

32ND ANNUAL RESEARCH AND EDUCATION FORUM

Social Determinants of Health Everybody's Challenge

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• Oral Presentations •

First Concurrent Session

R-001 Experiencias con la Inseguridad Alimentaria de un Grupo de Adultos de 65 años o más, Residentes de la Comunidad de Puerto Nuevo, P. R.: 2011. *Rosimar Ortega-Chinea, María M. Fernández, Carmen M. Piñeiro-Cepeda, Lillian Herrera-Pérez.* Departamento de Desarrollo Humano, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

El propósito del estudio cualitativo fue describir las experiencias, percepciones y conocimientos de inseguridad alimentaria en un grupo de adultos de 65 años o más, de bajos ingresos, residentes del área de Puerto Nuevo, P. R. La inseguridad alimentaria es una situación en la cual las personas no tienen acceso adecuado a alimentos suficientes, seguros y nutritivos que satisfagan sus necesidades y preferencias. Esta puede deberse a factores físicos, económicos y otros, y representa un riesgo a la salud del adulto mayor. Se llevaron a cabo 20 entrevistas semi-estructuradas con preguntas abiertas sobre: experiencias, percepciones y conocimientos de la inseguridad alimentaria, acceso a alimentos y, estrategias para lidiar con la situación de alimentación. Las entrevistas fueron grabadas y codificadas para facilitar el análisis posterior de los datos. Los hallazgos revelan que los entrevistados estaban satisfechos con su alimentación, conscientes de la importancia de una dieta balanceada y expresaron consumirla. En su mayoría, no sufrían de inseguridad alimentaria, aunque se identificaron riesgos de inseguridad alimentaria en personas que carecían de ayudas del gobierno y de apoyo social, eran inmigrantes y no asistían a Centros de Servicios Múltiples. Una minoría expresó tener limitaciones de salud, funcionalidad, transportación, acceso e ingresos para conseguir los alimentos necesarios y de preferencia. El estudio concluye que la transportación, el apoyo social y los programas de asistencia gubernamental juegan un papel vital en la prevención de la inseguridad alimentaria en los adultos mayores.

R-002 Chlamydia Trachomatis Knowledge among a Sample of Students of the South Central Rural Area of Puerto Rico. *Patricia Ostolaza, María del Carmen Santos, Víctor Emanuel Reyes-Ortiz, Ivelisse García-Meléndez.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

PAHO had established the Human Sexual Right Declaration and a strategic plan for 2008 – 2013, recognizing the importance of sexual education in the prevention of sexually transmitted diseases. However, several studies had showed the lack of knowledge among those in higher risks, women in reproductive age and adolescents. This study aimed to explore the gene-

ral knowledge of adolescents in the south central rural area of Puerto Rico. A cross sectional study was performed using students in 7th – 9th grade. A total 140 students completed a self-administrated questionnaire that was analyzed using SPSS 17.0. Results showed that 63.6% of the participants had inadequate knowledge. Specific knowledge regarding the etiology, prevention practices, symptoms, effects on child and mother health among others were also found inadequate. Risk factors and availability of health services were generally unknown among the adolescents. Last, bivariate results, showed statistically significant differences among adolescents in 8th grades and 9th & 7th, having being test for *C. trachomatis*, had received school health interventions, and having had unprotected sex ($p < 0.01$). Bivariate analysis did not find gender or age differences or other social determinants. Our results show the necessity of sexual education programs among adolescents covering areas related to health services access, *C. trachomatis* etiology, risks factors, and the effects of contagion on the child and the mother health.

R-003 Worries Associated with Pregnancy in a Group of Low Socio Economic Status WIC Participants. *Zeleda M. Vázquez-Rivera, René R. Dávila-Torres, Ivelisse García-Meléndez, Víctor E. Reyes-Ortiz, Mario H. Rodríguez-Sánchez.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Pregnancy is characterized as a period of transition in every woman's life which presents biological, psychological and social changes. Often, women perceived a number of worries associated with pregnancy and childbirth. The aim of the study is to explore which are the worries that show pregnant women in Puerto Rico. A convenient sample of 10 pregnant women participating in the WIC clinic, in the north central region of the island, was selected. In-depth interviews with a semi-structured question guide were performed. Content analyses were performed making categories and sub-categories for the analysis. The results showed that categories for worries among pregnant women are similar with other studies. However, sub-categories had worries differing from other studies worldwide especially those associated with social factors such as, labor medicalization, and social support in the process. Thus, the qualitative study helps providing health care providers the essential information necessary to fulfill the wellbeing of this vulnerable population. Similarly the study poses the importance to establish a space for listening the pregnant women about their worries.

