

#### A-002 Preventing Sexual Transmitted Infection among Christian Adolescents: Are Sexual Health Lectures Needed in Faith Communities?

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**Background & Objectives:** Adolescents had been identified as vulnerable populations elsewhere in research. However, conservative parties argue the need of sexual health education among general population relaying the responsibility in family and faith communities. This project intends to document the knowledge and sexual behaviors of a group of adolescents actively involved in religious activities. **Methods:** A sub-sample of cross-sectional study was analyzed identifying 85 adolescents in a previously collected database. Data Analysis was performed using STATA 12.0 for descriptive and bivariate analysis. **Results:** Results showed that participants aged 13 -24 years old and had less than high school. Approximately 10% had received sexual health education in their churches and 71% reported to have ever talk about sex with their parents, 27% reported to be sexually active with a sexual debut age of 16 years old. Almost 40% reported to had 3 or more sexual partners however 25% of participants reach and adequate knowledge for preventing sexual transmitted infections. Risk behaviors measured compare to other group of Hispanics surveyed in data base. **Conclusion:** Our sample of adolescent's knowledge and behaviors are very similar to the general population requiring similar interventions. Therefore, leadership require to be trained from a public health perspective in order to lead improve adolescents health.

#### A-003 Designing Mutant Cathepsins to Protect Against Cathepsin Cannibalism

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Human cysteine cathepsins are proteases that are involved in the degradation of various proteins. The diversity of cathepsins are remarkable, particularly for their upregulation in tissue remodeling diseases such as cancer, atherosclerosis, and osteoporosis. Cathepsins also play a vital role in extracellular matrix degradation. Recently a new phenomenon called cathepsin cannibalism have been discover by this lab, which is the idea that one cathepsin species will preferentially degrade another species over the substrate protein. There are eleven different types of human cathepsins, but we focus on cathepsins K, S, L and V because they are the body's most powerful collagenases and elastases. The objective of this project was to make mutant cathepsin K, L, S and V that are resistant to cannibalism by other cathepsins, previously studied in the lab. I was trying to create cathepsin K mutants that are resistant to cannibalism by cathepsin L, i.e. cathepsin L can-

not degrade the mutant cathepsin K. I aimed at creating mutant cathepsin K proteins that are still catalytically active towards collagen and elastin substrates, but cannot be cleaved by other cathepsins. In order to create the mutant proteins, we performed site-directed mutagenesis using overlap extension polymerase chain reaction (PCR). We designed mutagenic primers and with multiple rounds of PCR, we were able to make mutant cathepsins. At the conclusion of the project, we will assay the cathepsins' activity using multiplex cathepsin zymography. Our findings will help to enrich the knowledge of proteolytic processes and the implications of the cannibalism in tissue remodeling and destructive diseases.

#### A-004 Periodontal Disease and Salivary Cytokines in Puerto Rican Adolescents

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**Purpose:** The aim of this cross sectional study was to evaluate the prevalence of periodontal disease and its association to salivary cytokines and obesity in a group of PR adolescents. **Methods:** A convenience sample of 135 PR adolescents ages 13 to 18 years from 3 public schools was recruited. The UPR's IRB approved study. One visit dental evaluation was performed at the schools by a calibrated dentist. This evaluation included plaque index, caries, bleeding on probing, pocket depth, and recession. Height, weight were measured. Five ml of saliva samples were taken for analysis of 10 cytokines. Four periapical radiographs were taken. A behavioral risk questionnaire was administered. Statistical analysis was performed. **Results:** Participants distribution were: obese (32%), overweight (16%), healthy weight (50%) and underweight (2%); females were 62%. Periodontal disease was defined as having 2 sites with pocket depth greater than 4 mm and the same time bleeding on probing greater than 20%. Prevalence of periodontal disease for the total sample was 25.93%: obese 11.9%; 3% overweight, 11% healthy weight. No statistical significant association was found for obesity and periodontal disease ( $p > 0.05$ ). Multiple regression analysis controlling by gender and age and BMI found CRP ( $p=0.025$ ) and IL-1b ( $p= 0.07$ ) associated to presence of periodontal disease. A trend was found for adinopectin ( $p=0.10$ ) and TNF ( $p =0.12$ ). **Conclusion:** The results of this study showed one fourth of adolescents with early signs of periodontal disease. The study could not find a relation between weight and periodontal disease.

#### A-005 Interproximal Bone Loss and Salivary Cytokines in PR Adolescents

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**Purpose:** The aim of this cross sectional study was to evaluate the association between interproximal bone loss and 4 salivary cytokines related to bone loss in a group of PR adolescents. **Methods:** A convenience sample of 135 PR adolescents ages 13 to 18 years from 3 public schools was recruited. The UPR's IRB approved the study. One visit dental evaluation was performed at the schools by a calibrated dentist. This evaluation included plaque index, caries, bleeding on probing, pocket depth, and recession. Height, weight were measured. Five ml of saliva sample was taken for analysis of 10 cytokines (IL-b, MMP-8, MMP-9, OPG, TRANCE, TNF alpha, leptin, adenopectin, CRP, IL-6, Periostin). Four periapical radiographs were taken. A behavioral risk questionnaire was administered. Statistical analysis was performed. **Results:** Participants distribution were: obese (32%), overweight (16%), healthy weight (50%) and underweight (2%); females were 60%. Mean amount of bone (measured from cej to bone crest) for total sample was  $0.766 \pm 0.21$  mm. Only 2 patients had bone loss greater than 2 mm and were obese adolescents. Multiple regression analysis controlling by age, gender and BMI showed bone loss related to OPG ( $p = 0.049$ ), MMP-9 ( $p = 0.048$ ), leptin ( $p = 0.026$ ). Trends were found for TNF ( $p = 0.066$ ), TRANCE ( $p = 0.058$ ) and IL-6 ( $p = 0.053$ ). Multiple regression analysis controlling for gender, age and BMI showed early signs of periodontal disease was associated to bone loss ( $p = 0.046$ ). **Conclusion:** Main salivary cytokines related to bone loss in periodontal disease positive adolescents were OPG, MMP-9 and leptin.

#### A-006 Gingivitis and Salivary Cytokines in a Group of PR Adolescents

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**Purpose:** The aim of this cross sectional study was to evaluate the prevalence of gingivitis and its association to salivary cytokines and obesity in a group of PR adolescents. **Methods:** A convenience sample of 135 PR adolescents ages 13 to 18 years from 3 public schools was recruited. The UPR's IRB approved the study. One visit dental evaluation was performed at the schools by a calibrated dentist. This evaluation included plaque index, caries, bleeding on probing, pocket depth, and recession. Height, weight and waist circumference were measured. Five ml of saliva samples were taken for analysis of 10 cytokines: (IL-b, MMP-8, MMP-9, OPG, TRANCE, TNF alpha, leptin, adenopectin, CRP, IL-6, Periostin). Four periapical radiographs were taken. A behavioral risk questionnaire was administered. Statistical analysis was performed. **Results:** Participants distribution were: obese (32%), overweight (16%), healthy weight (50%) and underweight (2%); females were 60%. Gingivitis was defined as 20% or more sites with bleeding on probing. Prevalence of gingivitis for the total sample was 25.19%. Gingivitis was found in 12% of obese, 2% overweight and 11.19%

% of healthy weight. No statistically significant findings were found for obesity and gingivitis ( $p > 0.05$ ). Multiple regression analysis controlling for age, gender and BMI found no salivary cytokines levels were related to gingivitis except for a trend in the levels of leptin ( $p = 0.205$ ). **Conclusion:** The results of this study showed an important finding of inflammation in gums in adolescents but could not show expression in the levels of specific salivary cytokines.

#### A-007 Not your Usual Maculopapular Rash

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**Purpose:** Palmoplantar pustulosis is a chronic inflammatory condition characterized by crops of sterile pustules on the palms and soles that erupt repeatedly over time. Epidemiological data is limited because palmoplantar pustulosis appears to be uncommon in the general population. **Case description:** A 60 year old female with medical history of arterial hypertension, rheumatoid arthritis, fibromyalgia and panic attacks, presented to the Emergency Room with sudden onset of pruritic skin lesions, located on palms and soles since 3 days prior to admission. **Clinical findings:** During the physical examination, crops of discrete creamy-yellow pustules in a studded pattern on top of erythematous plaques were noted on both palms and soles. Also, perioral erythema with yellow crusts was noted, along with erythematous scaly plaques under the left breast and in the left inner thigh area, measuring approximately 5 x 3 cm and 3cm x 1.5 cm, respectively. Laboratory tests revealed leukocytosis, elevated ESR and CRP and a positive ANA. The patient's HIV, RPR and serum cryoglobulins were negative and the C3 and C4 complement levels were normal. The rest of the laboratory tests were unremarkable. **Clinical approach:** Examination findings were suggestive of the diagnosis of palmoplantar pustulosis, although several other skin disorders were included in the differential diagnosis. Patient was admitted to Internal Medicine service for further workup and supportive measures. Skin biopsy was performed. Topical clobetasol and antibiotic therapy with ceftaroline were started. Lesions progressed and became partially confluent, turned brown, peel and became crusted. Skin biopsy showed subcorneal pustules, a thin epidermis and a sparse lymphocytic infiltrate, which supported the diagnosis of palmoplantar pustulosis. After several days of therapy and improvement, patient was discharged home. **Hypothesis:** The differential diagnosis of skin lesions is broad. The diagnosis of palmoplantar pustulosis usually can be made based upon recognition of the clinical findings of a pustular eruption in palms and soles with associated erythema and hyperkeratosis. Skin biopsy is usually not necessary, but can be useful for supporting the diagnosis in patients with atypical presentation or refractory disease. This case illustrates the importance of an internist to recognize and characterize skin lesions, as well as to rule out life threatening conditions.

**A-008 Eliminating Health Disparities in Health Professions: Professional Certificate Program**

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**Objective:** To describe a faculty development program focused in the integration of Cultural Competency and Health Disparities knowledge, skills and attitudes throughout the undergraduate MD curriculum and residency programs. **Method:** A four session professional certificate program was developed to provide focused and practical instruction to medical faculty and other health related faculty in the integration of health disparities knowledge, skills and attitudes throughout the curriculum and residency programs. A hands-on approach was adopted by means of the use of standardized patients, vignettes, videos, modules, and case studies. Program facilitators were recruited from a variety of health professions allowing inter-professional approach/views to faculty development. Several facilitators were trained at NIH Fellowship Summer Programs in health disparities. Thirty four participants were selected and organized into subgroups to formulate and to pilot-test a curricular plan, addressing health disparities in medical education, during the 2013-14 and 2014-15 academic years. **Results:** Eight curricular plans were presented for basic, clinical courses and residency programs. Participants were asked to respond to a quantitative and qualitative questionnaire on the Survey Monkey platform. Over 90% of respondents expressed satisfaction with the program and the intention to implement curricular modifications to the courses in which they participate. **Conclusion:** A follow-up and support mechanism was developed to assess the implementation and impact of the curricular plans in medical student's skills, knowledge and attitudes. **Acknowledge:** Study was supported by the Hispanic Center of Excellence at University of Puerto Rico, Medical School – Health Resources and Services Administration Grant #D34HP24463.

**A-009 A Structured Program for Increasing Medical Student Commitment to Engage in Scientific Research on Hispanic Health Issues**

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**Background & Objectives:** The Hispanic population is growing rapidly in the USA, representing approximately 17% of the total population. Despite the higher prevalence of certain health conditions in this population when compared to other ethnic groups, studies addressing this disparity are scarce. A structured student research program was implemented at the University of Puerto Rico School of Medicine to increase the number of medical stu-

dents committed to engage in scientific research. **Methods:** The program consists of three sequential research courses offered between the first and fourth years of study. A research track certificate is offered to students who complete the three courses with a minimum of 480 hours of research experience. By establishing student-mentor relationships, the program provides medical students with a variety of basic and clinical research opportunities in Hispanic health-related issues. In addition, during the first course, students receive basic scientific knowledge and research fundamentals through workshops scheduled during the summer. **Results:** During the 2014 Summer, 73 first-year medical students participated in the program, 22 in USA and 51 in the Medical Sciences Campus, representing approximately 70% of the total number in first-year class. The number of research manuscripts and presentations at scientific forums has increased significantly during the last five years. **Conclusion:** The implementation of a structured research program in the medical school curriculum focused on the development of clinical researchers is a valuable strategy to increase research projects addressing Hispanics' health needs. Supported by U.S. Department of Health and Human Services Grant # D34HP24463.

**A-010 Caries Experience and Socioeconomic Status in a Group of PR Adolescents**

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**Purpose:** The aim of this cross sectional study was to evaluate the caries experience and social determinants in a group of Puerto Rican adolescents. **Methods:** A convenience sample of 186 Puerto Rican adolescents' ages 13 to 18 years from 5 PR public schools was recruited. The University of Puerto Rico's IRB approved the study. A one visit dental evaluation was performed at the schools by a calibrated dentist. This evaluation included plaque index, ICDAS caries exam, bleeding on probing, probing pocket depth, and recession. A behavioral risk questionnaire was administered. Statistical analysis was performed using STATA. **Results:** Females were 60%. Socioeconomic level was defined depending on the type and location of public school. Caries index was greater for adolescents from public school with lower SES (2.6 vs 1.05). There was no difference in filled surfaces index by SES (3.48 vs 3.12). There was a statistically significant difference in caries experience by gender; female adolescents reported higher caries indexes than males. SES status of female subjects do not influence the caries status for females. **Conclusion:** The results of this study showed an important finding of social determinants for adolescents and caries experience. Gender and SES being social determinants of caries experience.

**A-011 Low and Medium Doses of Clonidine Decrease Left Ventricular Function in Diabetic Rats by Promoting Ventricular Dilation**

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**Background & Objectives:** During the perioperative period, alpha-2 receptor agonists have been suggested to reduce cardiac risk by decreasing catecholamine-induced cardiac stress. Diabetic patients have a higher incidence of perioperative cardiovascular complications due to hemodynamic instability. The potential benefits of clonidine, an alpha-2 receptor agonist, in maintaining cardiac homeostasis in diabetics during the perioperative period are unknown. **Methods:** In this study, we evaluated with echocardiography the effects of clonidine (250, 50 and 10 µg/kg, IP) on the cardiovascular status of streptozotocin (STZ)-induced diabetic and control (CT) rats while under anesthesia. The oxidative-stress markers malondialdehyde (MDA) and 4-hydroxyalkenal (4-HAE) were also measured in cardiac and aortic homogenates. **Results:** Heart rate was reduced by clonidine in diabetic and CT rats at all doses. In contrast, high (250 µg/kg) and medium (50 µg/kg) clonidine doses did not affect stroke volume, cardiac output, or ejection fraction in either diabetic rats or CT. In diabetic rats, low (10 µg/kg) and medium (50 µg/kg) clonidine doses increased left ventricular end-systolic and diastolic volumes by 80% and 50%, respectively (n=6, P<0.05). Clonidine did not alter MDA or 4-HAE levels in cardiac and aortic homogenates from either diabetic rats or CT, suggesting that oxidative stress is not modified by acute clonidine incubation. **Conclusion:** Our results indicate that low and medium clonidine doses have a deleterious effect on ventricular function in diabetic rats, possibly because the negative cardiac inotropic and chronotropic effects outweigh the reductions in afterload that are secondary to alpha-2 receptor activation by the drug.

#### A-012 When a Headache Strikes

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A 56-year-old woman without history of headache, cardiovascular risk factors or antecedent trauma was transferred to our ED due to intractable headache. She was initially admitted in another institution due to suspected ciguatera fish poisoning, two days after consuming a red snapper fish. At that time she reported fever, headache, nausea, multiple episodes of intractable retching vomiting and diarrhea, vertigo, paresthesias, myalgias, arthralgias, weakness and psychomotor impairment. She had to return to that institution due to worsening headache, blurry vision and diplopia. Clinical examination was remarkable for severely dehydration, right side ptosis, nasolabial flattening, decreased motor strength, numbness and diffuse abdominal pain. A Brain MRI showed evidence of diffuse meningeal enhancement, bilateral subdural collections and "brain sagging". She was transferred to our institution for further management due to intractable headaches secondary to a suspected subdural empyema caused by bacterial meningitis. Intracranial hypotension was thought and myelography was performed to evaluate for CSF leakage and a herniating calcific intervertebral disc was found at the level of

T10-T11 indenting the ventral thecal sac evidencing a connection between the extramedullary spaces. A diagnosis of intracranial hypotension was confirmed which was likely secondary to her severe dehydration and history of retching vomiting. She was treated with strategies aimed to restore CSF volume including oral and intravenous hydration, high caffeine, and salt intake. This case illustrates the importance of considering Intracranial Hypotension as a cause of headache as is of paramount importance to prevent extensive testing and to provide the appropriate treatment.

#### A-013 Development by the Hispanic Center of Excellence of Health Career Enrichment Activities to Increase Applicant Pool Competitiveness among High School Hispanic Students from Disadvantaged Backgrounds

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According to the U.S. Census Bureau, Puerto Rico Community Survey 2009, 78% of high school graduates are from public schools and only 21% are from private schools. Despite this fact, only 12% of the students attending the medical program at the University of Puerto Rico come from disadvantaged backgrounds. Contributing factors such as poor levels of standardized basic skills tests; lack of information about admission requirements, low motivation can help explain the public system deficiency in higher admission quota and overall competitiveness into the School of Medicine and other health-related academic programs. To assume the goal of providing Hispanic students with an opportunity to become socially committed health professionals, our Hispanic Center of Excellence has devised a strategic plan to conduct a series of activities; admission and financial aid orientations, health workshops, research opportunities, summer health professions camps, community service opportunities, exposure to professors and programs in the UPR-MSc, participation in awards competitions, hands on experiences, doctors and medicine students visitations (role modeling), community networking. In 2013 we initiated five "Medicine and Health Related Clubs" in public high schools throughout the island with an average of 25 students per Club. By the end of the academic year 2013-2014 we have already impacted 145 students and 100% of them have been admitted to college and 90% to science programs. For the summer of 2014 we had an increase in the participation of students in health-related summer activities: 11 students Biomedical Research Education Program, 2 students in the NIH Step-up program, 1 student in the RISE-UPR Program, 3 students doing "shadowing" programs in Hospitals and 1 scholarship for the International Scientific Festival in Italy. Through their college years we track them and mentor them to assure they are following their academic plan to reach their goals. We intend to increase the enrollment in medicine of students from disadvantaged backgrounds from 12% to 25% by 2017.

