ MEDLINE/IPA databases with the following search terms: “Dabigatran AND reversal agents”, and “Dabigatran AND Bleeding”. Controlled trials, case reports and case series for dabigatran were reviewed. **Results.** Twenty-one case reports, five case series, and zero clinical trials were found. Twenty patients admitted with bleeding complications while taking dabigatran did not receive any blood factors and of these, 13 patients (65%) survived. Twelve patients received rVIIa with survival rate of 58%. Five patients received 4PCC with 60% survival rate. Two patients received 3PCC; one survived. Six patients received FEIBA; five patients survived. Use of blood factors yielded a 1% difference in survival versus the use of no blood factors. **Conclusion.** More studies must be conducted to confirm effectiveness, standardize dosage, and frequency of administration of blood factors in this situation. **Grants.** No grant was used for the funding of this study.

Atrium - Poster 52 12:15-1:15 P.M.

WHEELCHAIR USER AND CAREGIVER EXPERIENCES WITH DRIVING A POWER WHEELCHAIR WITH A WORN CONTROLLER (SPOOCI)

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Sergio Romero, Ph.D, Professor, University of Florida
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Objective. The purpose of this study was to test and develop an innovative method of driving power wheelchairs named SPOOCI (Self-referenced Personal Omni-purpose Orthotic Control Interface, US Patent # 8,244,655 B2, Hubbard-Winkler, 2012) for individuals who are candidates for power mobility but whose physical impairments prevent them from operating commercial wheelchair controls. This poster explores participant, clinician and caregiver experiences with using SPOOCI. **Background.** Most existing interfaces to power wheelchairs require either upper extremity control to use traditional proportional joysticks or discrete interfaces, or head control for use of a head pointer or chin joystick. As a result, use of standard interface strategies and interface products is ruled out for Individuals with severe motor impairment of the upper quadrants. SPOOCI can be worn anywhere on the body, so the power wheelchair user is not required to maintain contact with a joystick. **Methods.** Qualitative methods were used. A semi structured interview was administered, tape recorded, and transcribed. Participant, therapist, and caregivers were interviewed. The two structured interview questions were: 1. Describe your experiences with SPOOCI. 2. Tell me how you liked being in a research study. **Results.** The themes that emerged were: (1) A major issue with power wheelchair driving is ensuring proper fit of the wheelchair. When the participant had the correct wheelchair there driving performance improved. (2) Individuals with severe physical impairment enjoy being included in research. **Conclusion.** Advocacy is needed to so individuals with mobility disorders are provided with the appropriate power wheelchair. **Grants.** This research was supported by NIH Grant # 7R21HD053526-02, from the Eunice Kennedy Shriver National Institute of Child Health & Human Development.

ATYPICAL RETINAL VASCULAR OCCLUSION IN A GLAUCOMATOUS EYE

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Lori Vollmer, O.D., F.A.A.O., Associate Professor, College of Optometry
Michael Au, O.D., Assistant Professor, College of Optometry

Introduction. Patients with glaucoma may develop retinal vascular occlusions as both conditions are more prevalent in the elderly and often share concurrent morbidities. **Case presentation.** A 50 year old female with a 33 year history of cerebrovascular accident and 10 year history of treated POAG presented urgently complaining of sudden loss of vision in her right eye of 6 hours duration. Corrected BCVA diminished from a previous level of 20/25 to 20/100 with a grade 3 RAPD never present before. Fundus examination revealed scattered intraretinal hemorrhages with dilated, non-tortuous retinal veins and an ischemic retina with a cherry-red macula. The ischemic retina followed the tributaries of the retinal venules rather than the arterioles. The patient was tentatively diagnosed with a combined retinal artery and vein occlusion. The patient received additional ocular hypotensive agents and digital massage during the visit. Optical coherence tomography demonstrated neither retinal thickening nor atrophy. Fluorescein angiography was normal and surprisingly demonstrated no leakage or macular ischemia. At the 3 week follow up, the patient's right fundus demonstrated profound retinal hemorrhaging consistent with a central retinal vein occlusion. There was no ophthalmoscopically visible retinal ischemia at this visit. Her BCVA had spontaneously improved to 20/30 and her RAPD had diminished to grade 1. At her most recent follow up 4 weeks later, the retinal hemorrhages resolved, her vision improved to 20/25, and the RAPD had completely disappeared. **Deviation From the Expected.** This case details an unusual retinal vascular occlusion with ophthalmoscopic features of both retinal artery and vein occlusion with spontaneous resolution and disappearance of a RAPD over several weeks. **Discussion.** Retinal artery and vein occlusions typically have characteristic appearances and natural histories. In the case of retinal artery occlusions, the sudden hypoxia typically results in permanent visual impairment. **Conclusion.** This case details an unusual retinal vascular occlusion with ophthalmoscopic features of both retinal artery and vein occlusion with spontaneous resolution and disappearance of a RAPD over several weeks. **Grants.** None

CONCENTRATION-DEPENDENT EFFECTS OF ZINC ON ANGIOTENSIN-CONVERTING ENZYME-2 ACTIVITY

Robert C. Speth, Ph.D., Professor, College of Pharmacy
Eduardo Carrera, Other, Other
Arline Joachim, Other, Other
Malaika Jean-Baptiste, Other, Other
Andrea Linares, Other, Other

Objective. This study was conducted to ascertain the importance of zinc on angiotensin-converting enzyme-2 (ACE-2) activity. **Background.** ACE-2 degrades angiotensin II (Ang II) and forms Ang (1-7), which antagonizes much of the pathophysiology of Ang II. ACE-2, a member of the M2 family of metallopeptidases, contains a HEXXH motif that functions as the zinc binding domain at its active site. **Methods.** We measured metabolism of an artificial substrate of ACE-2 (MCA-APK[Dnp]) by rat kidney and lung, as well as recombinant human ACE-2 (rhACE-2), at 0, 10, 100, or 1000 µM zinc acetate; with or without the ACE-2 inhibitor MLN-4760. Metabolism of the fluorogenic substrate MCAAPK(Dnp) (50 µM) was measured at 393 nm with excitation at 328 nm at 37°C. **Results.** In both rat tissues and rhACE-2 the rate of MLN-4760-blockable metabolism of substrate was highest with no zinc or 10 µM zinc. However, in the presence of 100 µM zinc, activity was significantly ($p<0.05$) decreased in rat lung and rhACE-2 compared to 0 or 10 µM zinc. In the presence of 1000 µM zinc, activity was further reduced ($p<0.05$) in all three preparations compared to 0, 10 and 100 µM zinc. **Conclusion.** These results suggest that ACE-2 may have additional lower affinity binding site(s) for zinc that interfere with its ability to metabolize its substrates. Assays of ACE-2 activity should not be run in the presence of zinc concentrations greater than 10 µM. **Grants.** This study was funded by NIH-NHLBI HL113905.

Atrium - Poster 55 12:15-1:15 P.M.