R-004 Vulnerabilidad Social de las Comunidades al Cambio Climático (Ascenso del Nivel del Mar, Inundaciones y Salinidad) en la Cuenca Hidrográfica del Río Piedras: San Juan, Puerto Rico. *José Seguinot, Rubén Hernández, Omar García.* Department of Environmental Health, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

El propósito principal de este estudio fue medir el impacto del aumento (ANM) en el nivel del mar y sus efectos en las inundaciones y salinidad en las diferentes comunidades de la cuenca del río Piedras. También se determinó mediante una encuesta la percepción de los residentes sobre el ANM, la salinidad y las inundaciones y los efectos de éstos parámetros sobre su salud, propiedad y calidad de vida. Se contrastó y modeló en cada comunidad la situación percibida respecto a la realidad existente. Para estos análisis fueron utilizados el modelo de elevación Digital (DEM) y el gráfico de líneas digitales (DLG) creado por el USGS, así como otros datos topográficos recogidos en el campo con un Sistema de Posición Global (SPG) y datos procedentes de un muestreo de agua para salinidad, conductividad, PH, oxígeno disuelto, granulometría y salinidad del suelo. También se crearon modelos del ANM y se compararon con los realizados por NASA. Los análisis fueron realizados usando los programas de ArcGIS, Excel, EpiInfo y Stata. De acuerdo a los resultados las comunidades con un mayor índice de vulnerabilidad al cambio climático (CC) son: Ocean Park y Reparto Metropolitano, las comunidades con un menor índice de vulnerabilidad al CC son: La Sierra y Las Curías, las comunidades con un mayor índice de vulnerabilidad al ANM son: Ocean Park y el Viejo San Juan y las comunidades con un menor índice de vulnerabilidad al ANM son: Las Curías y La Sierra.

R-005 Suicide Experiences, Attitudes and Training of University Health Professionals. *José A. Serrataaylor, María I. Jiménez-Chafey.* Departamento de Consejería para el Desarrollo Estudiantil, Asuntos Académicos, Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico.

There has been a lot of concern in the field of mental health over suicide risk in the college student population over the last decade, as well a community and research efforts directed towards prevention. One of the main prevention strategies is to have university personnel well trained in identifying and managing suicide risk. The specific goals of this study are to describe the experiences, attitudes and training of mental health professionals in university settings in relation to suicide behavior. An online questionnaire was developed to explore variables of interest. Once approval of the IRB of the University of Puerto Rico, Río Piedras Campus was received, the questionnaire was sent via email to 100 professionals (counselors, psychologists and social workers) who work with college students at the universities in Puerto Rico; 52 responses were received. The results showed that almost all (91.0%) believed suicide is preventable, most (66%) felt comfortable with their level of training and capable of intervening with suicide risk; however, 41% rarely or never assess for suicide risk in initial interviews. Also, over half (70%) reported seeing students with suicide risk only once or twice a year, yet studies show that a significant number of college students present suicide ideation and attempts, which could suggest inadequate screening practices. Results suggest that university mental health professionals need further training in

suicide assessment to reinforce knowledge of comprehensive risk assessment of suicidality as an early intervention strategy for prevention.

R-006 Environmental and Genetic Factors Related to Particulate Matter Constituents from Puerto Rico. *Mario G. Ortiz-Martínez, Braulio D. Jiménez-Vélez.* Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The general belief that African Dust Events (ADE) can exacerbate diseases such as asthma exists in Puerto Rico (PR). This belief could be related to the effects of particulate matter (PM10) constituents such as endotoxins (ENX) resulting from ADE. ENX could promote pro-inflammatory responses in the lung of susceptible individuals through the activation of the Toll-like receptor (TLR2/4) signaling pathway. This study evaluates the toxicological responses of ENX in ADE PM10 using human bronchial epithelial cells as a model. PM10 organic extracts from a rural and urban site in PR (March 2004) were prepared and classified as ADE and Non-ADE. This classification was based on a retrospective data analysis of the past 2004: PM10 concentration, aerosol images and asthma hospitalization cases. All of them were concurrently found to increase at both sites during March 2004. ENX concentration was measured in extracts and resulted higher in those from ADE, mainly at the urban site. Urban extracts were more toxic and stimulated more TLR expression and IL-6/IL-8 secretion than rural extracts. ENX were found to contribute to the cytotoxicity and inflammation provoked by urban ADE PM10 in vitro. Concurrently, a protocol was approved by the UPR-MSU IRB to evaluate TLR polymorphisms (SNPs) in Puerto Rican asthmatics. Human subjects are being recruited for saliva collection for further SNP analysis by genotyping. The identification of specific SNPs will be valuable to understand interactions and action mechanisms of environmental compounds associated with the triggering of asthma in PR. Study supported by MBRS-RISE Grant R25GMO61838.

Second Concurrent Session

R-007 Biophysical Characterization of Acyl Carrier Protein Domains from a Polyunsaturated Fatty Acid Synthase. *Uldaeliz Trujillo-Rodriguez¹, Delise Oyola-Robles¹, Irving E. Vega², Stefan T. Arold³, Fernando Alves-De Melo³, John E. Ladbury³.* ¹Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Biology, University of Puerto Rico, Río Piedras Campus, San Juan, Puerto Rico; ³Department of Biochemistry and Molecular Biology, MD Anderson Cancer Center, University of Texas, Texas, United States of America.