**A-014 A Hispanic Female Patient with Heartburn: A Rare Presentation of Paroxysmal Nocturnal Hemoglobinuria: A Case Report**

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**Purpose:** Paroxysmal nocturnal hemoglobinuria (PNH) is a non-malignant, acquired clonal hematopoietic stem cell disease that can present with bone marrow failure, hemolytic anemia, smooth muscle dystonias, and thrombosis. PNH can also evolve into other marrow disorders including aplastic anemia (AA), myelodysplasia, and acute myelogenous leukemia. It is a rare disease, with a worldwide prevalence estimated in the range of 1–5 cases per million regardless of ethnicity. The median age of presentation is 40 years, but the disease occurs in all age groups. **Case Description:** We present the case of a 32 year-old-woman, G2P2A0 with no past medical history of any systemic illnesses who refers approximately 2 months of progressively worsening constant heartburn with associated abdominal discomfort. Patient visited the emergency room on multiple occasions where she was treated for heartburn and gastritis with proton pump inhibitors without resolution of her symptoms. She says changing her diet and avoiding precipitating foods did not help. **Clinical Approach:** CBC showed WBC 2.9 x 10<sup>3</sup> /μL, Hgb 6.1 g/dL, hematocrit 20% and platelet count 59 x 10<sup>9</sup>/L. LDH levels 850 U/L. Abdominopelvic CT-scan revealed a superior mesenteric vein thrombosis with complete occlusion as an incidental finding. **Clinical Findings:** A bone marrow aspirate and biopsy was done showing hypocellularity of 20%. Flow cytometry assays of peripheral blood revealed decrease expression of CD55 and CD59. It identified a population with deficient levels of expression of glycosylphosphatidylinositol (GPI) linked antigens and anchor proteins. Patient was eventually diagnosed with PNH. **Hypothesis:** PNH is a rare, clonal, hematopoietic stem-cell disorder whose manifestations are almost entirely explained by complement-mediated intravascular hemolysis. The natural history of PNH is highly variable, ranging from indolent to life-threatening. The median survival is 10 to 15 years. Thrombosis is the leading cause of death. In fact, thrombosis accounts for 40% to 67% of the mortality from the disease. Venous thrombosis in PNH can occur anywhere, with the abdominal veins (hepatic, portal, splenic, and mesenteric) and the cerebral veins being the most common sites. Patients with a large PNH cell population (60% of granulocytes) seem to be at greatest risk for thrombosis. Our patient had a PNH cell population of 80% of granulocytes. Anticoagulation is only partially effective in preventing thrombosis in PNH; thus, thrombosis is an absolute indication for initiating treatment with eculizumab, a monoclonal antibody that targets complement protein C5. Nevertheless, bone marrow transplantation (BMT)

is still the only curative therapy for PNH but is associated with significant morbidity and mortality. Treatment with eculizumab was initiated in our patient and has been well tolerated with no reported complications. PNH is an unusual hematological disease that is easy to miss but impossible to ignore. To the best of our knowledge, this will be the first case reported in the medical literature of PNH with initial presentation of heartburns. Physicians in Puerto Rico should be aware of this rare hematological entity. **Acknowledgements:** Hematology–Medical Oncology Section, VA Caribbean Healthcare System and San Juan City Hospital.

**A-015 Caffeine Stimulates Locomotor Behavior in the Mammalian Spinal Cord through an A1/D1-dependent Mechanism**

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**Background & Objectives:** Caffeine is a strong psycho-stimulant drug socially consumed worldwide and like cocaine and amphetamines it can modulate behaviors such as vigilance, attention, and locomotion. Caffeine is as a non-selective blocker of adenosine receptors, specifically the A1 and A2A subtype. Through the blockade of endogenous adenosine, caffeine disrupts the dopamine homeostasis, which is key for the onset of many psychiatric disorders and drug addiction. Most of the studies assessing the role of caffeine on the central nervous system are concentrated at observing the systemic effect of this drug, however studies concentrated on assessing the mechanism at single pattern networks are needed. By understanding how caffeine affects a single neural network, we can provide information that could help explain the behavioral effects seen in past studies and the apparent contradiction regarding the mechanism of action by which they modulates behavior. **Methods:** We began assessing the effects of caffeine to spinal locomotor network function using the neonatal mouse isolated spinal cord preparation. A locomotor rhythm was obtained by adding a combination of serotonin, N-methyl-D-Aspartate (glutamate analog) and dopamine to the recording chamber and an alternating locomotor-like rhythm was confirmed by recording motor activity using suction electrodes on lumbar ventral roots. **Results:** Addition of caffeine to the superfusate significantly decreased the step cycle period of the ongoing locomotor-like rhythm, while decreasing burst duration in most preparations in a reversible manner. Application of DPCPX mimics the effects of Caffeine. In the absence of dopamine from the drug cocktail, caffeine and DPCPX did not exert its stimulant effects. This result was replicated using a specific D1 dopamine receptor antagonist. **Conclusion:** These experiments suggest that the stimulating effect of caffeine involves the blockade of the A1 adenosine receptor which leads to less regulation of dopaminergic neurotransmission and more activation. The loss of caffeine's stimulatory effects in the presence of a PKA inhibitor and the

ability to mimic this effect with the use of a cAMP up-regulator suggest that the motor activation effects of caffeine are mediated through a PKA second messenger pathway. Acknowledgments: Thomas Cleland (Cornell University) / Alex Kwan (Yale University) Funding: MBRS RISE (R25GM061838), Craig Nielsen Foundation (124554), NSF (1026061), RCMI/UPR-MSC (G12RR03051), NIH-COBRE (1P20GM103642-01A1) This work is part of JM Acevedo's thesis dissertation.

#### **A-016 Professionalism Lapses during Clinical Clerkships: An Innovative Intervention Program**

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Medicine is a profession that requires high standards of professionalism along with the mastery of knowledge and clinical skills. The Council on Medical Students Education in Pediatrics includes professional conduct in their curriculum recommendations. Significant attention has been directed toward developing strategies to prevent professional breeches. Literature is lacking educational interventions directed to improve behaviors in medical students identified with unprofessional performances. Objective: Implement an intervention program to improve professional deficiencies identified among medical students. Strategy: During 2013-14, any student during third year clinical clerkships in the University of Puerto Rico School of Medicine that demonstrated unprofessional behavior was referred to a designated professionalism committee. The intervention program included: a presentation of the program objectives; assignment of a faculty mentor; completion and discussion with the student of a Professionalism Concern Form; assigning three vignettes and a peer reviewed article to the student and discussing with mentor lessons learned and conflicting values; assessing the student through an Objective Structured Clinical Examination; debriefing process. The Professionalism Intervention Program has been implemented from 2013 –2015. Five third year medical students have participated. Any medical student that presents a professional breach is at risk of causing a negative impact to patient care and patient safety. This program aims to prevent further unprofessional behavior. The impact of this innovative program will be long term remediation of negative attitudes and behaviors that may impact patient care.

#### **A-017 Programa de Intervención Multifactorial de Terapia Ocupacional Basado en Baile para Prevenir Caídas en Viejos de 65 Años o Más**

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Trasfondo y objetivos: El riesgo a caídas en adultos mayores está constituido por factores intrínsecos y ambientales que provocan limitaciones en su desempeño ocupacional, produciendo

cambios abruptos en roles, rutinas y rituales importantes para la autovalidación del viejo y el desempeño seguro de actividades significativas. El diseño de un programa de intervención con actividades que mejoren el nivel presente de ejecución es esencial para promover en esta población la participación segura en actividades significativas. El objetivo principal de este estudio fue identificar el nivel de efectividad de un programa de intervención multifactorial con un enfoque biopsicosocial para aumentar o mantener la fuerza, el balance, y la autoeficacia relacionada a caídas en personas de 65 años o más, que habían experimentado caídas o presentaban miedo a caídas. Métodos: El diseño fue pre y post prueba de un solo grupo, con una muestra no probabilística propuesta de 25 viejos saludables (wellelderly). La variable independiente fue la intervención multifactorial: baile terapéutico con movimientos corporales libres y actividades psicoeducativas para la prevención de caídas. Las variables dependientes, balance y fuerza muscular funcional medidas con la Timed Up and Go Test, y autoeficacia medida con la FES I. Resultados: Se evidenció un incremento en balance y fuerza funcional estadísticamente significativo, (p .05), no así para la autoeficacia (p .2). Conclusión: Los resultados sugieren que programas que integran actividad física con sesiones psicoeducativas son efectivos en incrementar el balance y la fuerza funcional necesarias para prevenir caídas en adultos mayores. Reconocimientos: Programa de Ayudantías Graduadas.

#### **A-018 Metastatic Gastric Adenocarcinoma in a 14 Year Old Child: A Case Report**

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Purpose: The typical patient with gastric cancer is male and between 40 and 70 years of age. It is particularly rare in children and accounts for only 0.05% of pediatric gastrointestinal malignancies. This tumor must be distinguished from other diseases such as non-Hodgkin lymphoma, malignant carcinoid, leiomyosarcoma, and various benign tumors of the stomach. Case Description: We report the case of a metastatic gastric adenocarcinoma in a 14 year old male patient with one year history of dry cough, multiple joint pains and weight loss. Clinical Approach: A Chest Xray showed multiple nodular lesions, likely metastases. CT of the Thorax revealed innumerable bilateral soft tissue parenchymal nodules consistent with metastatic lung disease. A CT of the Abdomen/Pelvic region revealed a bulky confluent retroperitoneal and mesenteric lymphadenopathy with necrosis as well as intraluminal filling defect just proximal to the takeoff of the splenic vein, consistent with tumoral thrombus. Clinical Findings: Grossly, 1 x 0.5 x 0.3 cm core needle liver biopsy was performed and showed multiple irregular fragments of white tan soft tissue, histologically most consistent with metastatic adenocarcinoma, probably gastric primary. Diagnosis was then confirmed via endoscopy and biopsy. Hypothesis: This tumor is extremely rare in the pediatric population, and can present with diffuse metastatic disease. Early diagnosis consists of upper gastrointestinal

radiography and endoscopy with biopsy. Early consultation with Surgery, Oncology, Pathology and Gastroenterology services is pertinent regarding overall prognosis. The role of treatment is patient dependent, although long-term survival in children is rare.

**A-019 Sports Participation in Children with Cardiac Diseases**  
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**Background:** Physical activity is an important aspect of daily life. It has been proven beneficial in lowering diabetes mellitus and obesity incidence. Children with chronic diseases are less likely to be involved in sports activity and it has been traditionally limited in children with heart diseases. **Objectives:** 1. Determine sports participation in children who visit the pediatric cardiology clinics. 2. Compare the physical activities in children with pacemakers, congenital heart diseases (CHD) and no heart diseases (NCHD). **Methods:** An anonymous survey was answered by 70 parents of children, age 5-18, who visited the Cardiovascular Hospital pediatric cardiology clinics. **Results:** Children were mostly males (63%) with a mean age of 12 years (range 5-18); 14.3% (N=10) had pacemakers, 44.3% had CHD (N=31) and 41.4% NCHD (N=29). In general, 56% of children were athletic and the main reason for no participation was lack of interest (54%), followed by parents being scared (29%). Only one parent reported no participation due to physician recommendation. Sports participation by group was pacemakers (50%), CHD (48%) and NCHD (66%). Most children with pacemakers who participate in sports (80%) reported complications; fatigue and syncope being the most commonly reported. **Conclusion:** Despite having a heart condition, 50% of children participate in sports. Major reason for inactivity is lack of interest but parental concerns showed to have an impact in children sports participation. More education is needed for parents of children with heart conditions in order for them to feel confident in promoting exercise in their children.

**A-020 Tribus de Loto: Proyecto de Educación en Salud y Promoción de la Salud para embarazadas de Barrio Obrero**  
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**Antecedentes & Objetivo:** La Organización Mundial de la Salud considera el cuidado prenatal como un asunto de salud pública de prioridad (2009). El objetivo de *Tribus de Loto* era proveer educación prenatal a embarazadas que reciben servicios de ginecología y obstetricia en HealthproMed. Gran parte de la población atendida en HealthproMed son de República Dominicana. Martínez (2014) afirma que este es un asunto de salud pública que se debe abordar en la embarazada dominicana. **Método:** El proyecto utilizó estrategias de educación en salud, comunicación en salud e intersectorialidad. **Actividades:** libros del tema,

taller sobre masaje para bebés, actividad Expo-Bebé, conferencias, Protocolo para referidos de embarazadas al departamento de educación en salud en HealthproMed, colaboraciones con agencias privadas y públicas, boletín sobre los derechos de embarazadas y sus bebés y hojas informativas. **Resutados:** *Tribus de Loto* comenzó como proyecto piloto y logró posicionarse como servicio permanente en HealthproMed. En poco más de dos meses participaron 67 embarazadas. Se demostró mediante un pre y post prueba aumento en conocimiento. Se colaboró con una agencia gubernamental y con 9 agencias privadas. **Conclusiones:** El proyecto *Tribus de Loto* permitió impactar a una población de difícil reclutamiento y en necesidad de cuidado. Las participantes pudieron reflexionar acerca de su proceso de forma individual y colectiva y aumentar su conocimiento sobre el tema. Las investigadoras proyectan mantener el proyecto en HealthproMed e implementar actividades similares en República Dominicana. **Agradecimientos:** *Tribus de Loto* formó parte de la Práctica Supervisada el Programa de Maestría de Educación en Salud.

**A-021 Takotsubo (Stress Induced) Cardiomyopathy: Case Series Report**

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**Purpose:** Stress Cardiomyopathy, also referred to as Takotsubo Cardiomyopathy is a recognized clinical syndrome characterized by reversible apical ventricular dysfunction. **Cases description:** Here, we report a case-series of 6 patients with Takotsubo cardiomyopathy for a better understanding of this phenomenon. The patients were compared based on age, sex, past medical, surgical and social history, physical exam, laboratory and imaging studies. Between the years 2011 to 2013, 6 patients were evaluated in Manatí Medical Center due to chest pain. **Clinical findings:** All patients were women aged 62 to 81 years old (mean 71.7±8.7 years). Two of them (40%) acknowledged a major stressor at the time of the event. Five of the six patients (83%) had a previous history of Hypertension and 2 (33.3%) had a history of Heart Failure. The most common findings were: T wave inversion (33.3%) and ST-segment elevation (16.6%) on EKG, 5 (83.3%) patients had Troponin levels elevation and 3 (50%) had CKMB and CK increasing. The echocardiogram showed ventricular wall hypokinesis or akinesis. Interestingly, all the coronary catheterizations were normal. Five out of six patients were reached for a long term follow-up interview. The interview showed 100% patient's compliance with medications and medical follow up post event, 4 (80%) patients showed no post event impairment or hospitalization, and 3 (60%) of them showed mood changes and post-event lifestyle modifications. **Hypothesis:** An increased awareness of this entity will contribute to timely diagnoses and appropriate treatment. The study was approved by the PSMHS IRB (Protocol Number 140922-JM on 10/01/2014).

**A-022 Risk of Thyroid Cancer among Caribbean Hispanic Patients with Familial Adenomatous Polyposis**

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**Background & Aims:** Familial adenomatous polyposis (FAP) is an inherited form of colorectal cancer (CRC) characterized by the presence of hundreds of adenomatous polyps in the colon and rectum. FAP is also associated with thyroid cancer (TC), but the lifetime risk is still unknown. This study assessed the standardized incidence ratio of TC in Hispanic patients with FAP. **Methods:** The incidence rates of TC in patients with FAP were compared with the general population through direct database linkage from the Puerto Rico Central Cancer Registry (PRCCR) and the Puerto Rico Familial Colorectal Cancer Registry (PURIFICAR) between the periods of January 1, 2006 to December 31, 2013. The study population consisted of 51 Hispanic patients with FAP and 3,239 with TC from the general population. The Standardized incidence ratio (SIR) was calculated using the Indirect Method, defined as observed TC incidence among patients with FAP in PURIFICAR's cohort divided by the expected TC incidence based on the PR population rates. **Results:** In patients with FAP the Standardized Incidence Risk (SIR) (95% CI) for TC was 251.73 (51.91 – 735.65), with higher risk for females 461.18 (55.85-1665.94) than males 131.91 (3.34-734.95). **Conclusions:** Hispanic patients with FAP are at a high risk for TC compared to the general population. Our incidence rates (SIR) are higher than previous studies, suggesting that this community may be at a higher risk for thyroid malignancy than previously assumed. We encourage the implementation of clinical surveillance guidelines and regular ultrasound neck screening in patients with this syndrome. **Grant Support:** This study was supported by the following: National Institute on Minority & Health Disparities Award Number 8U54MD007587-03 and U54MD007587; National Cancer Institute Award Number 5K22CA115913-03, R21CA167220-01, 5R03CA130034-02, and U54CA096297/CA096300; Center for Collaborative Research in Health Disparities RCMI Award Number G12MD007600.

**A-023 Prevalence of Gingivitis in a Group of 35-70 years olds Residing in Puerto Rico**

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**Background and objective:** Limited studies have been made to assess the prevalence of clinical gingivitis in Puerto Rico. The aim of this study was to assess the prevalence of clinical gingivitis in a group of 35-70 years olds residing in Puerto Rico (PR). **Methods:** Across-sectional epidemiological study was conducted at UPR Medical Sciences Campus in San Juan, Puerto Rico and a private dental practice in Trujillo Alto, Puerto Rico. Subjects completed a medical history questionnaire and received a soft, hard tissue and gingivitis evaluation, by three trained examiners, using the modified Löe-Silness' Index. Descriptive statistics was employed to calculate the overall mean of gingivitis in the study group, by age and gender. **Results:** 300 subjects were enrolled in the study. 73 % were enrolled in UPR Medical Sciences Campus and 27 % in private dental practice. The overall MGI was 1.39; males reported a higher MGI (1.48) than females (1.30). Only 31% of the subjects showed bleeding; females (25%) reported less bleeding compared to males (38%). The sample showed a higher prevalence of mild (72%) clinical gingivitis based on the Löe-Silness Gingival Index criteria. **Conclusion:** The overall prevalence of gingivitis was lower than previously reported in other studies in Puerto Rico. A higher prevalence of the condition was observed in males.