A STRATEGY TO MODULATE INSULIN RELEASE FROM NPH BASAL FORMULATION

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Objective. To develop a method to extend insulin release from NPH (Neutral Protamine Hagedorn) formulation, an intermediate-acting basal insulin. **Background.** Despite the prevalence of genetically altered basal products in recent years, the long-term safety of such insulins is in controversy. NPH insulin still represents a well-established basal formulation by its long history of use, featuring native form of human insulin. However, release kinetics in vivo upon single subcutaneous injection of NPH is characterized by a peak within a few hours and declining levels <1 day, which is often insufficient to provide daily basal insulin requirement upon single subcutaneous injection. **Methods.** In vitro release of NPH insulin in phosphate buffer (pH 7.4, 0.01% of Tween 80) was conducted at 37 degree-C in 1-mL dialysis cartridges (MW-cutoff 1,000,000-Da) without diffusion barriers. Amounts of released insulin were quantified chromagraphically at 280 nm, using human insulin as a standard. **Results.** Insulin release occurred continuously over 3-4 days in vitro. This is in sharp contrast to its in vivo kinetics. We hypothesize that such discrepancy is attributed to subcutaneous enzymes that rapidly degrades protamine on microcrystal surfaces, thereby accelerating drug release. Cathepsin-B is a likely candidate responsible for this process, which recognizes two arginyl residues in series, which are abundant in protamine. **Conclusion.** Therefore, strategies to protect the surface of NPH crystals will likely lead to "peakless" insulin release. Study is ongoing to investigate effects of protamine degrading enzymes and additives on NPH insulin release kinetics. **Grants.** This work was supported in part by HPD Research Grant.

Atrium - Poster 56 12:15-1:15 P.M.

CIGARETTE SMOKE AND INSULIN RESISTANCE

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Objective. This study was conducted to determine the effect of cigarette smoke/oxidative stress on the development of Insulin Resistance, as well as, the regulation of SOCS3 by cigarette smoke in vivo. **Background.** Oxidative stress through reactive oxygen species (ROS) production has been associated with the etiology of insulin resistance, primarily in skeletal muscle tissue. Skeletal muscle is the major site of dietary glucose disposal. Many cytokines stimulate the tissue-specific expression of suppressor of cytokine signaling (SOCSs) proteins, a group of signaling proteins characterized by their ability to down-regulate cytokine signaling. Moreover, it has been demonstrated that SOCS3 is implicated in the pathogenesis of IR. **Methods.** C57B/6 mice were exposed to cigarette smoke for 12 weeks. After 8 and 12 weeks of treatment, fed blood glucose and plasma insulin levels were determined using a glucometer and an insulin rat insulin ELISA kit respectively. At the end of the experimental period, animals were sacrificed and skeletal muscle collected. Total protein were extracted and quantified. SOCS3 expression was determined by Western blot analysis. Animals exposed to cigarette smoke for 12 weeks developed IR and subsequent induction of SOCS3 expression. **Results.** Our results showed that mice that were exposed to cigarette smoke had upregulation of the SOCS3 signaling protein relative to control mice that were unexposed. **Conclusion.** Our data support the hypothesis that cigarette smoke, through SOCS3, may induce IR, suggesting a pathogenic mechanism to explain the link between cigarette smoke and IR. **Grants.** NIH center core grant, Research to Prevent Blindness Grant, and Department of Defense.

CHARACTERIZATION OF GAMMA-AMINOBUTYRIC ACID RECEPTORS ON MELANOTROPHS OF THE ANOLE PITUITARY

P Stephen Taraskevich, Ph.D, Professor, College of Medical Sciences
H Jay Lyons, Ph.D., Associate Professor, Florida Atlantic University

Objective. To determine the gamma-aminobutyric acid (GABA) receptor types found on melanotrophs of the intermediate lobe of the pituitary in the lizard Anolis carolinensis. **Background.** Previous studies have provided evidence for an inhibitory role of GABA in control of MSH secretion in the anole. **Methods.** Anole neuro-intermediate lobes (NILs) were placed in a perifusion chamber and the MSH content of the perifusate was measured using the Anolis skin bioassay. None of the drugs used affected the assay. **Results.** GABA (100 ¼M) reversibly inhibited MSH secretion stimulated by high (50 mM) [K+]o but did not alter basal secretion. The inhibition of K-stimulated MSH secretion by GABA was reversibly blocked by the GABAA receptor antagonist bicuculline (100 ¼M). Furthermore, the inhibitory effect of GABA on K-stimulated MSH secretion was mimicked by the GABAA agonist muscimol (100 ¼M) and the inhibitory effect of muscimol was also blocked by bucuculline (100 ¼M). The GABAB receptor agonist baclofen (100 ¼M) had no effect on either basal or K-stimulated secretion. **Conclusion.** The results indicate that the inhibition of K-stimulated MSH secretion by GABA is mediated by GABAA receptor activation. **Grants.** This study was funded by an HPD research award.

THE ROLE OF POSTOPERATIVE RADIATION AND CHEMORADIATION IN MERKEL CELL CARCINOMA: A SYSTEMATIC REVIEW OF THE LITERATURE

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Liyu Liu OMS-III,
Shaakir Hasan OMS-IV

Objective. A systematic review of the literature was undertaken to investigate whether adjuvant radiotherapy and/or chemotherapeutics offered any additional benefit than surgery alone. **Background.** Merkel cell carcinoma (MCC) is a relatively rare cutaneous malignancy with a high recurrence and mortality rate. Few recommendations exist for the treatment of MCC, but the general consensus is the surgical excision as the initial treatment. However, postoperative use of adjuvant radiotherapy and/or chemotherapeutics remains unclear. **Methods.** A PubMed, MEDLINE search was conducted between 1995-2013, to identify reported cases of surgically treated MCC. Patient characteristics that were extracted include age, gender, size and location of primary tumor, clinical stage and nodal involvement. Assessment of outcomes were reviewed and reported as overall survival (OS), OS after one year, three years, local control (LC) after one year, three years, crude recurrence, time to recurrence and toxicity. Inclusion criteria included a primary tumor of MCC in any stage, positive or negative metastases to lymph nodes, lesions of any size, and primary treatment that included curative surgery followed by observation, radiation within 3 months, or chemoradiation within 3 months. A subset analysis was performed contrasting observation and RT treatments based on the mean tumor size for the study. **Results.** 34 studies (n = 4475) were included. The median age was 73 years, median follow-up was 36 months and there was a 1.5:1 ratio of men to women. All 4475 patients had surgery, 1975 had no further treatment, 1689 received postoperative RT, and 301 received postoperative chemoRT. The most common primary site was face/head/neck, 47.8%. Stage 1 was the most common clinical stage at diagnosis (57%), though it was not equally represented in each cohort. 3-year LC was found to be 20% [median 10%] in the observation cohort, compared to 65% [62%] with postoperative RT and 67% [75%] with postoperative chemoRT; these findings were statistically significant ($P<0.001$). Recurrence was found to be 38% [60%] in the observation cohort, compared to 23% [20%] with postoperative RT; this was statistically significant ($P<0.001$). 3-year OS was found to be 56% [57%] in the observation cohort, compared to 70% [78%] with postoperative RT and 73% [76%] with postoperative chemoRT; these findings were statistically significant ($P<0.001$). The observation cohort had a median OS of 44 months compared with 64 months ($P<0.001$) in the postoperative RT cohort. There was no

statistically significant difference in any parameters assessed between postoperative radiation and postoperative chemoradiation arms. **Conclusion.** The comprehensive collection of retrospective data suggests a survival and control benefit for postoperative radiation in MCC. No differences were noted between adjuvant radiation and chemoradiation. This analysis indicates the need for prospective trials with patients stratified by known prognostic factors.