Acyl carrier protein (ACP) is a highly conserved protein domain that plays a key role in the biosynthesis of fatty acids and polyketides. The polyunsaturated fatty acid synthase complex (PKS) from deep-sea bacteria contains a total of five ACP domains in tandem. No satisfying explanation exists for the selection of this rare arrangement. We hypothesized that this structural organization allows ACP to interact with different PKS enzyme partners. Thus, we have expressed individual and tandem ACP in *Escherichia coli* and purified using a combination of chromatographic methods. Structure of tandem ACP in solution was determined by small angle X-ray scattering (SAXS) in combination with circular dichroism (CD) and differential scanning calorimetry (DSC). Binding affinity toward dehydrates domain (DH) was determined by microscale thermophoresis (MST). SAXS shows that tandem ACP exhibits a flexible bead-on-string arrangement. Structural model of tandem ACP was validated by CD and DSC, which demonstrated to be stable and mainly composed by α -helix. Interaction of DH-ACP was characterized [$K_d = 306$ nM] and binding affinity increases upon modification of ACP with acyl-CoA substrates. The results from this work help us to gain insight into the role of tandem ACP arrangement in the biosynthesis of omega-3 fatty acids. This work was funded by MBRS-RISE Program, Grant R25GM061838.

R-008 Bioenergetic Defects in Hearts Lacking KATP Channels. *Bianshly Rivera-Rivero¹, John P. Fahrenbach², Elizabeth McNally².* ¹University of Puerto Rico Río Piedras Campus; ²University of Chicago, Illinois, United States of America.

ATP sensitive potassium (KATP) channels play a role in stress events such as myocardial ischemia by linking cellular metabolism with membrane potential, increasing chance of cell survival. Abcc9 gene encodes the major KATP channel regulatory subunit in the heart, sulfonylurea receptor 2 (SUR2). Mus musculus, which lacked SUR2 expression were generated by deleting exon 5 (Ex5 mice). These mice died within 14 days of birth with progressive cardiac dysfunction and cardiomyopathy. An emerging view is that KATP channels are associated with membrane bound glycolytic proteins; it is not known whether this association is functionally relevant. To test this assumption, we examined stress and bioenergetic pathways in wild type and Ex 5 mice. Performing extracellular flux assays, Ex5 cardiomyocytes from 4-14 days of age exhibited decreased oxidative phosphorylation (OXPHOS) compared to WT (60.6 ± 15.2 (n=7) vs. 19.1 ± 5.5 (n=8), $p=0.03$). Glycolytic activity showed a trend towards reduction (3.3 ± 0.6 (n=8) vs. 1.8 ± 0.7 (n=8), $p=0.058$). Since HIF1 α has been shown to regulate glycolysis and OXPHOS, we determined if its targets, VEGFa and GLUT1, were upregulated in Ex5 cardiomyocytes. Data from qPCR showed, mRNAs for HIF1 α and GLUT1 were upregulated (4.7933, 3.1006). VEGFa mRNA was increased but less so (1.2839). Thus, KATP channel function affects bioenergetic and stress pathways. In a myocardial ischemic event,

patients treated with sulfonylureas or with SUR2 mutations may fare less well, this may worsen the ischemia. Funding by NIH, NHLBI and University of Chicago. Approved by IRB/IACUC.

R-009 Laboratory Predictors of Bleeding in Pediatric Patients with Dengue. *Dennis A. Borrero, Jhon Guerra, Pedro J. Santiago-Borrero.* Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Dengue is an acute febrile illness caused by one of four, closely related dengue virus serotypes. A small proportion of infected patients develop dengue hemorrhagic fever, and few evolve into dengue shock syndrome and even death. The pathophysiology of hemorrhage in dengue infection remains poorly understood. Objective: To investigate the relationship of laboratory data with the risk of hemorrhage in dengue infection. Methods: The study included 74 children with dengue infection admitted to the University Pediatric Hospital from 1994 to 2001. Variables included white blood cell count and differential, hemoglobin concentration, hematocrit, platelets count, prothrombin time (PT), partial thromboplastin time (PTT), fibrinogen level (FIB), aspartate amino transferase (AST), alanine amino transferase, lactic dehydrogenase (LDH), and albumin levels (ALB). The study was approved by the IRB. Results: Thirty-six children (48.6%) presented bleeding, 15 of them severe. In patients who bled, platelets, FIB and ALB were lower; AST and LDH were higher ($p < 0.05$). The PTT was prolonged in 70% of children with bleeding, but the PT was abnormal only in 9.8% of them. However, there was no difference in severity of bleeding between the two groups. Conclusions: Although PTT was increased in the majority of patients with hemorrhagic dengue, its usefulness as a predictor of bleeding was not evident. Our data indicate that platelets, fibrinogen, and LDH have some predictive value for bleeding in pediatric patients with dengue infection. In addition, alterations in AST and ALB are also good indicators of severe bleeding.