**A-024 About the Effects of Electromagnetic Exposure in Puerto Rico: A Questionnaire Survey**

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The increasing number of base stations on masts and buildings in Puerto Rico has increased public awareness, now people complain of various symptoms attributed by many to exposure to electromagnetic fields. Our main objective is to evaluate population health risk perceptions based on exposure to electromagnetic fields by radio/TV and mobile base stations. Moreover, know population concern upon installation of radio/TV and mobile base station close to their home or place of work. This is a quantitative study where we designed a questionnaire of 29 questions using the program Survey Monkey<sup>®</sup>, which refers to demographic data, information about proximity to communication antennas, and a symptom checklist was allowed knowing the frequency of over 20 health related symptoms. Data analysis was performed using frequency distribution techniques, contingency tables and contrasts of hypothesis based on t statistics, chi-square analysis, and a series of logistic regression equations to evaluate if proximity to antennas were significantly related to symptoms reported. We did not observe statistical significant differences in the frequencies of the 22 most often stated symptoms related to



health risks, except for sleeping disorder, irritability, congenital disorder, endocrine gland symptoms, and skin alterations. Based on results, there is a need for a logarithmic approach where severity of the symptom's and electric field measurements are to be considered in future studies in Puerto Rico where topography is a consequence of a high number of communication antennas per square foot.

#### A-025 Unusual Cause of Bone Pain

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**Purpose:** Primary bone lymphoma (PBL) is an extremely rare tumor accounting for less than 1% of all non-Hodgkin's lymphoma. As a result of the rarity of this disease, specific diagnostic and treatment protocols are lacking. Here we present a patient with PBL of the proximal right humerus and review the related literature. **Case:** A 52-year-old man without comorbidities presented with pain along the lateral aspect of his right arm since 4 months. X-ray of the right humerus showed moth-eaten appearance. MRI revealed markedly heterogeneous enhancement within the proximal two-thirds humeral shaft. Laboratory workup only revealed slightly increased ALP. Histopathology showed large atypical cells. Immunohistochemistry showed positivity for CD20, Pax5, Bcl6 and CD10. Further workup including bone marrow aspiration and biopsy, CT scan of neck, chest, abdomen/ pelvis were normal. PET scan demonstrated increased F-18 FDG accumulation only involving right humerus. **Findings:** Final diagnosis was diffuse large B cell lymphoma of right humerus. He was treated with six cycles of R-CHOP followed by radiotherapy with complete response to the therapy. The diagnosis of primary bone lymphomas may be challenging, often misdiagnosed as rheumatic diseases. Thus, regardless of the absence of lymphadenopathy, it should be considered in the differential diagnosis of patients over the age of 30 with bone pain not relieved by rest. Although the prognosis is generally good, disease progression or relapse, especially in patients  $\geq 60$  yrs, confers a very poor prognosis. Studies on this disease should be carried out to clarify the optimal treatment in the future. **Acknowledgement:** I certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

#### A-026 Leptomeningeal Carcinomatosis as The Initial Manifestation of Metastatic Disease Diagnosed in Post-mortem Examination: A Case Series

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Leptomeningeal carcinomatosis (LMC) refers to the infiltration of malignant cells in the pia-arachnoids. It is commonly associated to solid tumors particularly carcinomas of the breast and lung. Lately, the incidence of undiagnosed LMC is increasing;

currently about 20%. The usual presentation of nonspecific neurologic symptoms makes diagnosis challenging; especially in the scenario of unknown malignancy. We report three cases with different clinical neurological presentations secondary to LMC. Cerebrospinal fluid (CSF) examinations were negative for malignant cells. Head CT-scans were non-suggestive. A 52 year old woman with history of breast cancer status post combined chemo/radiotherapy on remission who developed headaches and difficulty walking; a 2 year old boy recently diagnosed with left ear rhabdomyosarcoma status post resection on chemotherapy who suddenly developed vomiting, abdominal pain, and seizures followed by brain death; a 59 year old woman with history of chronic tobacco smoking and alcoholism just diagnosed with communicating hydrocephalus of unknown etiology that presented with rapidly deteriorating neurological status and death occurring less than a week after admission. LMC, consistent with primary, was diagnosed at autopsy by histologic examination and immunohistochemistry studies. Leptomeningeal carcinomatosis, currently increasing in incidence, is a complication that requires a high level of clinical suspicion. The presence of malignant cells in the CSF defines the diagnosis; although it has not been proven completely reliable. Studies have shown that serial CSF examinations enhance diagnostic accuracy. Postmortem examination is an invaluable tool to confirm LMC as part of the multidisciplinary approach aiming towards the improvement of clinical diagnosis.

#### A-027 Dental Caries Prevalence of 12-Year-Olds Residing in San Pedro de Macoris

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**Introduction:** Dental caries is one of the most prevalent chronic diseases in children. Although a decrease in dental caries has been reported, in countries with developing and established market economies, health disparities persist among different socioeconomic (SES) groups. Currently, no data is available on dental caries prevalence in the Dominican Republic. The aim of the study was to estimate the prevalence, distribution, and severity of dental caries in school attending 12-year-olds in San Pedro de Macoris, DR. **Methods:** Cross-sectional epidemiological study using a probabilistic sample, stratified by public/private schools and gender was employed. Ten boys and ten girls were randomly selected in each of the selected schools from a list of 12-year-olds. Two trained/calibrated examiners evaluated children from private and public schools, following the NIDCR's criteria. Prevalence (%) and Decayed-Missing-Filled Teeth index (DMFT) scores were calculated. The Significant Caries Index (SiC) was also used to identify the existing gaps of the disease by gender and SES. **Results:** 402 children were evaluated. The overall dental caries prevalence was 73.13% (DMFT=2.53). There were no statistically significant differences between genders and SES using the DMFT index. However, girls had a statistically sig-

nificant higher SiC index compared to boys. The decayed (D) component of the DMFT index accounted for the 94%, while the Missing (M) represented 3% and the Filled (F) 3%. Conclusions: The WHO goal: DMFT $\leq$ 3, was achieved. SiC index was useful to identify an oral health disparity, not identified using the DMFT index. Acknowledgments: "Partially supported by Colgate-Palmolive Technology Center, Piscataway, New Jersey and the National Institute on Minority Health and Health Disparities of the NIH R25MD007607. Study data were collected and managed using REDCap electronic data capture tools hosted at University of Puerto Rico.

#### A-028 Size-Controlled Microwave-Assisted Synthesis of Water-Dispersible Cd-based Quantum Dots for Biological Applications

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Nanomedicine is fostering significant advances in the development of platforms for early detection and treatment of diseases. Nanoparticles (NPs) like quantum dots (QDs) exhibit size-dependent optical properties for light-driven technologies, which might become important in Bio-imaging, Sensing and Photodynamic Therapy (PDT) applications. Although the synthesis of quantum dots using organometallic resources in organic solvents has been reported in the literature, advances on the direct synthesis of water-stable nanocrystals, as required for biomedical applications, are scarce. The present research addresses the synthesis of water-stable Cd-based QDs via a Microwave-Assisted synthesis approach using cadmium sulfate salt, and thioglycolic acid as Cd- and S- precursors, respectively. Selenide ions were available by reductive leaching of metallic Selenium in Sodium bisulfite solution. The size control and the tunability of the optical properties were achieved by a suitable control of the reaction temperature (in the 140°C- 190°C range) and reaction time (10 minutes - 40 minutes). X-ray diffraction analyses suggested the development of a CdSe/S face cubic centered structure with an estimated average crystallite size of 5.50 nm  $\pm$  1.17 and 3.72 nm  $\pm$  0.04 nm, for nanoparticles synthesized at 180°C after 40 minutes or 10 minutes of reaction, respectively. HRTEM images confirmed the crystalline nature and the small size of the synthesized nanocrystals. In turn, the exciton was red-shifted from 461 to 549 nm when the reaction temperature was prolonged from 140°C to 190 °C, suggesting the crystal growth. The singlet oxygen generation capability of as-synthesized QDs was also investigated.

#### A-029 Characterization of Immune Response Elicited by the Polysaccharides Extract from *Coriolusversicolor*

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**Background & Objectives:** The studies testing polysaccharides extracts from mushrooms and plants against cancer and as natural adjuvants in vaccines have increased over the past years. We hypothesize that cultured lymphocytes isolated from mouse spleens will proliferate and secrete cytokines in response to a polysaccharide extract (CVpol) from *Coriolusversicolor*, which is important for the activation of adaptive immunity. **Methods:** We validated our hypothesis, analyzing the *in vitro* and *in vivo* effects of CVpol in lymphocyte proliferation by the XTT assay, induction of cytokines by Quantikine® ELISA, and cytokine profiles by protein microarray. **Results:** An impressive 15-fold increase in lymphocyte proliferation for splenocytes stimulated with 25  $\mu$ g/mL of extract was observed versus non-stimulated control. Our ELISA analysis shows a mean of 742pg/mL IFN- $\gamma$  and only 42pg/mL of IL-4 for cultures stimulated with CVpol, versus 35pg/mL for non-stimulated cultures. Data obtained from protein microarray assay for *in vitro* and *in vivo* samples show lower levels of IL-10, IL-6, IL-4 and IL-5 compared to IFN- $\gamma$ . **Conclusion:** In order to potentiate vaccines, it is necessary the development of novel, safe, and effective adjuvants. We demonstrate that CVpol induces lymphocyte proliferation and secretion of TH1-related cytokines, which are essential components in immune responses against intracellular pathogens. Our study makes a significant contribution to the discovery of potential natural adjuvants, showing that CVpol has *in vitro* and *in vivo* immunomodulatory activity. As future approach we will characterize the adjuvant properties of our extract in a DNA vaccination study using a murine model. **Acknowledgements:** This work has been supported by NIH PRAABRE 8P20GM103475, NCRR G12RR003051, NIMHHD 8G12MD007600, MBR SRISE R25GM061838, and The Puerto Rico Science, Technology and Research Trust 2013-000022 grants.

#### A-030 Neural Correlates of Conditioned Fear Retrieval in the Paraventricular Thalamus

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Pharmacological inactivation of the dorsal midline thalamus (dMT) impaired fear retrieval when performed 24 h after fear conditioning, but not 2 h after (Padilla-Coreano et al 2012). These results suggest that one or more structures within dMT are recruited into the fear circuit after conditioning. Consistent with this, the paraventricular nucleus of the thalamus (PVT), a subregion of dMT, showed increased expression of the neural activity marker cFos 24 h after conditioning, but not 6 h after (Do Monte et al, SfN poster, 2013). cFos measurements are li-

mitted because they cannot track the same neurons at different timepoints. We therefore used single unit recording to track PVT neurons before, 2 h after, and 24 h after fear conditioning. Regarding spontaneous firing rate, more neurons showed changes 24 h after conditioning (78%), compared to 2 h after (32%; Fisher's exact  $p = 0.04$ ,  $n = 54$ ), consistent with cFos findings. Remarkably, the percentage of cells showing conditioned tone responses ( $Z > 2.58$  in the first two seconds after tone onset) was increased 24 h after (20%), when compared to 2 h after learning (6%). Interestingly, most of the neurons that were tone-responsive at 24 h were not tone-responsive at 2 h, and vice versa, suggesting that distinct PVT ensembles may be recruited over time. Thus, time-dependent changes in both spontaneous and tone-induced firing are consistent with time-dependent recruitment of PVT neurons for retrieval of conditioned fear.

#### A-031 The Septic Heart

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Veteran Caribbean Healthcare System

**Purpose:** Takotsubo cardiomyopathy is characterized by transient systolic dysfunction of the left ventricle. It mimics myocardial infarction in the absence of obstructive coronary artery disease and it is characterized by apical ballooning on left ventriculography. **Case description:** 77 year-old man with history of arterial hypertension and diabetes mellitus type II who presented to the emergency department due to hypo-activity and anorexia. He was admitted with diagnosis of urinary tract infection and was started on Intravenous (IV) antibiotic therapy with levofloxacin that was later escalated to cefepime due to hypotension episodes. During hospitalization he complained of chest pain. **Clinical findings:** Electrocardiogram (ECG) demonstrated ST segment elevations in anterolateral leads V1-V5, I, aVL, with reciprocal changes in inferior leads. Patient was taken to invasive cardiac laboratory. Coronary angiography was remarkable for no significant obstructive coronary disease and no evidence of culprit lesion. Left ventriculogram showed apical ballooning with ejection fraction 20% that did not follow a single vessel distribution. The patient was diagnosed with stress-induced cardiomyopathy due to complicated urinary tract infection with *Enterococcus faecalis*. **Hypothesis:** As per our knowledge, there are no previous reported cases of Takotsubo cardiomyopathy secondary to urinary tract infection. It's vital to recognize that this condition may be induced by any sudden stressful event.

#### A-032 Multiorgan Dysfunction Syndrome after a Jellyfish Sting in Puerto Rico

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**Purpose:** Jellyfish stings are a common cause of marine envenomations around the world. The severity depends mainly on the

type of jellyfish and the size of the sting. Most of these are mild but there are case reports of fatal cases, mainly from Australia, which are mainly caused by the "Portuguese man of war" the major box jellyfish *Chironex flickeri*. We present a case in which an adolescent female in the west coast of Puerto Rico became in contact with one of these organisms and developed multiorgan dysfunction syndrome "Irukandji Syndrome" prompting her referral to our unit. **Case Description:** This is the case of a 15 years old previously healthy female who was stung by a jellyfish rapidly developing difficulty breathing and was diagnosed with seizures and anaphylaxis at the local ER where she was taken. Upon examination in our unit she was in marked respiratory distress, complaining of chest pain, abdominal pain and confused. **Clinical Approach:** She required intensive care management due to the severity of her symptoms. **Clinical findings:** She developed acute lung injury, myocardial injury, acute kidney injury, electrolyte imbalances, metabolic acidosis, rhabdomyolysis and large skin lesions caused by the sting. Her treatment consisted of anti-epileptic medications, NIPPV, aggressive hydration, urine alkalization, and IV antibiotics. **Hypothesis:** To our knowledge there are no case reports of Irukandji Syndrome in the Caribbean. There are no specific laboratory studies to identify this type of envenomation and there is little knowledge about these toxins mechanisms; cardiotoxins, nephrotoxins and neurotoxins.

#### A-033 Cultural Competency and Knowledge of Health Disparities among Hispanic Medical Students

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**Objective:** The purpose of this study was to measure the perceived level of competency and knowledge about cultural competency (CC) and health disparities (HD) among first-year medical students at a medical school in Puerto Rico. **Methods:** A cross-sectional design was used to collect data by a self-administered questionnaire. Participants were surveyed at the beginning of their first-year using an adapted version of the Clinical Cultural Competency Questionnaire covering demographics, self-perceived knowledge, skills, attitudes, comfort level, and self-awareness. **Results:** Participants showed limited knowledge and skills in dealing with the sociocultural issues relative to CC and HD. Moderate comfort levels were found when dealing with cross-cultural encounters and positive attitudes when addressing factors contributing to HD. Having exposure to previous CC and HD trainings showed significant differences in perceived knowledge, skills, and comfort level. Training in HD was further significant on the attitudes towards factors contributing to HD. No other differences were noted by demographics (gender, high school/ college attended, or languages spoken other than English and Spanish). **Conclusion:** Data suggests the importance of addressing CC and HD in the medical school curriculum and may be valuable in the development of training interventions tailoring the educational needs of the Hispanic medical workforce. Pertinent education is necessary to enhance cultural compe-

teaceand health disparities skills and attitudes among medical students. Acknowledgments: Study was conducted thanks to the Hispanic Center of Excellence at University of Puerto Rico, Medical School – HRSA Grant #D34HP24463.

**A-034 Estradiol Administration after Spinal Cord Injury Enhances White Matter Sparring**

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Spinal cord injury (SCI) triggers a variety of events at the cellular and molecular levels, such as apoptosis, demyelination, inflammation and gliosis, generating a non-permissive environment for axonal regeneration and cell survival. Studies suggest that Estradiol (E2) promotes neuroprotection by suppressing some of these negative events but its effects are debatable. This study aims to assess the effect of E2, as a multiactive hormone after SCI. Adult female Sprague-Dawley rats received a moderate contusion at the thoracic vertebrae 10 with the NYU impactor device and then silastic tubes with 3mg estradiol were implanted. Behavioral studies (BBB and grid walking tests) were performed weekly over 35 days post-injury. Luxol fast blue studies were accomplished to assess white matter spared tissue. Although no behavioral recovery was observed, animals treated with E2 immediately after SCI had a significant increase in white matter spared tissue ( $p < 0.05$ ). To address the possibility that E2 was not able to reach the lesion epicenter fast enough to block adverse events and promote behavioral recovery, another group of injured animals were also injected with a bolus of 100  $\mu$ g E2 immediately after SCI. Behavioral results showed no significant difference in functional locomotor recovery between groups. Interestingly, the group treated with E2 by injection and silastic tubing showed significantly more white matter spare tissue. This suggests that E2 administration may have a neuroprotective role after the injury that can enhance neuronal survival and/or myelination although the effect is not sufficient to improve functional locomotor recovery. Approved by IACUC (#2450113) in October 2012 and renewed in August 30, 2013. Supported by: COBRE (P20-GM103642), MBRS-RISE (R25-GM061838) and RCMI Program (5G12MD007600).