Atrium - Poster 59 12:15-1:15 P.M.

USE OF A FUNCTIONAL ANTIBIOTIC SPACER IN TREATING INFECTED SHOULDER ARTHROPLASTY

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Jonathan C. Levy, M.D., Holy Cross Orthopedic Institute
Nathan Everding, M.D., Holy Cross Orthopedic Institute

Objective. Management of the infected shoulder arthroplasty remains challenging. Treatment goals include eradication of the infection, improvement in pain, and restoration of function. Two-stage revision using an antibiotic spacer and subsequent revision has shown variable success. Using a hemiarthroplasty and coating the stem with antibiotic cement (functional antibiotic spacer) during the first stage has the potential of achieving treatment goals without the need for a second revision. **Background.** To examine the outcomes of using a functional antibiotic spacer as a definitive hemiarthroplasty in the management of an infected shoulder arthroplasty. **Methods.** Fourteen patients with an infected shoulder arthroplasty underwent implantation of a functional antibiotic spacer, extensive surgical debridement, and a minimum of 6 weeks post-operative intravenous antibiotics. The ten patients who elected not to undergo revision surgery were included in this analysis. Pain scores, functional outcome scores, range of motion, strength and patient satisfaction were measured for these patients at last follow-up and compared to pre-operative scores. **Results.** At an average follow-up of 18.2 months, significant improvements were observed in pain scores, functional outcome scores, shoulder abduction and elevation. There was one unsatisfied patient. No recurrent infection, progressive radiolucency or change in position of the functional antibiotic spacer was observed. **Conclusion.** Management of the infected shoulder arthroplasty using a functional antibiotic spacer achieves the treatment goals with no recurrent infections; significant improvements in pain, function and motion; high patient satisfaction; and a low rate of conversion to second stage revision. **Grants.** N/A

Atrium - Poster 60 12:15-1:15 P.M.

PENICILLIN SKIN TESTING: IS THERE A ROLE WITHIN AN ANTIMICROBIAL STEWARDSHIP PROGRAM?

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Ting Wong, P3, College of Pharmacy
Nathan Unger, Pharm.D., Assistant Professor, College of Pharmacy
Timothy Gauthier, Pharm.D., Assistant Professor, College of Pharmacy
Thao Do, P4, College of Pharmacy

Objective. Determine the utility and safety of penicillin skin testing (PST) as a potential tool to improve antibiotic use **Background.** Penicillin allergies are reported by about 10% of patients, although self-reported allergic reactions are often inaccurate and not reflective of a true IgE-mediated allergy. Consequently, the presence of a beta-lactam allergy is associated with twice the use of vancomycin and fluoroquinolones (FQs). As the progression of MDROs and lack of novel antibiotics move us closer towards a potential post-antibiotic era, it is paramount to preserve the longevity of current therapeutic agents. One unique method that may decrease the use of second-line antibiotics while facilitating access to a preferred beta-lactam regimen is a PST. **Methods.** A literature search was conducted using Pubmed to identify all studies evaluating the use of a PST. Original research articles were reviewed and studies that focused on the institutional use of PSTs were analyzed. Outcomes investigated included number of patients skin tested, results of skin tests, impact of skin testing on antibiotic use, and adverse effects. **Results.** A total of 2,335 patients with a history of a beta-lactam allergy were administered a PST. Allergy history consisted primarily of unknown and skin manifestations, but multiple studies included patients with a history of anaphylaxis.

PSTs were performed by a variety of clinicians, including pharmacists. Negative PSTs were seen in 92% of patients. Following a PST, antibiotic regimens were changed to a beta-lactam in 40-100% of hospitalized patients, including up to 100% of patients receiving vancomycin or FQs. Overall, skin testing was well tolerated. **Conclusion.** Treatment of infections due to MDROs becomes increasingly complex when beta-lactams are eliminated as a therapeutic option. Current literature supports the role of a PST within various practice settings as an intervention to reduce the use of alternative antibiotics. **Grants.** None

Atrium - Poster 61 12:15-1:15 P.M.

ANTIBIOTIC SUSCEPTIBILITIES OF BACTERIA ISOLATED WITHIN THE ORAL FLORA OF FLORIDA BLACKTIP SHARKS: GUIDANCE FOR EMPIRIC ANTIBIOTIC THERAPY

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Olayemi Osiyemi, M.D., Clinical Adjunct Professor, Triple O Medical Services
Jay Goodman, M.S., Clinical Adjunct Professor, St. Mary's Medical Center
Robert Borrego, M.D., Clinical Adjunct Professor, St. Mary's Medical Center

Objective. Identify the bacteria present and extent of multi-drug resistance in the oral flora of live blacktip sharks in order to provide definitive microbiologically based guidance for appropriate empiric antimicrobial therapy for severe shark bite victims **Background.** Several studies have identified pathogenic bacteria in marine animals, including sharks. Of great concern is the level of antibiotic resistance observed in these studies, including resistance to broad-spectrum antibiotic reserved for multi-drug resistant infections. **Methods.** Blacktip sharks were caught and released from the beach in South Florida after collecting a swab of its oral cavity. All swabs underwent standard microbiological work-up with identification of organisms and reporting of antibiotic susceptibilities was performed using an automated microbiology system. **Results.** Results from 18 sharks were analyzed and revealed an average of 2.72 bacterial isolates per shark. Gram-negative bacteria were significantly more common than gram-positive (61 vs 39%, $P < 0.001$) and the most common organisms were Vibrio sp. (28%), various coagulase-negative Staphylococcus sp. (16%), and Pasteurella sp. (12%). The overall resistance rate was 17% for all antibiotics tested with nearly 43% of bacteria resistant to at least one antibiotic. Multi-drug resistance was seen in 4% of bacteria. No isolates of Staphylococcus aureus were methicillin-resistant. The level of antibiotic resistance observed in Florida blacktip sharks is comparable to that of published literature. Antibiotics with the highest susceptibility rates included fluoroquinolones, 3rd generation cephalosporins and sulfamethoxazole/trimethoprim. **Conclusion.** The level of antibiotic resistance observed in our study is comparable to that of similarly conducted studies. For severe shark bite victims where the suspected species is blacktip, we recommend empiric antimicrobial with either a fluoroquinolone or combination of a 3rd generation cephalosporin plus doxycycline. **Grants.** The research was supported by Nova Southeastern University's Health Profession Division Research Grant and St. Mary's Medical Center.

Atrium - Poster 62 12:15-1:15 P.M.