R-010 Role of Neuregulins in the Regulation of EGFR Isoforms in Breast Cancer Cell Lines. *Laurimer Kuilan-Torres, Marianela Pérez-Torres.* Department of Pharmaceutical Sciences, School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Overexpression of EGFR and other members of ERBB family were found to induce erroneous development and unrestricted proliferation in human malignancies including breast cancer. Neuregulins (NRG) are signaling proteins that can bind to the extracellular domain of ErbB3 or ErbB4, activating signaling pathways leading to cellular responses that include stimulation or inhibition of proliferation, apoptosis, and gene regulation. Our hypothesis is that EGFR levels are regulated by neuregulins in breast cancer cell lines. We treated the breast cancer cell lines

ZR-75-1 and MDA-MB-231 with NRG-1 α or NRG-1 β at different concentrations for 4 hours. In addition, both cells lines were treated with selected concentrations of NRG-1 α or NRG-1 β at different time points. Isolated mRNA was used to measure EGFR and sEGFR expression using reverse-transcriptase real-time PCR and levels of protein were determined by western blot analysis. Our results show that EGFR and sEGFR levels increased by 10-fold and 4-fold respectively, when ZR-75-1 cells were treated with 100 ng/mL of NRG-1 β . However, when MDA-MB-231 cells were treated with NRGs, the expression of EGFR and sEGFR levels did not change. Protein analysis of ZR-75-1 cells treated with NRG-1 β shows activated ErbB3, confirming that this activation is related to the increase in EGFR isoforms levels. Our data suggest a role for neuregulins in the EGFR isoforms up-regulation. Current efforts are directed towards elucidating the role of pathways related to ErbB3 activation in the upregulation of EGFR isoforms. Supported by NIH/NIGMS Grant #SC2GM084789, NIH-RCMI Grant #G12 RR 03051.

R-011 Combined Grape Polyphenols Regulate (mTOR) Signaling via Inhibition of Akt and AMPK Activation. *Amilcar Rivera-Rivera, Linnette Castillo-Pichardo, Suranganie Dharmawardhane.* Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Recent studies have shown that the Akt/mammalian target of rapamycin (mTOR) pathway is a critical signaling cascade that drives metastatic breast cancer MBC. We recently reported that a combined diet of grape polyphenols (Resveratrol, Quercetin and Catechin: RQC) at equimolar concentration is effective at inhibition of mammary tumor growth and metastasis to lung and bones in nude mice. The objective of this study is to investigate a role for RQC in prevention of MBC via inhibition of the Akt/AMPK/mTOR pathway. Westernblot analysis found that RQC at 5 μ M each inhibits Akt and p70S6 kinase (downstream effector of mTOR) activities in a metastatic variant of the MDA-MB-435 cell line and MDA-MB-231 human breast cancer (BC) cells. Also RQC at 5 μ M demonstrated a 2-fold activation of adenosine monophosphate protein kinase (AMPK), an endogenous inhibitor of mTOR that acts opposite to Akt. To determine the contribution of individual polyphenols, to the effect of combined RQC on mTOR signaling, MDA-MB-231 cells were treated with RQC at 1, 3 and 9 μ M individually and in combination. Results show that only Quercetin at 3 μ M increases AMPK activity. Regarding Akt activity was reduced by 20% when treated with 1 μ M RQC combined. At 3 μ M, Akt is down-regulated by all compounds individually and in combination with combined exerting a higher inhibitory effect. In general, the combination of RQC was more efficient at inhibition of the Akt/mTOR pathway than individual compounds. Thus, RQC has the potential to be used alone or in combination with other cancer therapeutics to impede progressive BC. Sponsored by W81XWH-07-1-0330 and CA-096297.

Third Concurrent Session

R-012 Intracellular Angiotensin II Overexpression Induce Oxidative Stress in Culture Ventricular Cardiomyocytes. *Jennifer M. Lorenzo, Walmar De Mello.* Pharmaceutical Sciences, School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Recent studies suggest the involvement of intracellular Angiotensin II (Ang II) and oxidative stress in the development of cardiac hypertrophy and cardiac remodeling after myocardial infarction. However, the role of high levels of intracellular Ang II in the production of reactive oxygen species (ROS) and cardiomyocyte damage remains to be elucidated. In this study we overexpressed intracellular Angiotensin II in cultured ventricular cardiomyocytes and then analyzed the levels of reactive oxygen species (ROS). A plasmid containing the entire fragment of the Ang II gene (24bp) under the transcriptional regulation of the pCMV promoter was generated and transfected into cultured H9c2 ventricular cardiomyocytes using the Effectene Transfection Reagent. The levels of intracellular Ang II were quantified using a specific Ang II-EIA ELISA kit. To determine the levels of ROS, transfected cells were incubated with ROS Detection Solution for 30 min at 37°C in the dark. The levels of ROS were determined by flow cytometry. Our data revealed that the Ang II levels increased significantly ($p < 0.05$) in transfected cardiomyocytes (1.0 x 10⁻⁰⁶ ng/ml) when compared to untransfected cells (7.1 x 10⁻⁰⁷ ng/ml). The Ang II-transfected cells showed an increase in ROS levels (5.2 \pm 0.1 MFI) when compared to untransfected cells (3.9 \pm 1.2 MFI). In conclusion, this study supports that intracellular Ang II overexpression induces oxidative stress in ventricular cardiomyocytes and may contribute to cell damage during myocardial ischemia or heart failure.