**A-035 Severity Scoring Systems as a Predictive Instrument for Morbidity and Mortality in Children who Underwent Cardiac Surgery**

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Background: Congenital Heart Disease (CHD) is the most common congenital disorder and they are one of the leading causes of death from congenital malformations. Pediatric Risk of Mortality (PRISM III) and Risk Adjustment for Congenital Heart Surgery (RACHS-1) are clinical scoring systems used to explain severity of illness and predict performance and outcome in the Pediatric Cardiac Intensive Care Unit (PCICU). We hypothesized that PRISM III Score correlates better to severity of illness and mortality than RACHS-1 Score in children undergoing cardiac surgery. Methods: Retrospective observational study that evaluates all CHD patients (0-21 years old) who underwent cardiac surgery at the “Centro Cardiovascular de Puerto Rico y el Caribe” from November 2011 to November 2012. Patients were categorized in 3 groups according to the PRISM III Scores: (0-10), (11-20), (21-30) and according to the RACHS-1 Score (1-6). Kruskal-Wallis test and univariate logistic regression were used for statistical analysis. Results: A total of 162 patients met the inclusion criteria; 55% were male and the overall mortality was 8%. Data showed that non-survivors spent more time at the PCICU (Mean of 28 vs. 11 days). Patients with higher RACHS-1 had more time at PCICU ( $p < 0.0001$ ) and more mechanical ventilation days ( $p < 0.0001$ ). Patients with PRISM III Score higher than 20 spend more times at the PCICU ( $p < 0.02$ ). Conclusions: Data suggest that severity scoring systems can be used in cardiac ICU to allocate resources based on need for longer LOS, MV days although not necessarily mortality. Further data analysis is being made to determine predictive value of each scoring system.

**A-036 Bullying Prevention Educational Intervention to Assess Perception and Knowledge among Middle School Students**

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Background and objectives: Bullying seen as an event in which a person is exposed repeatedly to a negative action from one or more people. Although many studies focus their efforts on studying bullying at the level of a relationship between the aggressor and victim, it is important not to ignore the presence of other individuals that participate in the process: their peers. An educational strategy was established to assess middle school students' acquisition of knowledge about bullying and the risks associated to it, while looking to understand the students' previous knowledge on the matter. Methods: The hypothesis was formulated as follows: If a group of middle school students are instructed about the subject of bullying, then they will achieve a behavioral change by being able to identify the types of bullying due to having more knowledge about them. As part of the methodology, a middle school of the metropolitan area was selected and 234 students participated in this study. A series of videos were presented to these students and with the use of a pre and post test, it was explored how much the students knew about the subject before and after the intervention. A pediatrician and medical students discussed the videos with the students. Results: The results of

the tests were analyzed with a paired t-test. Four out of the eight sections of the study displayed a significant rise in the number of correct answers in the post test, which supports the hypothesis. The major limitation of this study was found to be the time of the interventions. Longer intervention times, as well as multiple sessions with each group, could provide future studies the opportunity to more appropriately transmit knowledge about the subject to the participants and to better assess the students' comprehension of the material. Acknowledgements: special thanks to the Clinical Skills Center of the UPR School of Medicine for their collaboration in the video recording.

**A-037 Network Approach to Evaluate Scientific Collaboration in a Clinical and Translational Research Program**  
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**Background:** Since 2010, the Puerto Rico Clinical and Translational Research Consortium (PRCTRC) was established to support activities to eliminate health disparities in the three major health education institutions in Puerto Rico. PRCTRC has been encouraging research collaboration among basic, clinical, and social scientists and community networks and health programs. Scientific collaborations involve interpersonal interactions, however traditional analytical approaches emphasize on examining the influence of individual attributes and behaviors. Social Network Analysis (SNA) may serve to provide insight into interpersonal-level data to analyze scientific collaborations. The objective of this study was to assess the extent to which PRCTRC fostered scientific collaborations among supported scientists. **Methods:** SNA methodology was implemented to conduct preliminary analysis of scientific collaboration patterns in PRCTRC. Scientific collaboration was defined as  $\geq 2$  researchers working together in one or more of the following: grant proposal, peer reviewed publication, or shared use of resources. During 2010-2013, data was collected including document review and key informant interviews. The sample included 389 investigators. UCINET and NetDraw were used to analyze and map the networks resulting from collaboration interactions. **Results:** Collaborating investigators increased 52.2% from 2011 to 2013. Likewise, collaboration connections increased 140.3%, from 268 in 2011 to 644 in 2013. **Conclusion:** This study documented substantial increase in PRCTRC scientific collaboration. SNA approach proved useful in characterizing collaboration interactions and in the depiction of the resulting collaboration structures. Further analyses will be directed to examining other network characteristics (e.g., density, centrality, components) of the collaboration structures. **Acknowledgement:** Supported by the NIH-NIMHHD(2U54MD007587).

**A-038 Pediatric Patient with a Solitary Brain Lesion: Is it a Tumor?**

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**Purpose:** To describe an uncommon demyelinating disease that mimics the clinical and neuroimaging presentation of a brain neoplasm. **Case description:** Case of an 11 year-old female patient without history of systemic illness, who presented with 3 weeks evolution of unbalance and right sided weakness. Symptoms began one week after routine immunizations. No history of behavioral changes, seizures, or recent infections. Neurological exam revealed rightnasolabial flattening, and right hemiparesis with positive corticospinal reflex. **Clinical Approach:** Head Computed Tomography showed a hypodense lesion at the left centrum semiovale. Brain magnetic resonance imaging (MRI), revealed a T2/FLAIR hyperintense lesion centered at the left frontal periventricular white matter, extending to the white matter of the cingulate gyrus, and left posterior body of the corpus callosum. The lesion demonstrated, peripheral discontinuous enhancement and no surrounding edema. No lesions were seen on cervical MRI. Cerebrospinal fluid analysis revealed no pleocytosis or malignant cells. **Clinical findings:** Initial diagnostic considerations included malignancy versus tumefactive demyelinating lesion, but taking into consideration patient's age and imaging findings, a demyelinating etiology was favored. Patient was treated with high dose intravenous methylprednisolone for 5 days, resulting in marked clinical improvement. **Hypothesis:** Tumefactive demyelinating lesions are an uncommon presentation of pediatric demyelinating diseases that can mimic a brain neoplasm. They present as a large solitary white matter lesion with little mass effect and incomplete ring enhancement. Recognizing key differentiating features of tumefactive demyelinating lesions and neoplasms on neuroimaging is crucial to avoid pitfalls in diagnosis and management of these patients. **Acknowledgements:** We wish to thank all participants: Dra. Jessica Gonzalez Montes, MD, Child Neurology Section and Dr. Eduardo Labat Alvarez, MD Neuroradiology Section

**A-039 Evaluating the Effectiveness of an Innovative Grantsmanship Workshop**

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Background: Sustainable research capacity building requires training individuals at multiple levels to develop a critical mass of independent researchers. In 2013, approximately 15% of research grant applications (GAs) were successfully funded (NIH, 2014). The Art of Grantsmanship (AoG) Intensive Workshop was designed to develop skills among early to mid-career researchers, to write effective and fundable GAs. During 2011-2013, three AoG workshop series were offered, supporting 20 investigators. The objective of this study was evaluate the effectiveness of the AoG in terms of GAs submission experiences. Methods: A prospective evaluation was implemented across AoG cohorts. Mixed methods were used including structured phone interviews and follow-up protocols to explore GAs submissions and their success rate. Descriptive analyzes were conducted to determine the AoG effectiveness. Results: Overall, participants reported that the AoG workshop enhanced their knowledge and skills in proposal writing and submission, funding sources, and GA types. Most participants (55.0%, n=11) successfully submitted at least one GA. Thirteen GAs were submitted, of those 46.2% was funded. Salient factors identified that hindered participants' ability to submit GAs were lack of: (1) time to write, (2) time to complete the proposal before the deadline, (3) scientific writing experience, (4) institutional support, and (5) limited number of scientific publications related to their research topic. Conclusion: This evaluation demonstrated that this innovative workshop was effective in providing the essential capacities and tools to write fundable GAs. Further, AoG educational design should be reviewed to address factors that could facilitate or limit GAs submissions. Acknowledgement: Supported by the NIH-NIMHHD (2U54MD007587 and R25MD007607).

#### A-040 Validation of a UHPLC-MS Method for the Determination of Proxazosin, Finasteride, Doxazosin and Terazosin in Dietary Supplements

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Background & Objective: Dietary supplements are sold as natural mixtures for improving patient's health. However, some manufacturers adulterated these products by adding drugs that are regulated by the FDA. The purpose of this work was to develop and validate an UHPLC/MS/MS method for the determination of hypertension drugs in dietary supplements. Methods: Method conditions consist of a gradient using 0.1% formic acid in water and 0.1% formic acid in acetonitrile at 0.23 mL/min flow, an injection volume of 1 µL, oven and autosampler temperature of 40°C and 15°C, respectively and run time of 10 minutes. The drugs selected for the validation of this method were: Terazosin, Prazosin, and Doxazosin used for the treatment of high blood pressure; and Finasteride for prostate treatment. Parameters validated were precision, linearity, limit of quantification (LOQ), limit of detection (LOD), specificity, and matrix effect. Results: The results obtained for LOD and LOQ of each drug were 2.5 ppb and 0.48 ppm, respectively, at least an order of magnitude

lower than the current literature. Linearity was evaluated in a concentration range of 2.5 ppb to 0.60 ppm with correlation coefficients in a range of 0.991 to 0.998 for samples. Average recoveries ranged from 80% to 120%, with relative standard deviations ranging from 2.0% to 9.0%. No interferences were observed from the matrices that would impact the detection of the drugs. Conclusion: The results obtained met the acceptance criteria for method validation according to the FDA. This method shows better detection and quantitation limits, reduced sample preparation time, reduced run time and provides more specificity in comparison to other methods found in the literature.

#### A-041 Código de Orden Público: Análisis de Política Municipal como Herramienta para la Prevención del Consumo de Alcohol en los Menores de Edad

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El consumo de alcohol en menores de edad en Puerto Rico es el problema principal del uso de sustancias en Puerto Rico (Santos, 2012). Encuestas con jóvenes en edad escolar indican que el 48.6% ha consumido alcohol alguna vez en su vida. En municipios urbanos esta problemática puede incrementar. La Encuesta Juvenil (2012-13), administrada a estudiantes de escuela intermedia y superior del municipio de Carolina, resaltó que la edad para que los jóvenes se inicien en el consumo de alcohol, es alrededor de los 14 años. Atendiendo esta problemática, durante los pasados tres años, como parte de un proyecto de prevención, la Coalición Comunitaria de Carolina, ha trabajado con el análisis y fortalecimiento del Código de Orden Público del Municipio de Carolina. El objetivo de esta intervención es proponer enmiendas que regulen de manera más firme el consumo de alcohol en menores, además de educar a los padres, madres y/o adultos encargados de menores de edad. Para el análisis del COP, se recopiló información cualitativa en las siguientes áreas: contenido de la política, implementación y viabilidad para fortalecimiento. Entre los principales hallazgos se identificó que el COP de Carolina no incluía todo el municipio, además no estaba alineado con la Ley Estatal, ni promovía la responsabilidad familiar. Este análisis se le presentó al municipio y las recomendaciones fueron acogidas en el nuevo COP del municipio de Carolina. La fuente de financiamiento de este esfuerzo proviene de los fondos del Puerto Rico: "Strategic Prevention Framework- State Incentive Grant" (SPF-SIG).

#### A-042 Overweight, Obesity and Use of Internet/Computer/ Video Games in Adolescents 13-17 Year Old at Centro para tu Salud Emocional – Niños y Adolescentes (CaPSE) - UPR- MSC

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Background: Obesity is a public concern. Among adolescents, it's not only considered a physical problem, but also has been linked to lower self-esteem, and higher rates of psychosocial difficulties. Time spend in sedentary activities has been considered among factors that may increase risk. Objectives: Determine prevalence

of overweight and obesity and time use of video games, computer, and internet. Evaluate if there is an association between increased internet, computer, and/or video games use (more than 2 hours/day) and being overweight or obese. Method: IRB approval was obtained. Sample consisted of adolescents 13-17 years old receiving services at CaPSE who gave assented and their parents/guardian consented to their participation. Patients with a diagnosis of mental retardation, acutely psychotic or incapable to give assent were excluded. A 35-item questionnaire including questions about computer and/or videogames use was completed. Height and weight were taken and BMI calculated. Preliminary results: 28.5% overweight/ obese (n=6); 50% females, 50% 13 years old. 1/3 reported to use the computer more than 2 hours /day. 50.0% plays videogames at least two days/week for less than 1 hour. 1/3 plays videogames daily for no more than 2 hours. Conclusion: Although these preliminary findings are based in a small clinical sample, the long-term impact of obesity in youth justifies the relevance of including questions regarding time spent using computer and/or playing videogames in our clinical interventions with this population. Acknowledgement: Thanks to the CaPSE Staff, and the General and C/A Psychiatry Residents for their collaboration. IRB Protocol # A8500114

#### A-043 Preliminary Structural Evaluation of Five Hospitals in Puerto Rico

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Background: Puerto Rico is located in an active seismic zone that can produce strong earthquakes. Buildings designed before 1987 do not comply with the more stringent requirements of modern codes, and can be in danger of suffering important damage during an earthquake. Objectives: Conduct a preliminary evaluation of the structural capacity to resist earthquakes for five healthcare facilities in Puerto Rico. Methods: Two procedures were used. The first was the application of the FEMA Rapid Visual Screening of Buildings for Potential Seismic Hazards. The structure is rated according to the type of structural system, year of construction, building height, type of soil, and presence of irregularities. A low rating indicates a more detailed evaluation is required because the building has high probability of being vulnerable. The second procedure is to determine the susceptibility of the building to be affected by resonance, by obtaining experimentally the fundamental frequency of the building and of the surrounding soil. Results: Preliminary findings shows that about half of the buildings studied require more detailed structural evaluation, as determined with the Rapid Visual Screening Method. Conclusions: A detailed study of expected seismic behavior and structural retrofitting should be implemented for the identified deficient buildings. Funding: This project was supported by the

CDC and Office of the Assistant Secretary for Preparedness and Response (ASPR) of USDHHS, administered by the PR Department of Health. It was implemented by the UPR-CPHP under contract #2014-DS0583 with the PRDOH. In UPRM it was implemented under contract #2014-001269 with UPR-RCM.

#### A-044 Energy Drinks to “Get High”: A Modality in Substance Use among Puerto Rican Adolescents, 2012-13

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Energy drinks have become increasingly popular among adolescents. Many use them to boost energy levels, and some mix them with alcohol to reduce drinking-related effects. But, do teens regard energy drinks on their own as drugs? Our objective was to explore if Puerto Rican adolescents utilized energy drinks as drugs to “get high”. The sample (n=3,982) in this island-wide school-based cross-sectional survey was selected using a multi-stage stratified cluster sampling design, and was representative of all 7th-12th grade students in PR. Data was collected using a pre-coded self-administered questionnaire. Proportions were compared using chi-square tests. Odds ratios were also computed. All analyses were performed on weighted data. Approximately 7% of the students reported ever using energy drinks to “get high” (alone or combined with alcohol/pills), 5% reported use in the last year, and 4% used in the last month. Prevalence of recent use (last month) was highest among students in tenth grade. Males and high school students were more likely to report use than females and middle school students. Students who recently used energy drinks were also more likely to binge drink and to be recent substance users (tobacco, alcohol, inhalants, non-prescription pills, marijuana, cocaine, heroin, crack, or designer drugs); 1 in 3 used the drinks combined with alcohol. It is disturbing that some students believe that energy drinks are drugs, since this could lead to increased use, a concern due to the potentially serious adverse effects of using energy drinks. Prevention efforts should target this dangerous modality. Research supported by the Puerto Rico Mental Health Services and Drug Addiction Administration (ASSMCA, by its acronym in Spanish). Approved by IRB.

#### A-045 Non-Structural Evaluation of Five Hospitals in Puerto Rico

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Background: Puerto Rico is located in an active seismic zone that can produce a strong earthquake at any time. A building can be well designed to resist earthquakes but the resulting

damage to non-structural components can affect the hospital operation. Objectives: Conduct an evaluation of the capacity of non-structural components to resist earthquakes for five health-care facilities in Puerto Rico. Methods: The project consists of a comprehensive assessment of the structural, non-structural and functional vulnerabilities of five healthcare facilities. To evaluate the non-structural vulnerabilities an inspection of all representative areas of the hospital was made, including machine rooms. Recommendations regarding better anchorage of equipment and storage bins were given. A rating based on the procedure by Pan American Health Organization was assigned to all hospitals. Results: Most of the buildings studied used good practices of anchoring important equipment. Sample recommendations are shown. Conclusions: Administrators of the hospitals studied are aware of the need to anchor and protect important equipment against strong ground motions. Funding: This project was supported by federal funds from the Center for Disease Control and Prevention (CDC) and Office of the Assistant Secretary for Preparedness and Response (ASPR) of U.S. Department of Health and Human Services (USDHHS), administered by the Puerto Rico Department of Health (PRDOH), Office of Public Health Preparedness and Response. The project was implemented by the UPR-CPHP under contract #2014-DS0583 with the PRDOH. In UPRM the project was implemented under contract #2014-001269 with the UPR-RCM.

**A-046 Increasing Prevalence of ADHD, Major Depression, and Conduct Disorders among Adolescent Students in Puerto Rico, 2005-2012**

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Most mental disorders begin in childhood and adolescence, thus we need to understand their magnitude and distribution in youth. The objective of this study was to evaluate trends of ADHD, major depression, and conduct disorders symptomatology among Puerto Rican adolescents. This study is a secondary analysis of island-wide school-based cross-sectional surveys conducted in 2005-07 (n=13,730), 2010-12 (n=10,134), and 2012-13 (n=3,982) ("Consulta Juvenil VII-IX"). The samples were selected using multi-stage stratified cluster sampling designs, and were representative of all 7th-12th grade students in PR. Data was collected using pre-coded self-administered questionnaires which included DISC Predictive Scales (DPS) to screen for mental health disorders during the last year. In each survey, the most common disorder was ADHD; its last year prevalence significantly increased from 13.1% to 25.0%. Major depression prevalence increased from 11.4% to 18.6%. The highest increase was found in conduct disorders: from 4.8% to 11.0%. Prevalence of depression and ADHD was consistently higher among females, while males had consistently higher prevalence of conduct disorders. All disorders were more prevalent among high school

students. The increasing prevalence trend was seen among both genders and school levels for all disorders. Early detection of mental disorders using school-based screening allows us to identify teens at high risk for mental illness, thus preventing severe cases and enhancing student success at school. Ongoing surveillance is essential in dealing with this public health problem. Understanding the differences between groups may help customize prevention programs. Research supported by the Puerto Rico Mental Health Services and Drug Addiction Administration (ASSMCA, by its acronym in Spanish). Approved by IRB.