COMPARISON OF ANTIBIOTIC COSTS AND SELECTION IN HOSPITALIZED PATIENTS WITH A PENICILLIN ALLERGY

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Ting Wong, Entry Level P3, College of Pharmacy
Thao Do, Entry Level P4, College of Pharmacy
Quang Nguyen, Entry Level P4, College of Pharmacy

Objective. To compare the antibiotic costs, selection, and duration in hospitalized patients who are labeled as PCN-allergic versus non-PCN allergic patients. **Background.** Penicillin (PCN) and related beta-lactam antimicrobials are the most common cause of drug-induced severe allergic reactions such as anaphylaxis. However, even though the reported incidence of PCN allergy is up to 10%, the true incidence of IgE-mediated hypersensitivity is approximately 0.004% to 0.015%. Consequently, clinicians frequently avoid prescribing PCN and related antibiotics even in situations where a beta-lactam may be the preferred option. Previous studies have suggested that the mean antibiotic cost for patients and duration of therapy was significantly higher in patients with a beta-lactam allergy compared with

those without; however, such studies were conducted more than a decade ago and may not reflect current costs. In an effort to minimize antibiotic cost and improve access the preferred antibiotic therapy, various hospitals and institutions have utilized PCN skin testing to identify patients who have an IgE-mediated PCN allergy. **Methods.** Retrospective review of electronic medical records (EMR) of hospitalized adult patients (18 years and older) who received antibiotics during a 12 month period at St. Mary's Hospital. All patients will be identified using data mining conducted by the hospital's Information Security Director. The electronic medical records will be reviewed by the investigators extracting only the minimal amount of information necessary to conduct the research. Patients will be allocated to either the PCN allergy group or non-PCN allergic group dependent upon the allergies listed in the medical record. Inclusion criteria consisted of hospitalized adult patients aged 18 years and older who were ordered antibiotics for a duration greater than or equal to 24 hours within the 1 year period of August 2012 through July 2013. Patients who were not prescribed antibiotics within the 1 year period; Patients less than 18 years of age; patients who received antibiotics for less than 24 hours; patients who were enrolled in a clinical trial investigating an antibiotic were excluded from the study. Once all data has been extracted, all patient information will be de-identified and assigned a unique ID prior to data analysis. Data collected from EMR includes: patient's age, sex, race, antimicrobial therapy (drug, dose, route, duration), antibiotic allergies, co-morbidities, indication for antibiotic therapy, lengthy of hospitalization, length of ICU stay, number of re-hospitalizations during the 12 month period, number of readmissions (re-hospitalization within 30 days of discharge), APACHE II score, bacteria culture results. The total antimicrobial costs will be calculated based on the drug, dose, formulation, frequency and duration of antimicrobial usage. Student's t-test will be used to compare continuous data such as costs, age, number of antibiotic allergies, number of antibiotics, duration of antibiotic use, length of stay, ICU length of stay, number of re-hospitalizations, number of re-admissions and APACHE II scores. The Chi-square test compared categorical data such as antibiotic allergies, insurance coverage, gender, race, antibiotic class, co-morbidities and antibiotic indications. **Results.** In-progress. The results of the study may elucidate whether patients with a PCN or beta-lactam allergy receive more costly antibiotics, a greater number of antibiotics or a longer duration of antibiotics. A commercially available skin test can clarify the presence of a true PCN allergy which may facilitate access to cheaper or less broad-spectrum antibiotics with less adverse consequences. These benefits will not directly affect the retrospective subjects but may provide benefit for future care or hospitalizations. **Conclusion.** In-progress **Grants.** Unfunded

Atrium - Poster 63 12:15-1:15 P.M.

HERPES ZOSTER OPHTHALMICUS IN A CHILD

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Makhlouf Rim, O.D., F.A.A.O., Assistant Professor, College of Optometry

Introduction. Herpes zoster ophthalmicus (HZO) is defined as the infection of herpes zoster virus of the ophthalmic division of the fifth cranial nerve. It generally affects older patients and is uncommonly seen in childhood. **Case presentation.** A 13 year old black female presented with pain and swelling of her left eyelid along with skin lesions on her left forehead for one week. She denied a past history of chickenpox. She was seen at the emergency room and prescribed tobramycin for conjunctivitis. Her best-corrected acuity was 20/25 OD, OS. External examination revealed vesicular lesions on the forehead and left upper lid respecting the midline. Biomicroscopy revealed 3+ conjunctival injection and NaFl staining in a pseudo-dendritic pattern on the cornea OS. There were trace cells in the anterior chamber at this visit. She was diagnosed with herpes zoster ophthalmicus and prescribed bacitracin ung for the skin lesions, topical prednisolone acetate 1% OS QID and co-managed with ophthalmology for oral antiviral treatment of acyclovir 5 times a day. She was referred to her pediatrician for a full systemic assessment. One week later, the corneal lesions had resolved, the skin lesions nearly healed, but her ocular inflammation persisted and she remained on topical prednisolone acetate 1%. She remained on topical medication for inflammation for over 2 months before a taper was successfully initiated without visual complications. The systemic evaluation is still pending. **Deviation From the Expected.** Herpes zoster is a rare finding in a child, particularly with no prior history of chickenpox. However, it does occur and may present with ophthalmic complications. **Discussion.** HZO rarely occurs in a child. The most commonly reported systemic conditions associated with the zoster virus occurring in a child are autoimmune disease, HIV infection and malignancy. Other risk factors include acquired intrauterine varicella infection or during the first year of life but may also occur in an otherwise healthy individual. Management is similar to adult herpes zoster and includes oral or intravenous antivirals as well as topical steroids and/or antivirals

for treatment of ocular manifestations. Fortunately, post herpetic neuralgia is not a common complication in children following zoster infection as in adults. Co-management with the pediatrician is important to rule out underlying systemic causes. **Conclusion.** Though herpes zoster is a rare finding in a child, it does occur and may present with ophthalmic complications. **Grants.** None

Atrium - Poster 64 12:15-1:15 P.M.

EVALUATION OF DEXMEDETOMIDINE AS AN EFFECTIVE AND SAFE AGENT FOR SHORT-TERM PROCEDURAL SEDATION IN NEONATES

Sapan Vora, P4, College of Pharmacy
Sandra Benavides, Pharm.D, Associate Professor, College of Pharmacy

Objective. This study evaluates the efficacy and safety of dexmedetomidine in neonates for short-term procedural sedation. **Background.** In the neonatal intensive care unit, diagnostic and therapeutic procedures requiring sedation are often performed. Dexmedetomidine has become a more popular treatment option due to its sedative properties and shorter duration of action. **Methods.** A comprehensive literature evaluation was conducted. All randomized controlled trials, case series, and case reports were included in the evaluation. The literature search produced 112 articles of which 6 articles were selected to evaluate the usefulness of dexmedetomidine as an effective and safe agent for short term procedural sedation in neonates. **Results.** A prospective study compared dexmedetomidine to midazolam during magnetic resonance imaging (MRI). Dexmedetomidine was administered as a loading dose of 1 µg/kg over 10 minutes followed by an infusion of 0.5 µg/kg/hr. One study evaluated the role of dexmedetomidine as a sole sedative agent for procedures. High dose dexmedetomidine (loading dose of 3 µg/kg with a subsequent infusion rate of 1.5-2 µg/kg/hr) was given. This study found reduced requirement for other adjuvant benzodiazepine sedatives. A study evaluating the hemodynamic effects of dexmedetomidine revealed that IV dexmedetomidine was associated with modest fluctuations in heart rate and blood pressure requiring no pharmacologic intervention. **Conclusion.** Dexmedetomidine provided adequate sedation with loading doses of 1µg/kg and maintenance infusion of 0.5-0.7 µg/kg/hr without affecting hemodynamics and respiratory status. Thus, dexmedetomidine may be a suitable agent for procedural sedation in neonates. **Grants.** N/A

Atrium - Poster 65 12:15-1:15 P.M.