R-013 Phase-2 and Pro-inflammatory Genes Induced by African Dust PM Constituents. *Rosa I. Rodríguez, Braulio D. Jiménez.* University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

African particulate matter (PM) seasonally impacts Puerto Rico. Its effects on the general health of Puerto Ricans are unknown. The antioxidant and pro-inflammatory responses in human bronchial epithelial cells (BEAS-2B) exposed to organic extracts of PM2.5 arriving in African dust (ADE) were evaluated. Cells were treated with ADE and Non-ADE extracts and the contribution of metals tested using deferoxamine mesylate (DF). In addition, cells were co-treated with N-acetyl-L-cysteine (NAC) to evaluate the extract oxidant capacity. The antioxidant capacity of cell and their glutathione (GSH) concentration were determined. Quantitative fluorescent amplification of cDNA for interleukin 6 (IL-6) and Glutathione-S-Transferase (GSTp) was performed. The ADE extracts exhibited a reduction in antioxidant capacity and GSH

concentrations. IL-6 and interleukin 8 (IL-8) secretions were significantly induced in cells exposed to ADE extracts. The addition of DF (metal chelator) increased GSH concentration and reduced the secretion of cytokines in cells exposed to ADE extracts. A 10-fold increase in GSTp mRNA was observed in cells treated with ADE extracts at 4 hrs. The use of DF reduced GSTp expression while NAC lowered it almost entirely. ADE extracts also induce IL-6 mRNA at 8 hrs in treated cells while cells co-treated with DF or NAC reduced this cytokine. African dust reaching Puerto Rico increases local concentrations of trace elements and other constituents in ambient PM_{2.5}, which can exacerbate inflammatory responses and reduces the antioxidant capacity in BEAS-2B. Supported by MBRS-RISE Grant R25GMO61838

R-014 Modulation of Defensive Responses by Intra-amygdalar Infusion of DHPG, are Partially Mediated by mGluR5 Subtype Activation in Female and Male Rats. *Stephanie M. González-García¹, María I. De Jesús-Burgos², Yanira Cruz-Santana³, Gabriela Zabala-Alemán¹, Beatriz González-Bouza¹, Lucila Portela-Díaz¹.* ¹University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Puerto Rico Cayey Campus, Cayey, Puerto Rico.

Metabotropic glutamate receptors (mGluR) have been related to the modulation of defensive behaviors. Group I mGluRs (mGluR1 and mGluR5 subtypes) are expressed within the amygdala. The role of amygdalar group I mGluR during defensive responses remain uncertain. Therefore, we aimed to study whether activation of group I mGluR within the basolateral amygdala (BLA) modulates defensive responses as a function of sex and estradiol levels in female rats. We used ovariectomized females with (OVX+EB), without (OVX) estradiol treatment and male rats. Active and passive defensive responses were analyzed during Cat Odor Test (COT). Our hypothesis states that group I mGluR modulates defensive responses in a sex specific manner. Intra-BLA infusion of (S)-3,5-Dihydroxyphenylglycine (DHPG), a group I mGluR agonist, decreased active and increased passive defensive behaviors ($p=0.004$ and $p=0.002$, respectively) in OVX+EB and OVX rats at 0.1, but not 1.0 μM ($p = 0.003$ and $p = 0.765$, respectively). Whereas, in male rats DHPG increased active defensive behaviors ($p=0.024$) without affecting passive defensive responses ($p>0.05$). To assess whether DHPG effects are mediated by mGluR5 subtype, we infused 2-Methyl-6-(phenylethynyl) pyridine (MPEP; 25nM), a selective antagonist for mGluR5 subtype, alone or in co-infusion with DHPG. MPEP in co-infusion with DHPG blocked DHPG effects on active and passive defensive responses according to sex ($p<0.05$). Our results suggest that intra-BLA infusion of DHPG produces sex dependent defensive strategies during a predator odor threat which seems to depend upon mGluR5 activation in both sexes.