**A-047 Plans for Crisis Standards of Care in Puerto Rico**

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Background: The occurrence of a public health crisis in Puerto Rico with direct impact on the delivery of medical care services may produce overwhelmed healthcare resources for a prolonged time. Crisis standards of care are defined as: "a substantial change in the usual healthcare operations and the level of care that is possible to deliver, which is made necessary by a pervasive (e.g., pandemics) or catastrophic (e.g., earthquake, hurricane) disaster. This change in the level of care delivered is justified by specific circumstances which must be formally declared by a state government, in recognition that crisis operations will be in effect for a sustained period of time. Objectives: To identify existing crisis standards of care protocols to provide acute medical care during a public health crisis in Puerto Rico. Methods: Revision of plans from several public and private hospitals in Puerto Rico was done to identify protocols for standards of care in crisis as recommended by the Institute of Medicine. Results: Preliminary findings showed that hospitals plans include strategies and documentation to mitigate emergencies but do not include protocols for crisis standards of care. Conclusion: It is essential that healthcare facilities in coordination with national, state, and local governments support and facilitate the specific legal, ethical powers and protections for healthcare providers in the necessary tasks of allocating and using scarce medical resources and implementing alternate care facility operations during a public health crisis. To increase the Island's healthcare system level of preparedness there is a need to establish crisis standards of care (CSC) plan.

Funding: This project was supported in its entirety by federal funds from the Center for Disease Control and Prevention (CDC) and Office of the Assistant Secretary for Preparedness and Response (ASPR) of U.S. Department of Health and Human Services (USDHHS), administered by the Puerto Rico Department of Health (PRDOH), Office of Public Health Preparedness and Response. The project was implemented by the UPR-CPHP under contract #2014-DS0583 with the PRDOH.



**A-048 Does Injection Site Matter? A Randomized Controlled Trial to Evaluate Different Entry Site Efficacy of Knee Intra-articular Injections**

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**Background & Objectives:** Complaints of knee pain secondary to early osteoarthritis may account for up to 30% of visits to primary care physicians. Due to the proposed inflammatory changes in early osteoarthritis, intra-articular injections of corticosteroids (IACS) have been considered as an option for disease progression modification, pain control, and improvement of function. However, some studies have suggested poor accuracy rates of IA injections depending on the entry site chosen. It is therefore the aim of this study to evaluate the efficacy of IA knee corticosteroid injection in reducing pain and improving function in patients with early osteoarthritis and whether the low accuracy rates reported with the Anterolateral joint line injection site translate to worse functional and pain outcome measures. **Methods:** The study was carried out as an open-label, randomized controlled trial designed to compare the efficacy of intra-articular knee corticosteroid injections in controlling pain and improving function in patients with early osteoarthritis changes utilizing different entry sites. **Results:** Data suggests that patients receiving IACS injections have a measurable improvement in self-reported outcomes as evidenced by standard deviation change in WOMAC and VAS scores. The majority of patients had a clinically significant improvement in VAS scores as compared to their initial measures with a notable amount of patients improving significantly as well on their WOMAC scores, irrespective of the injection site chosen. **Conclusions:** We have therefore continued the use of palpation-guided intra-articular knee injections in an effort to reduce costs as compared to other injection modalities with positive results in our osteoarthritis patients. **Acknowledgements:** Approved By Institutional IRB UPR-RCM Protocol B0110114.

**A-049 Implementación de una Campaña de Mercadeo Social a Comerciantes de Vega Baja para Prevenir el Consumo de Alcohol en Menores**

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**Contexto y objetivos:** El Mercadeo Social (MS) es una estrategia que se ha aplicado a temas ambientales, salud y sociales. Esta estrategia se ha utilizado para abordar la problemática del consumo de alcohol en menores. **Objetivo:** Implementar la estrategia de MS a comerciantes que se encuentran dentro de la jurisdicción del Código de Orden Público (COP) de Vega Baja. **Metodología:** El programa Barrio Vivo de Iniciativa Comunitaria llevó a cabo visitas de orientación a 40 comercios para la distribución de materiales educativos y de promoción durante el año 2013-2014. Se midió el conocimiento a través de una pre y post prue-

ba, se evaluó la visibilidad de materiales de la campaña MS y se identificó a través de una encuesta el fácil acceso comercial del alcohol para los menores. **Resultados:** Se realizaron 116 visitas a comercios. El conocimiento entre los comerciantes sobre a cuánto asciende la multa por vender alcohol a menores de 18 años aumentó a un 13.2%. Hubo un aumento de un 10% que mencionaron que el alcohol afecta el desarrollo del cerebro adolescente de manera diferente al del adulto. El 82.4% tenían colocados los materiales promocionales en un lugar visible de sus comercios. La percepción de riesgo a ser multados entre los comerciantes aumentó en un 27.8%. Hubo un aumento de 7.8% en los comerciantes que solicitaron tarjeta de identificación a los jóvenes que intentaron conseguir alcohol la última vez. **Conclusión:** Las campañas de MS son estrategias que fomentan cambios de conducta en la sociedad. **Agradecimientos:** Esta campaña fue apoyada por la Administración de Servicios de Salud Mental y Contra la Adicción, el Centro de Investigación y Evaluación Sociomédica y el Municipio de Vega Baja.

**A-050 Factores de Riesgo en una Muestra de Adolescentes del Municipio de Vega Baja que Participaron en la Encuesta Juvenil durante el año 2013-14**

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**Contexto y objetivos:** La adolescencia se caracteriza como un período de transición en el que ocurren cambios biológicos, psicológicos y sociales. Durante este período se pueden presentar factores de riesgo que predisponen alteraciones de personalidad y cambios de conductas en los adolescentes. **Objetivo:** Identificar los factores de riesgo en una muestra de adolescentes del municipio de Vega Baja. **Metodología:** Se seleccionaron aleatoriamente 10 grupos en cada una de 4 escuelas de Vega Baja que participaron en la Encuesta Juvenil durante el año 2013-2014. Los cuestionarios fueron desarrollados por el *Puerto Rico Epidemiological Outcome Group* y administrado por el personal del programa Barrio Vivo de ICI. **Resultados:** Se encuestaron 323 estudiantes. El 51.8% de los estudiantes perciben como fácil acceso al alcohol en su vecindario, mientras que un 39.9% indicó como fácil acceso al tabaco. El 39.1% indicó el uso de alcohol en su familia y un 52.6% el uso de alcohol en sus pares. El 64.1% indicó el consumo de alcohol antes de los 15 años, mientras que un 51.5% indicó el uso del tabaco. El 25.7% indicó que sus amigos habían vendido drogas. El 70.6% indicó su primer contacto sexual antes de cumplir los 15 años. **Conclusión:** Es indispensable desarrollar e implementar estrategias que promuevan factores de protección en adolescentes y sus familias, ya que los adolescentes necesitan tomar decisiones saludables para enfrentar las situaciones que son parte de las experiencias de vida en las que se relaciona con la familia, los amigos y el entorno social. **Agradecimientos:** Esta investigación fue apoyada por la Administración de Servicios de Salud Mental y Contra la Adicción y el Centro de Investigación y Evaluación Sociomédica.

**A-051 Risk of Thyroid Cancer among Caribbean Hispanic Patients with Familial Adenomatous Polyposis**

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**Background & Aims:** Familial adenomatous polyposis (FAP) is an inherited form of colorectal cancer (CRC) characterized by the presence of hundreds of adenomatous polyps in the colon and rectum. FAP is also associated with thyroid cancer (TC), but the lifetime risk is still unknown. This study assessed the standardized incidence ratio of TC in Hispanic patients with FAP. **Methods:** The incidence rates of TC in patients with FAP were compared with the general population through direct database linkage from the Puerto Rico Central Cancer Registry (PRCCR) and the Puerto Rico Familial Colorectal Cancer Registry (PURIFICAR) between the periods of January 1, 2006 to December 31, 2013. The study population consisted of 51 Hispanic patients with FAP and 3,239 with TC from the general population. The Standardized incidence ratio (SIR) was calculated using the Indirect Method, defined as observed TC incidence among patients with FAP in PURIFICAR's cohort divided by the expected TC incidence based on the PR population rates. **Results:** In patients with FAP the Standardized Incidence Risk (SIR) (95% CI) for TC was 251.73 (51.91 – 735.65), with higher risk for females 461.18 (55.85-1665.94) than males 131.91 (3.34-734.95). **Conclusions:** Hispanic patients with FAP are at a high risk for TC compared to the general population. Our incidence rates (SIR) are higher than previous studies, suggesting that this community may be at a higher risk for thyroid malignancy than previously assumed. We encourage the implementation of clinical surveillance guidelines and regular ultrasound neck screening in patients with this syndrome. **Grant Support:** This study was supported by the following: National Institute on Minority & Health Disparities Award Number 8U54MD007587-03 and U54MD007587; National Cancer Institute Award Number 5K22CA115913-03, R21CA167220-01, 5R03CA130034-02, and U54CA096297/CA096300; Center for Collaborative Research in Health Disparities RCMI Award Number G12MD007600.

**A-052 Occurrence of Pain, Agitation/Sedation, and Delirium in Adult Intensive Care Patients in San Juan, Puerto Rico**

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**Background & Objectives:** Pain, agitation/sedation, and delirium (PAD) have negative effects for ICU patients. Little is known about the occurrence of PAD in Puerto Rico ICUs. This study explores the occurrence of these phenomena in four ICU's at the Medical Center of PR and describes it with recommendations from current PAD guidelines. **Methods:** A prospective descriptive study was used. PAD were measured two-times a week and two-times a day for a maximum of three weeks during ICU stay. Pain intensity was measured using the 0-10 Numeric Rating Scale and for patients unable to self-report it, the Critical-Care Pain Observational Tool was used. The Richmond Agitation Sedation Scale was used to measure agitation and sedation levels and the Confusion Assessment Method for ICU patients to measure delirium. **Results:** A total of 80 patients from two medical-surgical ICU's, one cardiac-surgical ICU, and one trauma ICU were assessed. Pain was present in 50 patients, 72% of which experienced significant pain. For those patients in mechanical ventilation (n=62), 61% were not within the recommended RASS and for those who were evaluated for delirium (n=53), it was found positive in 45% of them. **Conclusion:** More than half of patients in these ICU's experienced significant pain and were not within the target level of sedation for at least one time of the assessments. Delirium was positive in almost half of the mechanical ventilated sample. Future studies are needed to implement interventions to improve patient outcomes. **Acknowledgement:** Funded by Capacity Advancement in Research Infrastructure UPR MFP-6251123.

**A-053 Infant Mortality Determinants Among Puerto Ricans: A Case-Control Study**

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**Background & Objectives:** Puerto Ricans in the United States (USA) and Puerto Rico (PR) have the highest infant mortality (IM) rates among Hispanics subgroups in the USA. This study aimed to determine the infant, maternal, and obstetric characteristics associated with IM among them. **Methods:** A case-control design (n = 1,431 pairs) from the 2007 and 2008 period linked birth-infant death files from the NCHS was used. Analyses included bivariate analyses and hierarchical logistic regression. **Results:** There were differences in the leading causes of infant death among Puerto Ricans the US and PR. Additionally, there were significant differences in the odds ratios related to congenital anomalies, fetal losses and abortions, previous preterm birth, maternal antibiotic use, and premature rupture of the membrane; these odds ratios were higher in PR. Regression analysis revealed that infant characteristics were the major predictors for IM.

The main predictor of IM in the USA was Apgar score (aOR = 30.958, 95% CI: 6.817–7140.595 in jurisdictions using the 1989 revision of the certificate of live birth and aOR = 21.691, 95% CI: 6.447–70.785 in jurisdictions using the 2003 revision). In PR, congenital anomaly (aOR = 51.170, 95% CI: 4.801–545.402) was the main predictor of IM. Conclusions: Although infant characteristics were the primary predictors of IM, the factors associated to it varied according to the jurisdictions of residence. These results are useful for the development of prevention strategies and policies towards decreasing IM. Acknowledgements: There was no conflict of interest or funding for this project.

#### **A-054 Efficacy of Intravenous Immunoglobulins in a Systemic Lupus Erythematosus Patient Presenting with Steven-Johnson Syndrome**

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**Purpose:** Systemic lupus erythematosus (SLE) is an autoimmune disease characterized by a wide spectrum of clinical and immunological abnormalities. Azathioprine and hydroxychloroquine are often used for the treatment of SLE but these drugs may induce severe skin reactions. **Case description:** A 38-year-old woman with SLE manifested by tiredness, polyarthritis, lymphopenia, elevated anti-dsDNA antibodies, and hypocomplementemia was initiated on azathioprine and hydroxychloroquine. After two weeks of treatment, she developed extensive erythematous raised skin patches, facial edema, and desquamation of nasal and oral mucosa. Both drugs were discontinued. **Clinical approach:** Skin biopsy showed band-like lymphocytic infiltrate with focal vacuolar interface changes consistent with early Steven-Johnson syndrome (SJS). **Clinical findings:** She was treated with high-dose intravenous immunoglobulins (IVIg, 3gm/kg) over a 5-day period. After two days of therapy, she improved as evidenced by resolution of facial edema, decreased erythema and desquamation, and no further disease progression. **Hypothesis:** Medications are the most common cause of SJS. This condition, which has a mortality rate of 1-5%, results from extensive apoptosis of keratinocytes leading to separation of epidermis and dermis. Cell death may be mediated by Fas and Fas ligand interactions. IVIg are known to have anti-Fas IgG properties; thus, it has been proposed that the accelerated apoptotic process occurring in SJS may be stopped. Case series and case reports have shown that IVIg therapy may be effective. In summary, we present an additional case in which high-dose IVIg was successful in accelerating the recovery period and stopping further disease progression of SJS. **Acknowledgements:** No disclosures.

#### **A-055 Long-Term Clinical Improvement after Electroconvulsive Therapy in a Patient with Fibromyalgia Syndrome**

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**Purpose:** Fibromyalgia is a chronic neuropathic pain syndrome characterized by hyperalgesia and allodynia. Fibromyalgia is often accompanied by depression. Studies suggest that both conditions appear to share common pathophysiologic mechanisms. Electroconvulsive therapy (ECT) is an established alternative for depression not responding to conventional treatment. Few reports suggest that ECT may reduce the severe pain associated with fibromyalgia. **Case description:** A 57-year-old woman was diagnosed with fibromyalgia syndrome in October 2000. She was treated with acetaminophen, nonsteroidal anti-inflammatory agents, several antidepressives (paroxetine, fluoxetine, sertraline, nefazodone, amitriptyline, escitalopram oxalate, duloxetine, and aripiprazole), tramadol, gabapentin, pregabalin, cyclobenzaprine, zolpidem, clonazepam, and trigger point injections. All these treatments were marginally effective to relieve her symptoms. **Clinical approach:** From September to December 2009 she received 11 courses of ECT for severe depression. **Clinical findings:** She experienced remarkable clinical improvement. Musculoskeletal pain and headaches resolved and other symptoms such as tiredness, insomnia, paresthesias, and cognitive impairment decreased to tolerable levels. She persisted with depression and anxiety but well controlled with duloxetine. Pregabalin and tramadol taken for pain were no longer required. Five years after ECT she has remained stable having only mild fibromyalgia symptoms. **Hypothesis:** Activity through the descending anti-nociceptive pathway is decreased in fibromyalgia as well as the cerebrospinal fluid concentration of serotonin, norepinephrine and dopamine which have endogenous analgesic properties. ECT may exhibit analgesic and antidepressant properties by increasing the concentration of these neurotransmitters. This case, together with other reports, suggests that ECT may be considered for intractable fibromyalgia syndrome. **Acknowledgements:** No disclosures.

#### **A-056 Desventajas en la Habilidad de Integración Visual-Motora en Niños Puertorriqueños Nacidos Prematuramente y con Bajo Peso**

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Según los datos del Centro para el Control y Prevención de Enfermedades, Puerto Rico es el país número uno en nacimientos prematuros (17.6%) y nacimientos con bajo peso (12.7%) dentro de la jurisdicción de Estados Unidos. Sin embargo, no contamos con estudios sobre el desarrollo neuropsicológico de esta población. El objetivo de este estudio era conocer el nivel de integración visual-motora de un grupo de niños puertorriqueños nacidos prematuramente y con bajo peso. Se evaluó un grupo de 20 niños nacidos prematuramente y con bajo peso y un grupo de 20 niños nacidos luego de gestación completada y peso esperado mediante la prueba Beery-Buktenica. Los participantes eran niños de 4 años, matriculados en el Programa Head Start del área Norte de la Isla, libres de dificultades neurológicas,

visuales o auditivas. Se llevó a cabo una prueba t de estudiante para grupos independientes para comparar la ejecución de ambos grupos. El análisis estadístico demostró que el grupo de niños nacidos prematuramente obtuvo una puntuación estándar (93.6) por debajo de la puntuación del grupo de niños nacidos luego de una gestación completada (104.8) y estadísticamente significativa ( $P=.0001$ ). Este estudio sugiere que los niños nacidos prematuramente y con bajo peso presentan menor habilidad de integración visual-motora, aún en ausencia de indicadores de riesgo. Esta desventaja puede representar rezago en las tareas escolares que requieren de esta habilidad, como la lectura y escritura. Es importante la evaluación y estimulación temprana en esta población, aún en ausencia de dificultades visuales, auditivas y neurológicas severas. Aprobado por IRB.