AN ODDS RATIO OF HEAD AND NECK RADIATION THERAPY SIDE EFFECTS BASED ON PATIENTS' INSURANCE STATUS

Ashleigh Weyh, D2, College of Dental Medicine
Lauren Lunday, PG-Oral and Maxillofacial Surgery, College of Dental Medicine
Steven Kaltman, DMD, MD, Professor, College of Dental Medicine
Vinodh Bhoopathi, DScD, Assistant Professor, College of Dental Medicine
Shawn McClure, DMD, MD, Associate Professor, College of Dental Medicine

Objective. To assess the odds for oral complications following radiation therapy (XRT) to the head and neck (HN), for Florida Medicaid/uninsured patients when compared to the privately insured. **Background.** HN cancer patients that are Medicaid/uninsured are at an increased risk of death after diagnosis, when compared to the privately insured (Kwok, 2010.Cancer,116:467-85). Many HN cancer patients that receive XRT suffer from many associated acute and chronic side effects that manifest in the oral cavity, and can affect healing after surgery and quality of life. **Methods.** Patients previously treated for HN cancer with XRT and surgery will be identified by surgical logs from the department of Oral and Maxillofacial Surgery. The patients will have had a solitary HN primary and received, at minimum, a dose of 50 Gy. From patient follow up we will record all complications post XRT, including xerostomia, tissue breakdown, fistula formation, edema, poor wound healing, weight loss and disease free survival. Values for all criteria will be compared with a t-test, and analyzed with an odds ratio to determine the odds of complications. **Results.** To be determined **Conclusion.** We hypothesize that Medicaid/uninsured patients are at increased odds for oral health complications post XRT for the head and neck. Further oral health counseling could be considered as prevention and to improve these patients' quality of life. **Grants.** This study is unfunded

Atrium - Poster 66 12:15-1:15 P.M.

TOBACCO CESSATION FOR ADVANCED PRACTICE NURSES

Diane Whitehead, EdD, Professor, College of Nursing

Objective. The purpose of this evidence-based practice project is to educate nurse practitioner students (APRN) on smoking information and techniques to assist clients with quitting smoking in the primary care setting. The research question is: Will an education program on tobacco cessation curriculum increase APRN students' knowledge, skills, and confidence in providing tobacco cessation training? **Background.** The predicted shortfall of primary care physicians and the millions of newly insured beginning in 2014 call for an increase in the number of advanced practice nurses (Cassidy, 2012). Advanced practice nurses can significantly improve their clients' quality of life and increase their life expectancy through tobacco cessation education. **Methods.** Subjects will participate in an online smoking cessation training program. A 20 question survey of knowledge related to tobacco use and cessation and the Skills and Confidence for Smoking Cessation tool will be administered before and after the educational program. Demographic data including information about smoking status and exposure to formal smoking cessation training will be solicited. **Results.** Research will be completed December 2013. **Conclusion.** There will be a significant difference in knowledge, skills, and confidence post test. **Grants.** none

Atrium - Poster 67 12:15-1:15 P.M.

WHO GETS WHICH WHEELCHAIR OR OTHER ASSISTIVE DEVICE: USER VERSUS FACILITY PREDICTORS

Sandra Winkler, PhD, Assistant Professor, College of Health Care Sciences
John Kairalla, PhD, Assistant Professor, University of Florida
Hua Feng, MS, Guest Lecturer, Bedford VA

Objective. To use Donebedian's Structure-Process-Outcome Model to investigate Structure* (facility-level) and Process (assistive technology (AT) services) factors on assistive technology device (ATD) prescription (Outcome), controlling for individual-level factors. *Only structure results are presented. **Background.** ATDs enhance the independence and quality of life of individuals with disabilities. AT research is challenging because both individual needs and properties of device must be considered. This research looks at ATD provision from multiple perspectives: device, service, individual and facility-level factors. Our prior research found that geographic, small area variation was as strong a predictor of ATD prescription as individual-user need. **Methods.** A retrospective, population-based (Veterans) design was used. Records from the Functional Status Outcomes Database, National Prosthetic Patient Database, and Medical SAS Datasets for Veterans treated by the VA for stroke during 2007-08 were merged. Logistic regression was performed for each of the 11 types of activities of daily living and mobility-related ATDs. The predictor variables were facility complexity, CARF certification, rehabilitation staffing in FTE, and rehabilitation workload in encounters. The outcome variable was provision of ATDs. **Results.** Facility-level factors were significant for some but not all types of ATDs. Hispanics, blacks were more likely to receive standard manual wheelchairs, patient lifts, beds, toileting and bathing devices. Veterans who were prescribed ATDs typically had lower physical function but higher cognitive function. C-statistics ranged from 0.66 to 0.79; pseudo r2 ranged from 0.01 to 0.09; max-rescaled r2 ranged from 0.08 to 0.15. **Conclusion.** User-need alone does not determine ATD prescription. Facility-level factors, in addition to individual factors, are significant predictors of some types of ATDs prescribed by the VA. **Grants.** This research was funded by the VA Rehabilitation Research and Development(Merit Review B7168-R). The views and opinions expressed in this poster reflect those of the authors and do not necessarily reflect those of the VA.

AN IMPROVED NONLINEAR MIXED EFFECTS PHARMACOKINETIC MODEL OF INTRAVENOUS D9TETRAHYDROCANNABINOL (THC) AND METABOLITES IN VOLUNTEERS