R-015 Antimicrobial and Anticancer Properties of the Puerto Rican Plant *Simarouba tulae*. *Elsa M. Luciano¹, Idializ Domínguez², Marianela Pérez³, David Sanabria², Mayra Pagán¹, Claudia A. Ospina¹.* ¹University of Puerto Rico Cayey Campus, Cayey, Puerto Rico; ²Interamerican University, Puetro Rico; ³University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The purpose of this study is to detect potential sources of antimicrobial and antitumor compounds from endemic and native plants. The objective is to evaluate the antimicrobial, cytotoxic and anticancer activity of extracts and pure compounds from *Simarouba tulae* plant. This plant belongs to Simaroubaceae family which has been studied because of its antimalarial, antiinflammatory, antileukemic, antifeedant and antiviral activities. The leaves were collected, dried and extracted with a mixture of CH₂Cl₂-MeOH (1:1). The resulting crude extract was suspended in water and extracted with solvents of different polarities. The crude and chloroform extracts were tested against Gram-positive (*S. aureus*, *S. saprophyticus*, and *B. cereus*) and Gram-negative (*E. coli* and *K. pneumoniae*) bacteria and three breast cancer cell lines (MCF-7, ZR-75-1 and T47D). The crude extract showed antibacterial activity against *S. aureus* (MIC = 31.3 $\mu\text{g}/\text{mL}$), *S. saprophyticus* (MIC = 125 $\mu\text{g}/\text{mL}$) and *K. pneumoniae* (MIC = 500 $\mu\text{g}/\text{mL}$) as well as the crude and chloroform extracts exhibited anticancer activity (GI >80%) against MCF-7 and T47D cell lines. Based in our results we concluded that this plant extracts showed antimicrobial and anticancer activity and merit a closer investigation in order to identify the chemical compounds responsible for these bioactivities. This work was supported by the Institute of Interdisciplinary Research (IIR) and Dean of Academic Affairs of University of Puerto Rico at Cayey.

R-016 Assessing Bacterial Diversity in Dry and Rain Forest Soil Metagenomic Libraries Using DGGE. *Stephanie L. Silva-Del Toro, Carlos Ríos-Velázquez.* Department of Biology, University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico.

Metagenomics is a tool to evaluate genomes in any environment, unraveling the function and diversity using culture independent approaches. Our laboratory generated two Metagenomic Libraries (MgL) from a Tropical Forest (TF) and a Dry Forest (DF). While functional analysis has been done, a diversity analysis is still needed. The goal of this research is to determine the microbial diversity present in the MgL using Denaturing Gradient Gel Electrophoresis (DGGE). The Fosmid DNA from induced MgL from both forests was extracted, and a direct DNA extraction was done to the soil samples used to generate the MgL. The DNA extraction revealed bands in all the Fosmid libraries, but the direct DNA extraction from soil was not as effective. Then, rDNA PCR using domain-

specific primers was performed. Amplicons were obtained from both forest's soil samples, and also from the MgL Fosmids. When DGGE was performed, different band patterns were obtained from the MgL and from the soil samples. All the bands in TF soil sample DGGE are present in the MgL DGGE pattern. This MgL contains other bands not present in the soil sample, suggesting the extraction methods used allowed the access to bacterial groups contrary to the direct DNA extraction method for the soil samples, which was not as effective. The DF MgL DGGE showed the presence of a 9 band pattern in the soil sample that was not detected in the Fosmid sample, suggesting that the microbial diversity present in DF is not represented in its corresponding MgL. It could also demonstrate that further optimization of the extraction method as well as the primers used are necessary.

Fourth Concurrent Session

R-017 Competent Public Health Workforce: Training Needs in Puerto Rico. *José A. Capriles-Quirós, Ruth E. Ríos-Motta, Coralís Marrero-Padilla, Glenna Calderón-Rojas.* Graduate School of Public Health, Department of Health Services Administration, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Rationale: A competent public health (PH) workforce is essential to address emerging public health challenges in Puerto Rico (PR) and United States. Objective: Assess the PR Department of Health workforce PH training needs developing training curricula geared towards a competent, trained, and culturally sensitive workforce. Methodology: A cross-sectional design was used (paper-pencil survey). Study's sample included the PR Department of Health personnel at three levels: low, middle and senior management. From 2,686 employees 1,414 participated in a month (response rate 58.0%). Data were collected using a self-administered questionnaire (91 items) including socio-demographic characteristics, job position, self-assessed PH knowledge, and competencies, needs of continuing education (CE) and technological capacity. Results show that 78.0% respondents were female. The mean/median age was 40 to 49 years old, 48.1% has a bachelor degree, 34.3% has worked in the PR Health Department for more than 20 years, and 67.3% has practice PH for more than 10 years. The most common source of PH training reported was work experience (42.2%), and 53.0% informed having practical knowledge. Career advancement (57.5%), professional re-certification (53.6%), and knowledge update (53.4%) were the main reasons for CE. Respondents preferred face-to-face methods (60.7%) as training modality. Future directions: The PR-F Public Health Training Center will assist in strengthening PH competencies of future PH professionals to achieve objectives of Healthy People 2020. Funding: Award UB6HP20189, Department of Health and Human Resources.