**A-057 Work, Education, and Personal Assessment of Women Graduates from the University of Puerto Rico, School of Dental Medicine from 1992-2012**

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**Purpose:** To explore and describe work, education, personal characteristics and perceptions of women dentists graduated, during 1992 to 2012, from the UPR School of Dental Medicine (UPRSDM); as well as their role in academic, clinical and research activities and their impact on curricular decision-making. **Methods:** A quantitative methodology will be employed. Data is being collected using an electronic survey administered to all ( $n=485$ ), women graduates from UPRSDM from 1992-2012. This survey includes questions regarding socio-demographic variables, academic experiences, past and current employment, leadership and mentoring roles, and perceptions related to gender. Participation will be enhanced by the use of social media platforms, such as Facebook and others. Data will be analyzed using descriptive statistics. **Results:** An analysis of preliminary data ( $n=24$ ) suggests that UPRSDM women graduates are currently working in group practices and many have chosen to pursue post-doctoral studies in general dentistry or specialties. There is also a tendency for graduates to pursue careers in academia and seek other women as mentors. Preliminary data suggest recommendations to include women's oral health in future curricular revisions. **Conclusions:** Preliminary data suggests an increased number of women graduates in recent years tend to continue post-doctoral education and settle in the USA due to suitable employment opportunities. As more women are serving as faculty members in pre-dental and post-graduate dental medicine programs, their leadership roles have proportionally increased, as well as their roles as mentors within the academic community. Once data collection and analysis is completed, final results will be presented.

**A-058 Factors in Post Discharge Care associated with Rate of Hospital Readmissions**

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Readmission in recently hospitalized patients represents one of the biggest economic burdens in our health care system today. In a recent study, it was estimated that the annual cost to the Medicare program generated by preventable readmissions exceeded 730 million dollars in just 4 states. Given this huge economic impact, the identification of factors that are related to rate of readmissions is of utmost importance. Few studies have been completed identifying these possible factors; in fact, a thorough review of published literature has failed to identify a similar study within the commonwealth of Puerto Rico. If successful in identifying these factors, ourselves and others may utilize this information to implement strategies in modifying these, reduce rates of readmission, and significantly lessen this economic burden on our health care system. Our study design was a retrospective cohort study in which 272 electronic medical records were reviewed. Criteria for selection included patients from our hospital associated family medicine clinic that were hospitalized under our service (Family Medicine) in the preceding 6 months, and an age of 65 years or older with a Cumulative Illness Rating Scale for Geriatrics score of 9 or greater. The CIRS-G is a scoring system that is used to quantify morbidity in patient 65 years of age or older. For this task we created a worksheet which tabulated a number of variables for each patient that met our inclusion criteria. These worksheets were completed by a family medicine resident using both our clinics electronic health record and our hospital's medical records. In addition we selected 7 diagnoses of interest to gauge and determine their relevance if any on the rates of readmission. Furthermore we wanted to compare our rates of readmission with that of the national average. After reviewing the 272 medical records, 88 subjects were selected that met the inclusion criteria for the study. The distribution of our subjects by age showed that the majority of patients in the study ranged between 70-79 years old. Of the seven selected conditions, hypertension had the highest prevalence followed closely by diabetes mellitus. Another goal of this study was to determine the importance if any of a prompt post discharge follow up and its relation to the rates of readmission. The majority of our patients were seen for their follow up clinic visit within the first to third week post discharge, however this factor didn't quite impact or rate of readmission as we had expected. Furthermore an elevated CIRS-G score interestingly did not greatly affect our rates of readmission. After analyzing all the data in our particular sample group the factor that had the most impact in the rates of readmission was the diagnosis at time of admission. On the top of the list by far was congestive heart failure (CHF) followed at a distance by chronic obstructive pulmonary disease (COPD). Our rate of readmission was notably less than the national average, however this is an academic teaching hospital with a low patient to physician (residents) ratio both in the inpatient as well as the outpatient setting, and we suspect this played a major role regarding this difference.

The fact that our medical center is the main cardiovascular reference hospital for most of the western coast of Puerto Rico may prevent comparing our results with that of the general hospital population. However, as far as our particular setting goes, concentrating our efforts in better managing both the inpatient and outpatient care of select conditions like CHF and COPD may help us reduce even further our rates of readmission.

#### A-059 Ultrasound Accuracy of Liver Length Measurement with Cadaveric Specimens

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**Background & Objectives:** The liver is affected in the pathophysiology of many diseases. However, there is lack of agreement about the most accurate anatomical parameters that can indicate liver disease. This study aims to determine the most precise measurement of right liver lobe (RLL) length by 2-dimensional ultrasound. **Methods:** RLL ultrasound was used to measure organ length in cadaveric specimens (n = 21), which were placed in the supine position for midclavicular line (MCL) and left oblique position for midaxillary line (MAL) measurements in anteroposterior (AP) and craniocaudal (CC) planes. Ultrasound measurements were compared with In situ measurements, which were obtained by accessing the organ through the anterior thoracoabdominal wall. Body mass index, waist circumference, sex, and age of the specimen were also registered. Statistical analyses included: one-way ANOVA followed by Tukey post hoc test, paired t-tests, regression and correlation analyses. Statistical significance was attained at p < 0.05. **Results:** The strongest positive correlation was noted between MAL CC and in situ anterior measurements of RLL length (r=0.97). Changes for in situ measurements according to BMI and waist circumference were also noted (p < 0.05). **Conclusion:** CC measurement of the RLL in MAL from the uppermost right hemi-diaphragm to the inferior tip of the right lobe through a horizontal line parallel to the anterior liver wall is the most accurate measurement of the liver by ultrasound. It may now be possible to reach consensus among experts on the normal range of RLL length values. **Acknowledgements:** None.

#### A-060 Unexpected Stroke in a Young Adult

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A 27 year-old man without history of systemic illness presented with left hemiparesis. After initial head CT scan, he was diagno-

sed with an acute ischemic stroke, and systemic thrombolytics were administered. His neurologic condition deteriorated, and a follow up CT scan showed intraventricular hemorrhage. A transthoracic echocardiography showed a large aortic valve vegetation. At this time Infectious Endocarditis (IE) was high in the differential diagnosis. However, he had no history of intravenous drug abuse/toxic habits, nor history of cardiac congenital anomalies. A transesophageal echocardiography showed a severely damaged bicuspid aortic valve. Blood cultures grew *Streptococcus mitis*, which is part of the normal oral microflora. He completed 6 weeks of antibiotic therapy. After rehabilitation, he underwent successful aortic valve replacement. Patient was discharged home without complications. IE is a condition with high morbidity and mortality for which there are many risk factors. In this case, his bicuspid aortic valve predisposed him, and an episode of tongue biting caused the bacteremia. Few data exists regarding IE in patients with bicuspid aortic valve. Timely diagnosis and prompt management of complications with early surgery may improve short-term prognosis. However, the timing of surgery must be done on a case by case basis. In patients with IE that have brain emboli with associated hemorrhage it is reasonable to delay surgery to minimize the risk of subsequent bleeding during surgery. This case illustrates the importance of considering an infectious endocarditis as an embolic source in a young patient presenting with an intracerebral hemorrhage.

#### A-061 Health Literacy in a Group of Older Adults Assisting to Seniors' Activity Centers

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**Background & Objectives:** Functional health literacy is defined as the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions using both information and services to improve. Inadequate levels of health literacy affect the health status of individuals and are associated with a range of poor health-related outcomes. The purpose of this study was determining the levels of functional health literacy in a group of elders who participate in senior's activity centers. **Methods:** A total of 100 people aged 65 years or older who assisted to senior's activity center were interviewed in person between January and April 2010. The study used a structured questionnaire with demographic information, use of health services was collected was used, the short functional literacy scale was used in the Spanish version (S-TOFHLA) and the version of the generic health scale (SF- 36 v2). **Results:** More than half

(54%) presented inadequate levels of health literacy, while 15% reported marginal health literacy and 31% with adequate levels of health literacy. One-fifth (22%) reported not to understand the instructions that the provider offered at the moment of the treatment and more than one-third (34%) reported difficulty filling the medical forms. Conclusion: Health literacy presents adult educators with an opportunity to motivate adult learning while providing adults with knowledge and skills that will enhance their lives and the well-being of their families. Acknowledgements: This study was part of a doctoral dissertation. We would like to thank the seniors activities centers for their willingness to collaborate with the information needed for this project. IRB: This project was approved by Interamerican University of Puerto Rico, Institutional Review Board, protocol number 09-010-032-2010 on February 5, 2010.

#### **A-062 Does Having an Updated Vaccination Schedule is Associated with HPV Vaccination Initiation?**

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**Background & Objectives:** Human Papillomavirus (HPV) is the most common sexually transmitted infection. Oncogenic types may be responsible for oropharyngeal, anal and penile cancer. Puerto Rican men have an increased risk of penile cancer and increased incidence rate of anal cancer. By 2012, only 6% of boys 11-18 years old had completed 3 doses of the HPV vaccine. There is no previous research in PR exploring correlates associated with vaccination schedule compliance and HPV vaccine initiation in order to understand variables that might influence the HPV vaccine uptake in boys. **Methods:** Self-administered questionnaire among 200 parents ( $\geq 21$  years) and two separate focus group sessions among parents of HPV vaccinated and unvaccinated boys (9-17 years). Convenience sampling method was used. **Results:** Parents whose sons comply with the required vaccination schedule are 2.01 times more likely to have them vaccinated with the HPV vaccine than those with sons that do not comply. Boys 9-12 years old are 75% less likely than 16-17 year boys to initiate HPV vaccination. **Conclusion:** Future efforts should focus on the promotion of HPV vaccination by health providers as part of routine vaccination visits, specially of boys ages 9-12 in order to increase vaccination initiation rates. **Acknowledgements:** This project is part of the NIH/NCI Research Supplement to Promote Diversity in Health-Related Research (Grant # 3U54CA96297-10S2). Sponsors had no part in the design, data collection, analysis, or interpretation of the findings of this study and did not take part in the writing of or decision to publish this poster.

#### **A-063 Characteristics of Children and Families Receiving Services in the Autism Center in Puerto Rico**

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**Background & Objectives:** Since 2011, the Autism Center is offering diagnostic services to children with autism from 0-5 years as well as providing training to support families and university students. The Center was developed by the Institute for Developmental Disabilities (PR-UCEDD) in collaboration with the Department of Health of Puerto Rico. This project was designed as a family-centered service model to promote family competencies and to use other resources and opportunities so that they can be included in their social contexts. The objectives of this project are: 1) to describe maternal and child care and the environmental context of children with autism receiving services in the Center. **Methods:** A child record revision of 50 children diagnosed in the Autism Center by random selection was done to analyze socio demographics and family variables. Frequency analysis was done for selected variables. **Results:** The children sample was composed of 18% females and 82% males; average age of diagnosis was 33 months. An average of 16 months was reported as the age in which mothers identified development problems in their children. Related to social context, a 90% of parents classified their houses as adequate and describe their community as insecure (4%), regular (4%), unknown (14%), secure (12%), peaceful (60%), risky (6%). Families live in rural (18%) and urban (82%) areas. **Conclusion:** Children with autism and families experience a variety of issues that could be evaluate when coordinating interventions with this population.

#### **A-064 Structure-Based Virtual Screening for the Discovery of P-Rex1 Inhibitors**

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**Background & Objective:** P-Rex1 is a RAC-guanine nucleotide exchange factor (GEF) that is required for breast cancer progression. Since the crystallographic structure of P-Rex1 has not been solved experimentally, we focus on protein homology models for virtual screening use and ligands identification. We hypothesized that a structural bioinformatics approach utilizing homology modelling and docking approaches would assist in the identification of a lead small-molecule inhibitor of P-Rex1. The objective is to model and predict the three dimensional (3D) structure of P-Rex1 using Phyre v2.0 and identify lead inhibitors. **Methods:** The full amino acid sequence of human P-Rex1 was obtained

from the NCBI as FASTA-formatted file and inserted into Phyre v2.0 server as the 'query'. The constructed profile and query secondary structure is then scanned against a library of known protein structures using a profile-profile alignment algorithm. The docking analysis to predict protein-ligand binding affinity was performed using PyRx v0.8 software. Results: The 3D homology model of P-Rex1 was obtained with a 100% confidence and 40% sequence identity. After superimposition, the P-Rex1 3D structure matches consistently with known GEFs including Asef, Vav1 and Tiam1. A data set of 20,000 ligands was docked against P-Rex1 resulting in compounds with docking scores ranging from -8.8 to -2.7 kcal/mol. Conclusion: P-Rex1 3D homology model was predicted using Phyre v2.0 and was shown to be consistent with the known experimental data. At least ten compounds were identified as potential P-Rex1 inhibitors. Acknowledgements: Supported by the 2012 AACP NIA and UPR-MSU School of Pharmacy. There is no conflict of interest working on this project.

#### A-065 Training And Calibration Exercise Using T-Bar Gauge And Two-Tip Compass

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The T-Bar Gauge (TBG) is a tool that facilitates clinicians identify and correct tooth width/length and gingival length inconsistencies. Failure in achieving accurate tooth size proportions during restorative treatment, affects the patient's smile, and gingival health. Therefore, TBG and Two-Tip Compass (TTC) calibration is vitally important to minimize measurements uncertainty by ensuring accuracy to the dental examiners. Objective: To train and calibrate two (2) dental examiners using the TBG and TTC to measure clinical tooth size proportions (width/length) of maxillary anterior teeth. Methods: Prior to the training and calibration exercise, 15-35 year-olds were screened to confirm the inclusion criteria. Patient must present all maxillary anterior teeth and gingival health. A total of 16 individuals were selected (8 female and 8 male). The maxillary anterior dentition encompassing the central incisors, lateral incisors, and canines (left/right) were measured in millimeters at the widest mesial-distal width and the incisal-cervical length using the TBG and TCC. All measurements were performed using dental loupes and headlights. Kappa and Weighted Kappa was calculated for the TBG measurements to determine inter/intra examiners agreement. Pearson Correlation Coefficients was calculated for the TTC measurements. Approximately, 25% of the calibration participants were re-examined to determine intra-examiner reproducibility. Results: Inter-examiner reliability (Wt Kappa) using the TBG was 0.94-1. Intra-examiner reproducibility ranged from 0.91-0.98 (Wt Kappa). Inter-examiner reliability (Pearson Correlation Coefficients) using the Two-Tip compass was 0.97. Intra-examiner reproducibility ranged from 0.98-0.99. Conclusions: Examiners achieved substantial agreement (inter/intra examiners) using

TBG and TTC to determine aesthetic and functional tooth size proportions. Acknowledgements: this research reported was supported by the National Institute on Minority Health and Health Disparities of the National Institutes of Health".

#### A-066 Comparison of the Accuracy of Two Zimmer® Impression System at 0° Degrees Implant Angulation

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Background & Objectives: Success in oral rehabilitation is dependent, in part, of the accurate registration of the structures that constitute the basis for prosthesis support. The impression that allows replication must be accurate and reproducible so that the resultant master cast precisely duplicates the clinical condition. General Objective: To compare the accuracy and reliability of the Zimmer® Contour Impression System with the Direct System. Methods A transparent polymethylmethacrylate master cast was built from a Columbia Dentoform. A ZIMMER® implant dummy with a 3.7mm diameter and 13 mm in length was positioned with an angulation of 0 degrees. Impressions were taken with Impregum Penta Soft Medium Body impression polyether, and a Penta 2 (3M espe) automix machine. A custom tray was used with adhesive (3M polyether adhesive) and there was a 5 minute waiting period before taking the impressions. A direct transfer impression was taken on the dummy implant, and for Zimmer Contour System Impression post Hex-Lock Contour on the dummy implant was used and then placed on it on Contour Impression Caps. Five impressions of each system were taken and were poured one hour after with stone type IV, Resin Rock (Whip Mix) following manufacturing instructions. A custom made device was used for measurement of all models. Position changes in three Cartesian coordinates were measured (x,y,z) using a three dimensional measurement machine (CMM,BH-305 Mitutoyo, Japan). Results: The measures of the master cast in each Cartesian axis were 27,673, -1,402 and 7,374 measures derived from the Direct System were 27,592, -1,498 and 7,075 and from Zimmer Contour System was 27,847, -2,060, 6,552 (x,y,z respectively). Conclusions: There is no statistical significant difference in the X, Y, Z and W axis for both impression techniques. Snap-on technique is statistical significant different in the Y axis.

#### A-067 Adequacy in Diabetes Treatment: Going Beyond the Blood Sugar Testing

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Adequacy of treatment among diabetic patients had been documented elsewhere to increase health services costs and cause countless effects among patients. Therefore, CDC has strength

the guidelines for diabetes care and encourages close monitoring and empowerment of patients. The aim of this study was to assess self-reported adequacy of treatment among a sample of diabetic patients living in the Arecibo Health District while attending their routine blood sugar test. A cross-sectional study was designed for surveying the patients attending to Laboratorios Toledo at Arecibo. A total of 497 confirmed diabetic patients were recruited for this study. STATA outputs shows that in a range of 14 points adequacy scale average score was 8.74 points (SD=2.29). Multivariate regression analysis shows that age of participants, income, having "reforma" or medicare, being under endocrinologist care and CES-D scores are significantly related to treatment adequacy ( $p = .05$ ). Analysis shows that after controlling for having normal blood sugar for the last 3 months there are factors that impact the adequacy of diabetic patient care. In general those older, covered by Medicare and with high depressive symptomatology had less adequate care than their counterparts.

#### **A-068 In Vitro Toxicity Studies of Super Paramagnetic Nanoparticles Used as Vehicles for Delivering siRNA's**

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**Background and Objective:** Small interfering RNA's (siRNA's) are short double-stranded nucleic acids which are being developed to target therapeutically important genes involved in cancer and other diseases. However, siRNA's are unstable within the extracellular environment, cannot cross cell membranes to accomplish their mission, and are readily secreted by the renal system. Our objective is to find non-toxic synthetic carriers to deliver siRNA across cell membranes. **Methods:** Different polycationic superparamagnetic nanoparticles are tested in several cell lines for their toxicity and siRNA - transfection efficiency (using the firefly luciferase assay), and explore the benefits of magnetofection (placing a magnet under the cell culture flask). **Results:** These nanoparticles are efficient carriers for siRNA in vitro. Reducing the polycationic character of the nanoparticles by attaching non-polar groups on their surface reduces their toxicity while maintaining their high transfection efficiency, which is actually increased by magnetofection. **Discussion and Conclusions:** There is a fine balance between the polycationic character of a carrier to its toxicity and transfection efficiency. A systematic optimization of the nanoparticles (by changing their surface groups and concentration) is needed in order to obtain a highly efficient and non-toxic carrier. Magnetofection is a powerful tool to deliver the carrier-siRNA complex to a target cell or tissue. **Acknowledgements:** This research was supported by NIH-PRA-BRE program from the University of Puerto Rico.