William Wolowich, B.Sc.Pharm, Pharm.D., Assistant Professor, College of Pharmacy

Objective. To develop and evaluate a nonlinear mixed effect model of d9-THC and its two major metabolites. **Background.** Marijuana use is increasingly becoming more prevalent due to the rise of medical use. A nonlinear mixed effects model to predict plasma concentrations of the major active constituents of marijauna, D9-THC and its two metabolites does not exist. This model could be used in health care and by law enforcement. **Methods.** Data from 25 subjects administered d9-THC intravenously over 5 minutes and sampled from arterial line in serial fashion from time of dosing to 48 hours was available. Of the 975 available plasma concentrations, analyzed with LC/MS/MS API 4000, 75 were BLQ and not used in the model. Nonlinear mixed effect modeling using Phoenix® NLME 1.2 was applied to the data to determine the typical values of a 3 compartment pharmacokinetic model for the parent THC that provides input to a second 3 compartment model for the first and active metabolite THC-OH, which in turn provides input to the 2 compartment model for the second and inactive metabolite THC-COOH. The model was parameterized using CL and V, residual error was log-additive, the omega matrix was diagonal, initial estimates were taken from NCA analysis of the data. The FOCE-extended least squares algorithm performed best with this data set, standard errors were determined using the central difference Hessian method. The model was optimized in several steps, using traditional assessment techniques: -2LL, AIC, BIC, Conditional WRES Vs pred, ipred, time and observed dose/volume. The model employs actual body weight as a covariate. The “final” model was evaluated using the predictive check option in Phoenix. **Results.** The data was successfully fit to a 3 stage metabolite model. The model parameters follow: tvV thc 6.05939 L tvV thc2 29.7352 L tvCLd12 thc 51.5397 L tvV thc3 325.58 L tvCLd13 thc 19.0989 L tvV thc-oh 88.6359 L tvCL metabolic thc49.9912L/h tvV thc-cooh 6.51545 L tvCL metabolic thc-oh153.778 L/h tvV thc-oh2 14.4936 L tvCLd12 thcoh 0.725483L/h tvV thc-cooh2 405.939 L tvCLd12 thc-cooh 25.7877 L/h tvCL renal thc-cooh 7.86533 L/h tvV thcoh3 371.384 L/h tvCLd13 thc-oh 109.992 L/h **Conclusion.** This model could be used to predict THC, THC-OH or THCCOOH concentrations over time.
Grants. none

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Poster	Atrium	12:15 PM - 1:15 PM	Validation of HPLC Method and Ultra Violet Detection for the Quantification of Atropine Sulfate in Aqueous Samples	Rawas-Qalaji, Mutasem	44
Poster	Atrium	12:15 PM - 1:15 PM	Absorption of Taste-Masked Rapidly-Disintegrating Sublingual Epinephrine Tablets for Pediatric Use for the Treatment of Anaphylaxis	Rawas-Qalaji, Mutasem	63

Presentation Type	Room	Time	Title	Author Name	Booklet page number
Poster	Atrium	12:15 PM - 1:15 PM	Effect of Particles Size on Epinephrine Sublingual Diffusion for the Potential First-Aid Treatment of Anaphylaxis: In Vitro and Ex Vivo Study	Rawas-Qalaji, Mutasem	64
Podium	Finkelstein	9:45 AM - 10:15 AM	Fabrication and Characterization of Epinephrine Nanocrystals Using Top-Down Technique	Rawas-Qalaji, Mutasem B.	5
Podium	Jonas	9:45 AM - 10:15 AM	Fabrication and Characterization of Epinephrine Nanocrystals Using Top-Down Technique	Rawas-Qalaji, Mutasem B.	14
Podium	Terry	11:45 AM - 12:15 PM	ACCURACY OF SLOT DIMENSION WITHIN SETS OF ORTHODONTIC BUCCAL TUBES	Real Figueroa, sergio	36
Podium	Melnick	9:45 AM - 10:15 AM	Amniotic Membrane Therapy Trial in Severe Dry Eye Syndrome	Reed, Kimberly	18
Poster	Atrium	12:15 PM - 1:15 PM	Nutrition Counseling Practices in the Eye Care Setting	Reed, Kimberly	64
Poster	Atrium	12:15 PM - 1:15 PM	Differential diagnosis of pigmented choroidal lesions	Reed, Kimberly	65
Poster	Atrium	12:15 PM - 1:15 PM	Herpes Zoster Ophthalmicus in a Child	Rim, Makhlouf	75
Poster	Atrium	12:15 PM - 1:15 PM	Antibiotic susceptibilities of bacteria isolated within the oral flora of Florida blacktip sharks: guidance for empiric antibiotic therapy	Ritter, Erich	74
Poster	Atrium	12:15 PM - 1:15 PM	Cell based model for studying the regulation of human angiotensinogen gene.	Rizvi, Syed	55
Podium	Hull	2:45 PM - 3:15 PM	Where does the time go? A work sampling study of DPT faculty time use	Rockefeller, Kathleen	12
Podium	Hull	10:15 AM - 10:45 AM	Creating a HPD Interprofessional Culture in Education and Clinical Practice	Rokusek, Cecilia	9
Podium	Steele	2:15 PM - 2:45 PM	Creating a HPD Interprofessional Culture in Education and Clinical Practice	Rokusek, Cecilia	32
Poster	Atrium	12:15 PM - 1:15 PM	Impact of Interprofessional Health Fairs on Students' Willingness to Work Together on Interprofessional Projects: Implication for Future Practice	Rokusek, Cecilia	47
Poster	Atrium	12:15 PM - 1:15 PM	Wheelchair User and Caregiver Experiences with Driving a Power Wheelchair with a Worn Controller (SPOOCI)	Romero, Sergio	69

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Podium	Hull	11:15 AM - 11:45 AM	Filling a Community Need: An Effective Partnership between Town and Gown with an innovative Self-Contained Clinical Education Model	Rone-Adams, Shari	10
Podium	Steele	1:15 PM - 1:45 PM	Video Reviews of Clinical Encounters: Can Authentic Feedback Improve Third-year Student Physicians' Interpersonal Skills?	Roseman, Janet	31
Podium	Steele	1:45 PM - 2:15 PM	The Sidney ProjectTM in Spirituality and Medicine and Compassionate Care	Roseman, Janet	32
Podium	UPP 113	2:45 PM - 3:15 PM	How do medical students respond to the concept of compassion without being cued on its importance? What is the role of compassion?	Roseman, Janet	40
Poster	Atrium	12:15 PM - 1:15 PM	Comparison of Water Overflow Volumetry to the Segment-Zone Method for Limb Volume Determination	Ross, Kelsey	67
Poster	Atrium	12:15 PM - 1:15 PM	The Role of Oxidative Stress on Autistic Behavior	Rozenfeld, Irina	68
Poster	Atrium	12:15 PM - 1:15 PM	Evaluation of 30-day Readmission Rates and Discharge Medication Management in Heart Failure and Non-ST-elevation Myocardial Infarction	Ruiz-Serrano, Larisa	53
Poster	Atrium	12:15 PM - 1:15 PM	Evaluation of Variability Between Intravenous Colistin Therapy Investigations in Current Literature	Ruiz-Serrano, Larisa	66
Podium	Morris	2:45 PM - 3:15 PM	The Influence of Peer Mentoring on Anxiety, Self-Confidence and Priority Setting of Baccalaureate Nursing Students in the Simulation Lab	Saifman, Heather	25
Poster	Atrium	12:15 PM - 1:15 PM	PDK1 Participates in the Chaperone-mediated Rescue of the Polarity Complex Atypical PKC in Intestinal Epithelia.	Salas, Pedro	59
Podium	Resnick	11:15 AM - 11:45 AM	CURCUMIN INDUCES OSTEOGENIC DIFFERENTIATION IN HUMAN UMBILICAL CORD MESENCHYMAL STEM CELLS	Saltz, Adam	27
Podium	Terry	2:45 PM - 3:15 PM	Two-Year Retrospective Analysis of the Implant Survival Rate at Nova Southeastern University Post Graduate Periodontology Clinic	Sani, Sasan	37