R-018 A Novel Curriculum for the Pediatric Night Float Rotation. *Rebecca Ramos, Jahzel M. González, Yasmín Pedrego, María E. Padilla.* Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Rationale: Night Floater rotations are being increasingly used in the era of resident physician work-hour regulations, but their impact on resident education is not clear. Objectives: To evaluate resident's perception of the educational aspects of night float rotation and to develop a novel curriculum for this rotation. Methodology: An anonymous survey of pediatrics residents at our residency program was completed. The curriculum was developed and consists of 12 auto-instructional modules about emergent pediatric problems and one bed side teaching experience per week with the chief residents. Outcome: Among the surveyed residents (20), the majority expressed dissatisfaction with current night floater curriculum, teaching rounds and time for patient care discussion. Furthermore, 58% of them express learning experience of patient management has occurred on their own. 85% of the surveyed residents agree that the implementation of a standardized night floater curriculum will improve their learning process during the rotation. Future Directions: Residents perception will be readdressed regarding educational experience after curriculum implementation. Evaluation of day shift residents and faculty will provide information on resident night floater performance. In addition an analysis and comparison of sentinel events occurring in the night shift will be done, previous and after, curriculum implementation.

R-019 Viabilidad de un Programa de Prevención de la Depresión en Escuelas Puertorriqueñas. *Giselle M. Rodríguez, Natalia E. Rodríguez-Hernández, Emily Sáez-Santiago.* Departamento de Psicología, Universidad de Puerto Rico Recinto de Río Piedras, San Juan, Puerto Rico.

La depresión es un trastorno mental frecuente en los adolescentes. Dada la necesidad de la creación de programas de prevención de depresión en adolescentes, se diseñó el proyecto piloto EMAS (Estrategias para Mantener un Ánimo Saludable) para ser integrado al currículo regular de séptimo grado y ser facilitado por maestros. EMAS es una intervención manualizada que combina estrategias cognitivas, conductuales e interpersonales para enseñarles a los pre-adolescentes a lidiar efectivamente con situaciones difíciles. El objetivo de la presentación es conocer la viabilidad de implementar el Programa en las escuelas públicas del área metropolitana de Puerto Rico. Se utilizó una metodología descriptiva. Se analizó la adherencia de los facilitadores y la aceptación de los estudiantes. La muestra consistió de 152 estudiantes y 8 facilitadores. Los instrumentos utilizados fueron: Hoja de Datos Sociodemográficos, Evaluación de Adherencia, Cuestionario de Satisfacción (CS). Los resultados indican que en promedio la adherencia de los facilitadores al manual fue de 88%. El 79% de los estudiantes informaron sentirse satisfecho con el Programa.

La puntuación promedio en el CS fue de 15.30 (SD = 4. 29). Los hallazgos revelan que EMAS sí puede ser conducido por maestros y fue aceptado por los estudiantes. Se proyecta continuar refinando la intervención con miras a implementarlo y evaluar si tiene un impacto significativo en los síntomas de depresión. De este modo, EMAS sería el primer programa de prevención de la depresión en Puerto Rico. Aprobado por el CIPSHI, 0708-099, IRB de la UPR-PR. Apoyado por NIMH: 5K23MH081135.

R-020 Students' Perception Towards the Internship in Educational Leadership of the University of Puerto Rico. Shirley A. Tavares. Oficina de Planificación y Desarrollo, Escuela de Artes Plásticas de Puerto Rico, San Juan, Puerto Rico.

This research studied the students' perception towards the internship in the Doctoral Program in Educational Supervision and Administration of the College of Education at the University of Puerto Rico. The sample consisted of 22 students who participated in the survey which was supplemented with interviews. Over 36% indicated that the requirements of the internship, specially the work plan and the project, were of great importance for the development of competencies as established by the Educational Leadership Constituent Council. Over 41% considered all aspects of internship experiences very significant. They recommended strengthening the interaction with the supervising professor and the mentorship's immediate supervisor, and to reflect upon the clinical practice with the supervising professor. Over 82% considered all educational leadership competencies as very important/important. The strategic leadership was the most important and the community leadership the least important. The students recommended that the competencies should be developed with an international approach through collaborative projects with other universities. Over 59% said they had a lot/enough mastery of all competencies at the end of the internship. They indicated greater domain in administrative leadership and weaknesses in community leadership. The students recommended the distribution of clinical experiences between courses and higher standards in the practice scenario to ensure the dominance of the competencies. The internship met the expectations of 73% of the students. According to 77%, the internship should be kept, but with fewer hours.

R-021 Juntas Somos más Fuertes: Camino a la Cura "Campaña para la Detección Temprana del Cáncer de Mama". Edna Pacheco-Acosta¹, Bárbara Segarra², Beatriz Morales³, Yiselly Vázquez³, Carla Sánchez⁴, Delia Camacho¹. ¹Women's Health Center, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus/Susan G. Komen Puerto Rico, San Juan, Puerto Rico; ³University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ⁴Susan G. Komen Puerto Rico.