#### **A-069 Validación del T-Bar y la Aplicación Clínica**

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**Introducción:** El tamaño absoluto de las piezas dentales es indispensable en la planificación del tratamiento restaurador estético, funcional, estructural y biológico. Existe relación (ancho por largo) propuesta por Chu en 2007, cuyo resultado final es la creación de un instrumento (T-bar Proportion Gauge) para realizar alargamientos de corona clínica, de forma proporcionada usando anchos mesio-distales e incisivo-cervicales en dientes anteriores maxilares. El propósito de este estudio es la validación del instrumento de mediciones de Chu y su impacto estructural. **Ho :** no hay relación entre las proporciones propuestas por Chu . **Materiales y métodos:** Estudio clínico, de corte transversal. Muestra a conveniencia, pareada (15 h y 15 m). Mediciones clínicas de anchos y largos (mm) en dientes anteriores maxilares usando sonda periodontal (PCPUNC15) y el T-bar Proportion Gauge (Chu Aesthetic Gauges, Hu-Friedy Inc, Chicago, IL) según instrucciones del fabricante. Las mediciones realizadas por un mismo operador con magnificación 2.5x. Análisis estadístico mediante un ANOVA. **Resultados:** 1. Los anchos y largos son estadísticamente significativos mayor en los hombres que en las mujeres. 2. No hay diferencia estadísticamente significativa entre los incisivos derechos con los izquierdos. 3. El 43% caen dentro del intervalo del T-bar. **Conclusiones:** Las proporciones dentales de las piezas anteriores maxilares, difieren de los intervalos dados por el T-bar Proportion Gauge. Limitaciones del estudio, instrumento de medición, en estudios posteriores se utilizara compas de dos puntas y calibrador digital.

#### **A-070 Preparación del Plan de Continuidad de Operaciones para las Facilidades de Salud de Puerto Rico, 2013-2014**

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**Trasfondo y Objetivo:** En Puerto Rico existen las condiciones para la ocurrencia de eventos de origen natural o humano que desencadenen en emergencias que demandarían que las facilidades de salud no interrumpieran sus funciones y servicios. Esto hace imprescindible que estas instituciones desarrollaran planes y adiestramientos de emergencias y desastres integrados que les ofrezcan un nivel de preparación y una capacidad de respuesta adecuados para atender a la ciudadanía. El objetivo del proyecto era capacitar al personal clave de 20 facilidades de salud de Puerto Rico, agrupadas en su mayoría en corporaciones hospitalarias, en el desarrollo del Plan de Continuidad de Operaciones. **Métodos:** Se diseñó una serie de adiestramientos en cinco sesiones utilizando diversas estrategias didácticas para el desarrollo del plan. Las estrategias educativas incluyeron: conferencias, ejercicios de mesa, redacción, discusiones de grupo, consultoría telefónica y electrónica, mentoría individualizada, presentaciones de los participantes y exámenes cortos, todas empleadas en múltiples sesiones grupales e individuales. **Resultados:** Unas 24 facilidades de salud, incluyendo cinco corporaciones hospitalarias, fueron impactadas en la capacitación. La gran mayoría de las



facilidades participantes sometieron borradores finales del plan al culminar la capacitación. Sobre un 90% de los participantes manifestaron que los adiestramientos consiguieron alcanzar su objetivo y lo recomendarían a otros profesionales. Conclusiones: La estrategias didácticas y de múltiples sesiones empleadas demostraron ser efectivas en la preparación de la audiencia en el desarrollo del Plan de Continuidad de Operaciones. Reconocimientos: El proyecto fue sufragado en un cien por ciento con fondos federales administrados por la Oficina de Preparación y Coordinación de Respuesta en Salud Pública del Departamento de Salud de Puerto Rico.

#### **A-071 Comparison of Hygiene Practices Among Male and Female Athletes and its Association with Methicillin Resistant Staphylococcus Aureus Nasal Colonization and Skin Infections**

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Background and objectives: Staphylococcus aureus has been associated with skin infections among contact sports players mostly due to colonization of nares with a variant that is resistant to conventional antibiotic therapy. Several risk factors for developing methicillin-resistant Staphylococcus aureus (MRSA) have been identified as responsible for outbreaks among teams. The purpose of this study was to compare hygiene practices among male and female athletes and to correlate it with the incidence of positive nares cultures. Methods: Fifty athletes were enrolled in the study. A questionnaire was handed in to evaluate some practices associated with skin infections. Samples from nares were also collected from each athlete by means of swabs. Results: Most athletes practiced risky behavior such as sharing equipment with other teammates, body shaving, and not washing hands during games or practice. The incidence or risky behavior was higher in male than in female athletes. Of the 50 athletes enrolled, 1 male athlete (2%) was identified as having nasal colonization with MRSA. Despite identification of risk factors, such a low incidence of nasal colonization correlates with a low incidence of previous skin infections (14% in males, 8% in females). Conclusions: Results obtained could be due to having a small sample of athletes for conducting the study. Female athletes had safer hygiene practices and consequently less risk of developing MRSA colonization. A larger population should be studied to evaluate the incidence of MRSA among Puertorrican athletes and to identify those who can be treated to prevent transmission among teammates.

#### **A-072 Comparison of the Accuracy of Two MIS® Impression Technique at 0° Degrees Implant Angulation**

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Background & Objectives: A prime objective in Prosthodontics is to prevent complications that could be transferred in the final restoration of an implant. There are different variables that affect the impression, such as splinting or not of the copings, different types of impression materials and angulated implants. However, there is no evidence that evaluates the “snap-on” technique with others. Objective: The aim of this in vitro study was to compare the accuracy of the CPK® system with the direct impression technique. Methods: Using a Columbia Dentoform (Long Island, NY, USA) with missing a maxillary right premolar, a master cast was fabricated. A 3.7 x 13mm MIS Implant was inserted at 0° degrees and at gingival level. Ten impressions with medium body impression material (Impregum™ Soft Polyether3M ESPE) and a custom tray were taken from the master model, Five impressions with the CPK® system and five with the open tray technique. After an hour both groups of impressions were poured with type IV stone (ResinRock Whip Mix) following the manufacturer’s instructions. For measurements of the samples, a custom made device was fabricated. 3D Positions changes were measured in the X, Y, Z axis with a Coordinate Measure Machine (CMM, Mitutoyo BH-305, Japón) Results: The measurements of the Direct technique were 25.45, -6.01 and 10.12µm for X, Y and Z respectively. From CPK System was 25.45, -6.01, 10.12. Conclusions: The master cast showed statistically significant difference in the Z axis with the direct technique. While between groups was no statistically significant difference in any of the Cartesian axes.

#### **A-073 Conocimiento y Actitudes del Profesional de Enfermería sobre Aplicación de Medidas Estándares de Bioseguridad para el Control de Infecciones**

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Antecedentes. Las infecciones en los centros hospitalarios se han convertido en un problema importante para la seguridad del paciente y la calidad del servicio que se provee a la comunidad (OMS, 2009). Es necesario estudiar este fenómeno para asumir el establecimiento de un sistema que enfatice la bioseguridad y un ambiente seguro para el paciente. Objetivos. (1) Describir el conocimiento del profesional de enfermería, (2) Evaluar su actitud y (3) Establecer la relación del conocimiento y la actitud hacia la aplicación de las medidas estándares de bioseguridad para el control de infecciones. Metodología. Estudio de diseño descriptivo correlacional, corte transversal con una muestra de 24 profesionales de enfermería, de un hospital en la zona metropolitana. Se recogieron los datos mediante un cuestionario auto-administrable titulado: “Conocimiento y actitudes del profesional de enfermería sobre la aplicación de las medidas estándares de bioseguridad” (Román, 2013). Resultados. El 54.2 % de los participantes arrojó un promedio de conocimiento de 17.50 (DE = 3.12.) indicando un nivel regular. El 100% arrojó una puntuación de actitud de 95.21 (DE=4.76) reflejando una

actitud favorable. No hubo relación significativa ( $r=.10$ ,  $p>.05$ ) entre las dos variables. Conclusión. Estos datos sirven de base para orientar el desarrollo de programas educativos y fomentar la educación continua con temas relacionados a la bioseguridad y el control de infecciones. Se recomienda hacer estudio mediante la observación del personal de enfermería en la aplicación de las medidas de bioseguridad. Protocolo A8100114.

#### **A-074 Functional Vulnerability of Five Hospitals in Puerto Rico**

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**Background:** Hospitals are essential institutions to society they are expected to offer care and immediate attention after a disaster. The capabilities of an affected hospital can be reduced very quickly, exposing deficiencies related to the disaster mitigation efforts. Functional collapse is the main cause for the interruption of health care services in hospitals after a disaster. **Objectives:** Conduct a qualitative assessment of the functional infrastructure of five healthcare facilities in Puerto Rico. **Methods:** The project consist in a comprehensive assessment of the structural, non-structural and functional vulnerabilities of five healthcare facilities. To evaluate the functional aspect, three questionnaires were administered to the participating hospitals to know about the emergency plans, collaborative agreements, protocols of medical treatment, personnel training, availability of medicine supplies and other essential equipment in case of a disaster. In addition, we used the Hospital Safety Index developed by the Pan American Health Organization, which provides a diagnostic of hospital vulnerability, taking into account the structural, nonstructural and functional components. **Results:** Preliminary findings shows that all interviewed hospitals have an emergency plan and most of them perform drills. In all of the hospitals there is a lack of trainings for doctors and nurses on trauma. The majority of the hospitals do not have written agreements with facilities where they plan to send overload of patients in a disaster. **Conclusions:** The functional aspects are one of the most important, ensuring the continuous operation of the hospital after a disaster. It's important that the hospital's personnel should be adequately prepared for disasters. **Funding:** This project was supported in its entirety by federal funds from the Center for Disease Control and Prevention (CDC) and Office of the Assistant Secretary for Preparedness and Response (ASPR) of U.S. Department of Health and Human Services (USDHHS), administered by the Puerto Rico Department of Health (PRDOH), Office of Public

Health Preparedness and Response. The project was implemented by the UPR-CPHP under contract #2014-DS0583 with the PRDOH. IRB: This project was approved by University of Puerto Rico, Medical Sciences Campus, Institutional Review Board, protocol number A6640114 on August 13, 2014.

#### **A-075 Development of an Emergency Health Planning Model for Puerto Rico**

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**Background:** The first important steps towards reducing disaster impact are to correctly analyze the potential risk and identify measures that can prevent, mitigate or prepare for emergencies. System dynamics simulation models help policymakers understand the impact of different interventions and characterizes many public health issues. **Objectives:** Determine the types and magnitude of various resources required to absorb the impact of hurricane and pandemic to the Puerto Rico population and health care system. **Methods:** Adapt and implement a system dynamics model. The project includes simulate the movement of a population among various states of health and disability as it is affected by and recovers from a hurricane and pandemic; simulate the effects of this incidents in terms of their duration and health impacts, and the secondary effects; estimate the effects of the incidents on the capacity of those facilities and services as a result of injuries to employees, damage to buildings, and loss of critical infrastructure; and estimate the demand for care, backlogs over time of various health services as a result of excess demand and reduced capacity, and rates of excess disability and mortality that result from delays in receiving care arising from those backlogs. **Results:** The preliminary findings shows that the simulation of Puerto Rico's healthcare system will confront significant delays and backlogs in the process of providing care to the population affected by a hurricane or pandemic event. **Conclusions:** The Puerto Rico Department of Health should take into account the results of these simulations to make the necessary adjustments to their emergency plans. **Funding:** This project was supported in its entirety by federal funds from the Center for Disease Control and Prevention (CDC) and Office of the Assistant Secretary for Preparedness and Response (ASPR) of U.S. Department of Health and Human Services (USDHHS), administered by the Puerto Rico Department of Health (PRDOH), Office of Public Health Preparedness and Response. The project was implemented by the UPR-CPHP under contract #2014-DS0600 with the PRDOH. IRB: This project was approved by University of Puerto Rico, Medical Sciences Campus, Institutional Review Board, protocol number A6640214 on August 21, 2014.

**A-076 3D Printing: An Educational Tool in Biomedical Research and Health Disparities**

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**Background & Objectives:** Three-dimensional (3D) printing technology is used in many industrial fields to produce prototypes and finish products. This technology involves depositing (printing) multiple thin layers on top of each other to form three-dimensional objects from many materials, e.g., plastics, wood composites, metals and biomaterials. The objective of this project was to use 3D printing technology to develop tools that will help educate K-12 students in infectious diseases present in Puerto Rico. **Methods:** A set of five virus models were 3D printed using polylactic acid (PLA) at 220°C. In addition, a model of a viral capsid self-assembling virus was produced to demonstrate how viruses are assembled in nature. The latter required twelve pentagons affixed with neodymium magnets that formed a dodecahedron representation of a virus. **Results:** Infectious pathogens models were printed using 3D technology including dengue, influenza, hepatitis B and human papilloma viruses. The viruses selected represent infectious pathogens affecting the Puerto Rican population. The 3-D virus models are being tested in biomedical education activities sponsored by the Biomedical Research Education Program (BREP) at the RCM-UPR. **Conclusion:** Our project demonstrate the use of 3D printing as an educational tool and its applicability in stimulating the interest of K-12 students in biomedical research and the diseases that disproportionately affect Puerto Ricans. **Acknowledgments:** Supported by National Institute of Minority Health and Health Disparities, RCMI Grant G12 MD 007600.

**A-077 Compaction Characterization and Physico-chemical Properties of Antiasthmatic Tablets using Co-processed Avicel HFE**

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**Background & Objectives:** Mannitol and microcrystalline cellulose (MCC) are two excipients widely used in the development of tablets as oral dosage forms. Mannitol offers a series of advantages such as low hygroscopicity, strong inertness and good compactability. Previous studies have shown that the use of co-processed mannitol and MCC can improve the flowability, compactibility and dissolution rate in a direct tableting process. However, further research is needed to understand the behavior of this excipient and the effect of the compressional force on the mannitol polymorphs. **Objectives:** The purpose of this study was to investigate the effect of compressional force on the physico-chemical properties of antiasthmatic tablets prepared by using co-processed Avicel HFE. Also, to evaluate the use of Avicel HFE for direct compression compared to the physical mixture of Avicel PH-102 and mannitol. **Methods:** Fifteen batches, 50 tablets each, composed of theophy-

lline (20%, 40% and 80%), magnesium stearate (0.5%), Ac-Di-Sol (0.5%, 2% and 4%) and Avicel HFE-102 (15.5%-75.5%) were prepared for this study as well as the physical mixtures of Avicel PH-102 and mannitol without co-processing. Tablets were compressed to different target hardness. Physico-chemical properties of the tablets were determined with standard characterization procedures to ensure compliance with USP standards. **Results:** All tablet formulations exhibited uniformity of weight and rapid disintegration and over 90% of drug dissolution at 15 minutes. **Conclusion:** The data obtained shows the potential use of Avicel HFE as a direct compressed excipient and gave tablets of good performance. **Acknowledgments:** The authors acknowledge the Center for Pharmaceutical Processing Research for funding this research.

**A-078 Enhanced Capability to Identify Non-affected Newborns with Congenital Adrenal Hyperplasia by Fluoroimmunoassay in a Neonatal Screening Program**

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**Background & Objectives:** Congenital adrenal hyperplasia (CAH) is a potentially life-threatening disease. Its early detection and treatment may save the life of the affected. With this in mind the test to screen for CAH –17- $\alpha$ -OHProgesterone– was introduced in the PRNSP in 2004 by radioimmunoassay (RIA). In 2012 the later methodology was replaced by fluoroimmunoassay (FIA). We assessed to determine how this impacted the program. **Methods:** 423,502 newborns have been screened since the incorporation of the test to the program. Twenty confirmed cases were identified for a ratio of 1:21,575 live births during the period revised. During the first eight years of the program an increase number of false positive results was common. In 2012 RIA was replaced by FIA. **Results:** We found an increased specificity from years 2004 to 2013. In 2004, 94.5% of newborns without CAH and in 2013, 99.5% of newborns without CAH were correctly identified. For every year (2004 to 2013) 100% of newborns with CAH disease were correctly identified –sensitivity. We are not aware of newborns born with CAH disease missed by the PRNSP. **Conclusion:** We conclude that switching to FIA methodology to screen for CAH allowed PRNSP to enhance its capability to reduce false-positive results for this test. **Acknowledgment:** This project is supported by NCMHD-NIH Grants 5S21MD000242, 5S21MD000138, and by PRNSP and the PR Dept of Health funds. Study protocol was approved by the UPR Medical Sciences Campus IRB, June 9, 2014 to June 6, 2015 Protocol Number A8410114. **Disclosures:** The authors have nothing to disclose.

**A-080 Primary Small Cell Neuroendocrine Carcinoma of the Vagina Presenting in 36 Year-old: Case Report**

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**Purpose:** Primary small cell neuroendocrine carcinoma of the vagina is an extremely rare malignant epithelial tumor with an aggressive behavior. Little is known about this entity since very few cases have been published. Current treatment modalities are extrapolated from small cell carcinoma of the lung, which is the most common primary site. **Case Description:** We present a case of a 37 year-old G4P2A2 female with no prior history of malignancy who presented with discomfort associated to a mass in the posterior vaginal wall. **Clinical Approach:** Gynecologic evaluation and surgery revealed an 8cm friable pedunculated mass with irregular contours arising from the posterior vaginal wall. Pathologic evaluation revealed a submucosal tumor consisting of small, round cells with scant cytoplasm, fine granular nuclear chromatin, and nuclear molding. These morphologic features, along with a neuroendocrine immunophenotype are diagnostic for small cell neuroendocrine carcinoma. High-Dose Rate Brachytherapy was given to the upper vagina, with a total dose of 1,100cGy. Chemotherapy regimen consisted of Cisplatin 50mg/m on days #1, 8, 29, 36 and Etoposide 50mg/m on days #1 through 5 and #29-33. **Clinical Findings:** Whole body bone scan performed after treatment revealed findings consistent with metastatic disease to the skull and femur. The patient was admitted to the hospital with intractable pain and pancytopenia. Bone marrow biopsy revealed tumor infiltration, for which therapy with Etoposide was restarted. **Hypothesis:** Accurate diagnosis of small cell neuroendocrine carcinoma and its distinction from other carcinomas is of paramount importance, since it will determine the patient's management and prognosis.