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Poster	Atrium	12:15 PM - 1:15 PM	Characteristics of primary literature focused on antimicrobial stewardship from January 2000 to March 2013	Santibanez, Melissa	66
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Poster	Atrium	12:15 PM - 1:15 PM	Gender Differences Influence Immune Response in Localized Aggressive Periodontitis	Shaddox, Luciana	52
Poster	Atrium	12:15 PM - 1:15 PM	The Role of Oxidative Stress on Autistic Behavior	Shaw, Alex	68
Poster	Atrium	12:15 PM - 1:15 PM	Analysis of Body Mechanics During Optometric Eye Examinations: Are Optometrists at Risk?	Shaw, Donald	67
Poster	Atrium	12:15 PM - 1:15 PM	Comparison of Water Overflow Volumetry to the Segment-Zone Method for Limb Volume Determination	Shaw, Donald	67
Poster	Atrium	12:15 PM - 1:15 PM	Do Different Pulse and Heart Rate Measurement Methods Render the Same Results?	Shaw, Donald	68
Podium	Hull	2:45 PM - 3:15 PM	Where does the time go? A work sampling study of DPT faculty time use	Shaw, Keiba	12
Podium	Auditorium A	2:45 PM - 3:15 PM	Mechanistic analysis of vitamin B6 deficiency following small bowel transplantation	Shawaqfeh, Mohammad	4
Poster	Atrium	12:15 PM - 1:15 PM	Nutrition Counseling Practices in the Eye Care Setting	Shechtman, Diana	64
Poster	Atrium	12:15 PM - 1:15 PM	Blood factor success in reversal of bleeding in patients on Dabigatran	Shin, Young	69
Podium	Steele	2:45 PM - 3:15 PM	NSU-COM Virtual Clinic and Art Observation Center	Silvagni, Dianna	33
Podium	Finkelstein	2:15 PM - 2:45 PM	A Novel Approach for Enhancing the Sublingual Absorption of Epinephrine from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis	Simons, F. Estelle	7
Podium	Jonas	2:15 PM - 2:45 PM	A Novel Approach for Enhancing the Sublingual Absorption of Epinephrine from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis	Simons, F. Estelle	16

Presentation Type	Room	Time	Title	Author Name	Booklet page number
Poster	Atrium	12:15 PM - 1:15 PM	Absorption of Taste-Masked Rapidly-Disintegrating Sublingual Epinephrine Tablets for Pediatric Use for the Treatment of Anaphylaxis	Simons, F. Estelle	63
Podium	Finkelstein	2:15 PM - 2:45 PM	A Novel Approach for Enhancing the Sublingual Absorption of Epinephrine from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis	Simons, Keith	7
Podium	Jonas	2:15 PM - 2:45 PM	A Novel Approach for Enhancing the Sublingual Absorption of Epinephrine from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis	Simons, Keith	16
Poster	Atrium	12:15 PM - 1:15 PM	Absorption of Taste-Masked Rapidly-Disintegrating Sublingual Epinephrine Tablets for Pediatric Use for the Treatment of Anaphylaxis	Simons, Keith	63
Podium	Finkelstein	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Singh Franco, Devada	8
Podium	Jonas	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Singh Franco, Devada	17
Podium	Auditorium A	10:45 AM - 11:15 AM	Negative Impact Of Beta-arrestin1 On Heart Failure Via Cardiac And Adrenal-dependent Mechanisms	Siryk, Ashley	2
Poster	Atrium	12:15 PM - 1:15 PM	Wheelchair User and Caregiver Experiences with Driving a Power Wheelchair with a Worn Controller (SPOOCI)	Slaibe, Emmy	69
Podium	Hull	11:15 AM - 11:45 AM	Filling a Community Need: An Effective Partnership between Town and Gown with an innovative Self-Contained Clinical Education Model	Smith, Kimberly	10
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Poster	Atrium	12:15 PM - 1:15 PM	The Role of Oxidative Stress on Autistic Behavior	Spaw, Jordan	68
Poster	Atrium	12:15 PM - 1:15 PM	MCA-APK(Dnp) is Not a Selective Substrate of Angiotensin-Converting Enzyme-2	Speth, Robert C.	46

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Poster	Atrium	12:15 PM - 1:15 PM	Inhibition of Angiotensin-Converting Enzyme-2 (ACE-2) Activity and Radioligand Binding of a Putative ACE-2 Inhibitor	Speth, Robert C.	57
Poster	Atrium	12:15 PM - 1:15 PM	Concentration-Dependent Effects of Zinc on Angiotensin-Converting Enzyme-2 Activity	Speth, Robert C.	70
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Podium	Hull	11:45 AM - 12:15 PM	Changes in Functional Movement Screen Scores Over a Season in Collegiate Soccer and Volleyball Athletes	Sprague, Peter	11
Podium	Auditorium A	2:15 PM - 2:45 PM	Female Pharmacists in Leadership Roles in Academia	Steinberg, Jennifer	3
Podium	Finkelstein	1:45 PM - 2:15 PM	Female Pharmacists in Leadership Roles in Professional Pharmacy Organizations	Steinberg, Jennifer	7
Podium	Jonas	1:45 PM - 2:15 PM	Female Pharmacists in Leadership Roles in Professional Pharmacy Organizations	Steinberg, Jennifer	16
Podium	Auditorium A	10:15 AM - 10:45 AM	Transitioning to Tablet-Based Assessment in a Program with Distance Sites	Steinberg, Jennifer	1
Podium	Hull	11:15 AM - 11:45 AM	Filling a Community Need: An Effective Partnership between Town and Gown with an innovative Self-Contained Clinical Education Model	Stern, Debra	10
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Podium	Melnick	10:45 AM - 11:15 AM	The Effect Of Transient Glare On Object-recognition	Su, BinBin	19
Poster	Atrium	12:15 PM - 1:15 PM	A strategy to modulate insulin release from NPH basal formulation	Sultan, Muhammad	71
Poster	Atrium	12:15 PM - 1:15 PM	Nucleotide Excision Repair Regulation may be Mediated by miRNAs in Breast Cancer	Sveiven, Stefanie	45
Poster	Atrium	12:15 PM - 1:15 PM	The Role of Oxidative Stress on Autistic Behavior	Sweet, Alyssa	68
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Podium	Finkelstein	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Tellez Corrales, Eglis	8
Podium	Jonas	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Tellez Corrales, Eglis	17
Podium	Morris	2:45 PM - 3:15 PM	The Influence of Peer Mentoring on Anxiety, Self-Confidence and Priority Setting of Baccalaureate Nursing Students in the Simulation Lab	Thelwell, Yvonne	25
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Podium	Auditorium A	1:45 PM - 2:15 PM	Clinical Pharmacist Impact on Medication-Related Outcomes in a Pediatric Medical Home	Thony, Isabelle	3
Poster	Atrium	12:15 PM - 1:15 PM	The role of postoperative radiation and chemoradiation in Merkel Cell Carcinoma: A systematic review of the literature	Triplet, Jacob J.	72
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Poster	Atrium	12:15 PM - 1:15 PM	Antibiotic susceptibilities of bacteria isolated within the oral flora of Florida blacktip sharks: guidance for empiric antibiotic therapy	Unger, Nathan	74
Poster	Atrium	12:15 PM - 1:15 PM	Comparison of antibiotic costs and selection in hospitalized patients with a penicillin allergy	Unger, Nathan	74
Podium	Morris	10:45 AM - 11:15 AM	Project HOPE: An Innovative Approach to Homeless Health Care Education	Valvassori, Pia	23
Poster	Atrium	12:15 PM - 1:15 PM	Do Different Pulse and Heart Rate Measurement Methods Render the Same Results?	Varnado, Kimberly	68