#### **A-081 Asociación entre Síntomas de ADHD en la Niñez y la Entrada y Cumplimiento de Tratamiento para SUD en Hombres Puertorriqueños Sentenciados (2004-2005)**

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**Antecedentes y Objetivos:** La literatura reporta que el diagnóstico de trastorno de déficit de atención con hiperactividad (ADHD) en la niñez aumenta las probabilidades de desarrollar trastornos por consumo de sustancias (SUD) en la adolescencia o en la adultez. Diagnósticos duales de trastornos mentales pueden afectar las probabilidades de entrada y cumplimiento en distintas modalidades de tratamiento para SUD. Dado esto, el presente estudio exploró la asociación entre sintomatología de ADHD en la niñez y la probabilidad de ingreso y cumplimiento en todas las modalidades de tratamiento para SUD. **Metodología:** Se realizó análisis de datos secundarios utilizando una muestra de 445 hombres adultos confinados diagnosticados con SUD alguna vez

en su vida. Se realizaron X<sup>2</sup> y regresiones logísticas para evaluar asociación cruda y ajustada entre síntomas de ADHD en la niñez y entrada y cumplimiento a tratamiento para SUD. **Resultados:** Síntomas de ADHD en la niñez no resultó estar estadísticamente asociada a entrada a tratamiento para SUD, aún cuando se controló por los covariados (OR: 1.19, IC 95%: 0.73 – 1.95, p = .44). Asociación cruda entre síntomas de ADHD en la niñez y cumplimiento de tratamiento resultó estadísticamente significativo (OR = 1.78, IC 95% = 0.95 – 3.33, p = .07). Esta asociación se dispó al controlarla por los covariados (OR: 1.63, IC 95%: 0.86 – 3.11, p = .12). **Conclusión:** Los resultados apuntan a una tendencia entre síntomas de ADHD en la niñez y el completar alguna modalidad de tratamiento. Estudios posteriores son necesarios para evaluar a profundidad esta asociación.

#### **A-082 Migrating Populations and the Emerging Environmental Problems in Puerto Rico Rural Areas: How Older Adults Work It**

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In the last years there had been a higher number of people migrating inside the island as house income had lower but not housing facilities. The new migrating populations had caused natives several problems including the adaptation to new sub-cultures that alter the daily activity life. This study analyzes qualitatively the impact of environmental noise among elders and the sources of noise in a rural community in the center east part of the island. **Results:** the older adults identified the migrating population coming from bigger cities as the main source of environmental noise. However, the older adults can't correctly difference between noise and sound, although they recognize disturbs as a consequence of noise. Also, older adults could not identify how noise directly impact health but they did recognize it as a stress that needs more robust regulation. Indeed, they did not know neither where to inform a noise complain nor policies that helps them keep healthy. In conclusion, the discourse analysis presented by older adults show that there is little knowledge about noise and the impact of it in health outcomes. In the other, hand demographic analysis of how population is migrating to inner cities in the island requires more robust analysis in order to bring diversify environmental health analysis of the problem.

#### **A-083 Stroke gender disparities in Puerto Rico**

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**Background:** Many studies have shown that there are disparities between men and women, most noticeably regarding stroke management and outcomes. Women appear to be treated less aggres-

sively than men and have worse prognosis after discharge. This study analyzes the gender disparities in demographics, risk factors, presenting symptoms, hospital management and outcomes in Puerto Rico. Methods: We examined data from the PR Cardiovascular Surveillance, which is based on a systematic review of medical records in 18 hospitals during the years 2007, 2009 and 2011. Categorical and continuous variables were analyzed using descriptive statistics. In addition, Pearson's Chi-square was used to evaluate the association between gender and outcome variables. Results: A total of 5,288 patients were hospitalized with a stroke diagnosis during the study period. Most patients were women (55%) and between the ages of 65-84 years (53%). Women presented more headaches (12.7%) in comparison to men (9.9%) ( $p = 0.002$ ). The prevalence of hypertension (87.7% vs. 83.5%,  $p < 0.0001$ ) and diabetes (53.7% vs. 50.5%,  $p = 0.025$ ) were significantly higher in women than men. In-hospital death rate, although not statistically significant, was also higher in women (9.6% vs. 8.6%,  $p = 0.185$ ). Secondary prevention practices such as the use of aspirin (ASA) given at discharge (21.1% vs. 25.0% respectively, ( $p < 0.0001$ )) were lower in women than men. Conclusions: The findings suggest significant gender differences in stroke outcomes and management in Puerto Rico. Further studies are needed to identify interventions to reduce gender disparities in this population. Acknowledgments: This study was supported partially by the University of Puerto Rico Medical Sciences Campus, and the Endowed Health Services Research Center, Grants 5S21MD000242 and 5S21MD000138, National Center on Minority Health and Health Disparities, National Institutes of Health.

#### A-084 Strategies Toward the Isolation of Predicted Genotoxic Compound Colibactin

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Colibactin is the name given to the predicted product of hybrid nonribosomal peptide-polyketide synthase complex (pks island) found in some strains of *Escherichia coli*. Bacterial strains harboring the pks island show a peculiar toxicity toward mammalian cells in culture with a distinctive phenotype that includes DNA damage, cell cycle arrest and megalocytosis of the infected cells. It has been shown by our group (Gómez-Moreno et al., 2014) that the pks island can be found in the normal gut microflora and that its presence is positively correlated with colorectal cancer (CRC). Despite the obvious interest in elucidating the mode of action for the resulting colibactin compound, its structure remains unknown. The broad objective of this investigation is to develop molecular strategies towards the isolation of colibactin in pursuance of its structure and eventually, its mode of action. Several efforts have been documented that attempt to extract the compound from *E. coli* cultures that harbor the pks island, with no success. Our strategy is an attempt to disrupt the natural biosynthetic machinery in order to cause the accumulation of intermediates. We have deleted the *clbP* gene from a pks island+

strain (IHE3034). This gene encodes an enzyme that presumably catalyzes the last processing step from colibactin biosynthesis. Extracts from the  $\Delta$ ClbP-IHE3034 strain were analyzed by MALDI TOF TOF mass spectrometry and compared to wild type IHE3034 and DH10B strains. Results show that novel compound of 994 Da is produced only in the  $\Delta$ ClbP strain. To our knowledge this is the first report of the detection of a biosynthesis intermediate of colibactin.

#### A-085 Multidrug Resistant *Acinetobacter baumannii* (Ab) isolates from a Private and a Teaching Hospital

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Background & Objective: The carbapenems are the antibiotics of choice for the treatment of infectious caused by multidrug resistant (MDR) Gram-negative bacilli. In Ab, the class D carbapenem-hydrolyzing  $\beta$ -lactamases is the most common mechanism for carbapenem resistance. This pathogen is frequently identified in nosocomial outbreaks. From January to October 2014, all MDR Ab isolates from a private hospital (PH) and a teaching hospital (TH), were sent to our laboratory together with their basic epidemiological information and antimicrobial susceptibility report. The objective of this study was to characterize the  $\beta$ -lactamases genes present in these isolates. Methods: All organisms were screened using PCR family-specific  $\beta$ -lactamase primers for: KPC, IMP, VIM, NDM-1, OXA carbapenemases (OXA-24, -51, -58), and the non-carbapenemases TEM, SHV, and CTX-M genes. Results: Epidemiological data show that MDR Ab was more common in PH (30) than in TH (14), while no differences were noted in the distribution by age, sex or hospital wards. Respiratory tract isolates were more commonly seen in PH (43% vs 36%). PCR demonstrated the presence of blaOXA51 in 100% of PH and TH isolates, blaOXA-58 in 6% and 7%, blaOXA-24 in 10% and 14%, and blaTEM in 63% and 83% of the isolates from the PH and TH, respectively. However the presence of the blaKPC was only observed in PH (4/30, 13%) isolates. Conclusions: The OXA-51, followed by OXA-24 and -58 genes were the most common carbapenemases indicating their importance in MDR Ab, additionally, OXA-24 gene was identified for the first time in Ab in PR. (Funding Sources, Conflict of Interests Disclosures, etc.): This work was supported by MBRS/RISE R25GM061838-14, RCMI/NIH 8G12-MD007600 and Associate Deanship for Biomedical Sciences Graduate Program School of Medicine, MSC-UPR.

#### A-086 Relationship of FTO rs9939609 and Prostate Cancer Severity in a Sample of Puerto Rican Patients

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**Background & Objectives:** Obesity is prevalent in Puerto Rico (PR) and has been associated with a higher risk of prostate cancer (PCa) severity and mortality. In PR, PCa mortality is significantly higher (28.3/100,000 males) compared to US Hispanic population. FTO gene polymorphisms (SNPs) have been associated with both obesity and PCa. Our aim was to establish the presence of any correlations between FTO SNP rs9939609, obesity, and PCa severity in a sample of Puerto Rican men. **Methods:** DNA from 294 patients with PCa managed with radical prostatectomy was analyzed by Real-Time PCR. PCa severity was defined based on prostatectomy tumor stage and Gleason Score. Chi-square test and logistic regression models were used to assess the correlation between rs9939609, BMI, and PCa severity. **Results:** A/T and T/T were the most common forms identified (46.9% and 38.4%, respectively). Among our sample, 65.6% (193/294) of overweight/obese patients and had at least one T allele. Of these, 72.5% exhibited low severity PCa. After controlling for age and BMI, homozygous form of rs9939609 had 9% lower odds (95%CI: 0.41-2.02) of a high-severity PCa when compared to the wild type form, but this did not reach statistical significance ( $p > 0.05$ ). **Conclusions:** No correlation was identified between FTO rs9939609, obesity and PCa severity in the studied population. Further studies should be done in a bigger sample. **Acknowledgements:** Supported by RCMC grants G12MD007600 (Center for Collaborative Research in Health Disparities), 8U54MD007587-03 (PRCTRC) from the NIMHD, and Award Grant Number# CA096297/CA096300 from the NCI of the NIH. (IRB# 8860212).

#### **A-087 Deep Brain Stimulation of the Ventral Striatum For the Extinction of Morphine Place Preference**

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**Background:** Deep brain stimulation (DBS) is a neurosurgical procedure used to treat refractory neurological and psychiatric disorders. Recent studies have suggested that DBS of the ventral striatum (VS) may be a potential target for treating addictive disorders. Despite these results, DBS parameters, electrode placement, and the addiction stage have not been thoroughly addressed. In this study, we examined whether DBS of the VS could reduce the expression of morphine conditioned place preference (CPP), and enhance its extinction learning. **Methods:** For this purpose, male Sprague-Dawley rats were stereotaxically implanted with bipolar electrodes aimed at VS (-6.5 mm DV,  $\pm 2.0$  mm ML, and +1.2

mm AP). Using a two-compartment CPP box, rats were conditioned across 8 days to prefer the side paired with morphine (5 mg/kg). Subsequently, rats expressing morphine-CPP received extinction sessions, together with high-frequency 130 Hz DBS (HF-DBS), low-frequency 20 Hz (LF-DBS) or sham stimulation. **Results:** We found that HF-DBS did not reduce the expression of morphine-CPP, whereas impairment of extinction was observed. On the other hand, LF-DBS facilitated the extinction of morphine-induced place preference even after the DBS was turned off. **Conclusion:** These results suggest that LF-DBS of the VS might represent the basis for new effective interventions for addictive patients who do not benefit from current treatments. **Acknowledgements:** NIH-NCRR (2G12-RR003051; 5P20RR016470); NIMHD (8G12-MD007600), NIGMS (8P20GM103475) for JLBE, Conte Center Grant (P50 MH086400) for GJQ; MBRS-RISE-MS (R25-GM061838) for FJMR.

#### **A-088 Chikungunya at the Caribbean Primate Research Center: Lessons Learned**

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**Background and Objectives:** Chikungunya is an arbovirus that is transmitted by mosquitoes and causes debilitating disease, fever, polyarthralgia, rash and vomiting. It was first reported in Puerto Rico in May 2014, reaching epidemic proportions by July 2014. As in other work areas in Puerto Rico, the Caribbean Primate Research Center (CPRC) had its work force affected by the epidemic. The peak of sick employees was between late August and the month of September reaching approximately 25% of the entire work force. This impacted many areas of the Center from administrative tasks, maintenance and routines for animal care as well as maintenance of the landscape and physical plant. Chikungunya causes similar symptoms in rhesus macaques and there are multiple studies that use this animal as a model for the disease. However, information on natural infection with chikungunya in non-human primates (NHP) is scarce and there are papers that raise the question on the role of NHP as potential carriers of the virus. **Methods:** The CPRC had 3 suspect cases of rhesus macaques with chikungunya. Serology was used to confirm these cases as well as a sentinel group of animals from the colony were tested. **Results:** Serological results from a NHP sentinel population are in agreement with the clinical presentation or lack of chikungunya-like symptoms. **Conclusion:** The chikungunya virus not only affects humans and the role of this virus in NHP as potential reservoirs and animal model for the development of vaccines and treatments needs to be further evaluated.

#### **A-089 Women's Health Society's Human Papilloma Virus Multimedia Educational Program: Doing health education through Social Media**

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**Background & Objectives:** Social Media is an ever more present part of contemporary life. Puerto Rico's low vaccination rates against Human Papilloma Virus, which causes cervical cancer, is an urgent health issue. Women's Health Society (a nonprofit) created a multimedia educational program where social media has proven key in spreading awareness on HPV. Objectives were 1) to raise awareness on HPV, its repercussions and prevention alternatives 2) to use social media metrics to measure who we reach and how they engage with the educational content so that ever more effective educational efforts can be proposed in the future. **Methods:** Create a content network of attractive, easily understandable yet scientifically accurate multimedia web content. Actively and effectively promote relevant content to the target audience (women in Puerto Rico) through Facebook. Craft campaigns to take key content to target audience. Engage people in conversation, encourage questions and respond promptly. Constantly analyze metrics and modify strategy. **Results:** In just 4 months Women's Health Society Facebook Page has gotten 3,057 Fans. These are not "ghost fans", but people constantly engaging with the posted educational content: current average reach: 50,700 people. Furthermore, the educational work is directly impacting people's lives clearing up their doubts in times of uncertainty. **Conclusion:** Social Media can serve as an effective channel of communication to reach new publics in a targeted manner for those that are more in need or more at risk. It is important to remember that social media has its own methods required for success. **Acknowledgments:** This effort is funded in part by a non-restricted educational grant from Merck in collaboration with VOCES- Coalición para la Vacunación (Non-profit Organization), Effectively Creative Gorup, LLC and Diana Soto, New Media Consultant.

#### **A-090 Puerto Rico Health Information Network Environmental Scan Results: Laboratory Information System (LIS) Satisfaction**

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**Background/Objective:** In February of 2012, Law number 40 created the Puerto Rico Health Information Network (PRHIN) Corporation to lead the implementation of a health information system for the island's health sector, financed by the American Recovery and Reinvestment Act (ARRA) law. An environmental scan was done assessing Health Information Exchange (HIE) performance baseline information in each of the key program priority areas: laboratories and pharmacies participation and information exchange between healthcare providers. This project presents satisfaction level and perceived impact with their Laboratory Information System (LIS) of a sample of laboratories. **Methods:** Data was collected by survey (electronic, fax or mail) using a cross-sectional design. A random sample of laboratories was selected (n=89; response rate=16.5 %). Descriptive analyses

were conducted using SPSS. **Results:** Most laboratories (85%) said that they have adopted some type of Health Information Technology (HIT), either fully implemented (56%) or is underway (27%). Three in every four (>57%) said that implementing LIS had a positive impact in their practices with communication with other providers and patients, the management of lab orders and the agility of sending laboratory results. Almost seven of every ten laboratories that are using LIS are satisfied with the system. **Conclusion:** These results provide preliminary evidence of the status of the PRHIN operational plan implementation and its impact in a sample of laboratories. In this sample, the majority had implemented HIT and is satisfied with their system. **Acknowledgements:** The project described was supported by the American Recovery and Reinvestment Act of 2009 (ARRA) PRIFAS 256-0710000-081-2010-1090HT0001SUB PEOPLE-SOFT 256-0710000-081-2010-1090HT0001SUB. Approved by IRB Protocol # A3420213 approved on December 16, 2013.

#### **A-091 Propuesta de Reglamentación para Adiestramiento a Cuidadores que Sirven a Personas con la Enfermedad de Alzheimer en Puerto Rico**

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**Política Pública Analizada:** A pesar de que las personas con Enfermedad de Alzheimer (EA) tienen unas necesidades muy particulares, en Puerto Rico no existe ninguna legislación que estipule los requisitos de adiestramiento para cuidadores que trabajen con pacientes con EA. **Disciplina Académica:** Este estudio es una Investigación de Leyes de Salud Pública (Public Health Law Research). **Fuentes de Información:** Se utilizó el documento "State Residential Care and Assisted Living Policy: 2004" para identificar las reglamentaciones de adiestramientos requeridos en cada estado de los Estados Unidos para cuidadores que trabajen con pacientes con la EA. Se contactó el Departamento de Salud de cada estado para la actualización de la información. **Método:** En este estudio-mapa (Mapping Study) se analizaron los documentos de cada estado que recogen los requerimientos de adiestramiento para cuidadores que trabajen con personas con EA en Centros de Cuidado de Larga Duración (CCLD) en Estados Unidos. **Hallazgos:** Se encontró que 23 estados tienen estos requisitos de adiestramiento específico. A pesar de la variabilidad que tienen los requisitos por estados, se encontraron similitudes en los siguientes temas: introducción a la EA, manejo de comportamiento difícil, intervenciones y actividades terapéuticas, habilidades de comunicación entre el paciente y el personal, y apoyo y/o resolución de conflicto familiar. **Implicaciones:** Se recomienda la creación de legislación que regule los requisitos de adiestramiento, para asegurar que los profesionales tengan las competencias básicas para poder prestar servicios de calidad en los CCLD. Esta legislación debe estar dirigida principalmente a las áreas de adiestramiento en general en EA, intervenciones terapéuticas y habilidades en comunicación.