Presentation Type	Room	Time	Title	Author Name	Booklet page number
Podium	Resnick	11:45 AM - 12:15 PM	Effectiveness of a Polymer-Based Muco-adhesive in the Healing of Autoimmune/Ulcerative Conditions Pilot Study	Velez, Ines	27
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Poster	Atrium	12:15 PM - 1:15 PM	Characteristics of primary literature focused on antimicrobial stewardship from January 2000 to March 2013	Veulens, Melissa V.	66
Poster	Atrium	12:15 PM - 1:15 PM	Atypical Retinal Vascular Occlusion in a Glaucomatous Eye	Vollmer, Lori	70
Poster	Atrium	12:15 PM - 1:15 PM	Herpes Zoster Ophthalmicus in a Child	Vollmer, Lori	75
Poster	Atrium	12:15 PM - 1:15 PM	Evaluation of dexmedetomidine as an effective and safe agent for short-term procedural sedation in neonates	Vora, Sapan	76
Poster	Atrium	12:15 PM - 1:15 PM	Assessment of Optometry Students versus Other Health Professional Student Awareness of the Classification of Contact Lenses as Medical Devices (CCLAM) Study	Wagner, Heidi	58
Poster	Atrium	12:15 PM - 1:15 PM	Gender Differences Influence Immune Response in Localized Aggressive Periodontitis	Wallet, Shanonn	52
Poster	Atrium	12:15 PM - 1:15 PM	Sequential Pattern Changes in Tissue Dielectric Constant (TDC) to Assess Local Skin-to-Fat Water Changes in Women Treated for Breast Cancer	Weingrad, Daniel	61
Poster	Atrium	12:15 PM - 1:15 PM	An Odds Ratio of Head and Neck Radiation Therapy Side Effects Based on Patients' Insurance Status	Weyh, Ashleigh	76
Podium	Morris	2:45 PM - 3:15 PM	The Influence of Peer Mentoring on Anxiety, Self-Confidence and Priority Setting of Baccalaureate Nursing Students in the Simulation Lab	Whigham, Marline	25
Poster	Atrium	12:15 PM - 1:15 PM	Tobacco Cessation for Advanced Practice Nurses	Whitehead, Diane	77
Poster	Atrium	12:15 PM - 1:15 PM	Comparison of Water Overflow Volumetry to the Segment-Zone Method for Limb Volume Determination	Wilkinson, Nate	67
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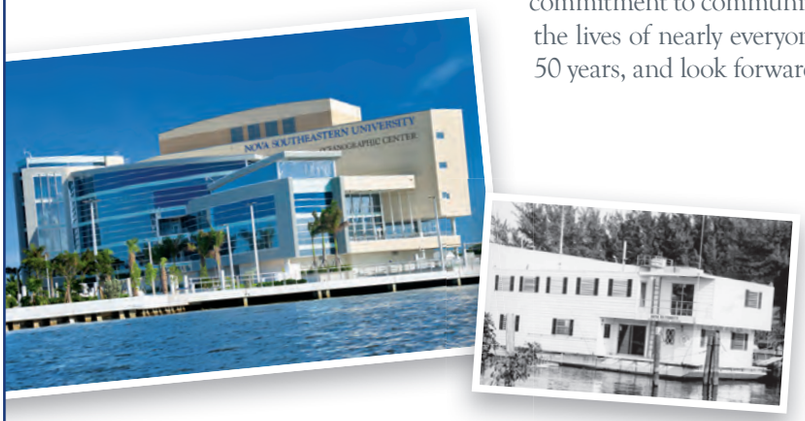
Poster	Atrium	12:15 PM - 1:15 PM	Wheelchair User and Caregiver Experiences with Driving a Power Wheelchair with a Worn Controller (SPOOCI)	Winkler, Sandra	69
Poster	Atrium	12:15 PM - 1:15 PM	Who gets which wheelchair or other assistive device: user versus facility predictors	Winkler, Sandra	77
Poster	Atrium	12:15 PM - 1:15 PM	An Improved Nonlinear Mixed Effects Pharmacokinetic Model Of Intravenous D9-Tetrahydrocannabinol (THC) And Metabolites In Volunteers	Wolowich, William	78
Poster	Atrium	12:15 PM - 1:15 PM	Penicillin skin testing: is there a role within an antimicrobial stewardship program?	Wong, Ting	73
Poster	Atrium	12:15 PM - 1:15 PM	Comparison of antibiotic costs and selection in hospitalized patients with a penicillin allergy	Wong, Ting	74
Podium	Melnick	10:15 AM - 10:45 AM	Topographic Mapping of Macula with mfERG in Diffuse Retinal Pigment Epitheliopathy	Woods, Albert	18
Podium	Finkelstein	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Zapantis, Antonia	8
Podium	Jonas	2:45 PM - 3:15 PM	Efficacy and Tolerability of Dipeptidyl Peptidase-4 Inhibitors in Patients with Diabetes Mellitus and Renal Impairment: a Systematic Review and Meta-Analysis.	Zapantis, Antonia	17
Podium	Melnick	10:45 AM - 11:15 AM	The Effect Of Transient Glare On Object-recognition	Zhang, Bin	19
Podium	Melnick	2:45 PM - 3:15 PM	Comparisons of the spatial matrix of f subfields between multiple nearby V2 neurons in amblyopic monkeys	Zhang, Bin	21

The original NSU campus on East Las Olas Boulevard in 1964 (inset)

IT ALL STARTED WITH A STOREFRONT, 17 STUDENTS, AND A DREAM.

As different thinking and new ideas were sweeping the country in the 1960s, a group of forward thinking businessmen was bringing its own sort of radical change to higher education in South Florida. "The Oatmeal Club" gathered regularly for breakfast, and during those meetings resolved to create a world-class educational institution in the South. And from our humble beginnings in a storefront at 232 East Las Olas Boulevard in 1964, Nova Southeastern University (NSU) has grown into the ninth largest private university in the nation today. Through research developments, the achievements of our alumni, a deep commitment to community service, and a $2.6 billion economic impact, NSU touches the lives of nearly everyone in Florida and beyond. We're proud to celebrate the past 50 years, and look forward to all the future holds.



In 1977, NSU's original Oceanographic Center was a humble houseboat (bottom) but today includes a stunning 86,000 square-foot facility (top) dedicated to coral reef research, the only one of its kind in the United States.

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