El cáncer de mama es el de mayor incidencia y mortalidad entre las mujeres en PR. Se espera que una de cada 13 mujeres que nazca en PR en la actualidad sea diagnosticada con cáncer de seno (Registro Central de Cáncer del Departamento de Salud, 2004). Centro Mujer y Salud (CMS) del Recinto de Ciencias Médicas (RCM) y Susan G. Komen (SKG) Puerto Rico se unieron para llevar a cabo una campaña con el propósito de facilitarle acceso a mujeres sin plan médico residentes en Loiza, Cayey, Humacao, Ponce, Mayagüez, Hatillo y San Juan a realizarse la mamografía libre de costo o sin co-pago para aquellas que tuvieran plan médico. El objetivo de este trabajo es presentar un perfil de las mujeres que participaron de las actividades de detección temprana. La campaña tuvo una duración de 3 meses y participaron 500 mujeres. Las participantes recibieron educación y acceso a los servicios de calidad en relación a la detección temprana. Se recopiló información para desarrollar un perfil de la población servida, aprobado por el Institutional Review Board del RCM. Se encontró que el promedio de edad de las participantes es 49 años, 53% tienen educación superior, el ingreso mensual promedio es menor de \$1000 y 32% reportó que no se había realizado la mamografía por falta de plan médico. Para el desarrollo de estas actividades se tomó en cuenta el horario, la cobertura médica, el municipio y la cantidad de facilidades radiológicas. A través de este proyecto colaborativo, el CMS y SGK atienden de manera concertada las diferencias en acceso a servicios de salud de calidad que tienen las mujeres que viven en Puerto Rico.

R-022 Use and Care of Hygiene Cloths During the Menstrual Cycle of Haitian Women. Roselyn Cintrón, Verónica Acevedo, Ada Alemán-Batista, José Vargas-Vidot. University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Due to the high level of poverty and its increase after the earthquake of January 12, 2010 the health of the Haitian population has been more difficult to improve. In my investigation all of the basic health necessities were an issue one is in what and how to use for hygiene during women menstrual cycle and this is the cause of various illnesses. This educational project provided Haitian women with knowledge in the use of types of cloths and how to care for them to keep hygiene during the menstrual cycle. Three areas where worked in educative intervention: In the affective phase, the types of cloths were shown and the qualities witch this should have when choosing one over another, then the participants selected the one they thought was the best fit for them and why. In the cognitive aspect of the intervention slides representing the chronological order of how to clean the cloths this helped the women get a visualization of the process and any doubts they had of the process. In the psychomotor aspect it was required for the participants to perform each one of the steps of cleaning the cloths. It was assessed that the indicators of achievement and the adequacy of each aspect for this task where met. In the future, giving our findings, it is recommended that a thorough investigation should be made in

Haitian soil before the design or implements any intervention. This project received no financial assistance.

Fifth Concurrent Session

R-023 Dilation and Evacuation versus Induction of Labor for Second Trimester Termination of Pregnancy. *Olga C. Torres-Méndez, Yari Vale-Moreno.* Department of Obstetrics and Gynecology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Abortions are one of the most common surgical procedures. Complications due to abortions account for a high rate of morbidity and mortality. Risks associated to abortions increase with the weeks of gestational age (WGA) at which the termination of pregnancy is performed and are minimal when termination of pregnancy is performed by experienced personnel. The optimal method of second trimester termination of pregnancy continues to be debated and there is no data available concerning complications of abortions in the Puerto Rican community. The main objective is to compare dilation and evacuation (D&E) and medical labor induction as methods of abortion during the second trimester, regarding effectiveness and associated complications. We performed a retrospective cohort study of second trimester (14-24WGA) elective termination of pregnancies performed at the University District Hospital in San Juan, PR, during 2008. We compared the frequency of complications (fever, infection, excessive blood loss) and effectiveness (additional surgical procedures, length of stay) between the two methods for termination of pregnancy and controlled for confounding variables. D&E showed higher effectiveness and lower incidence of complications than labor induction. Only 4 of 25 women (16%) that had D&E presented complications associated to the procedure compared to 31 of 45 women (69%) undergoing induction of labor. Dilation and evacuation is safer and more effective than induction of labor. Dilation and evacuation should be the preferred method when performing second trimester termination of pregnancy. Approved by IRB.

R-024 The Relationship between the Big Five Personality Traits and Emotional Dysregulation in Anxious and Healthy subjects. *Laura E. López-Roca¹, Carlos M. Morales-Rodríguez², Karen G. Martínez-González².* ¹University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Emotion Regulation (ER) involves a person's tactics to control emotional responses such as feelings and behaviors (Gross, 2001). Anxiety-disorder patients report less emotional clarity and more attempts at ER (Campbell-Sills et-al2003). ER has also been correlated with personality traits that affect anxiety

disorders (Hay&Diehl, 2011). We studied the role of ER in anxiety disorders evaluating how personality relates to ER between anxious and healthy individuals. Fifty-eight subjects (43 anxiety and 15 healthy) were given NEO-FFI and Emotional-Dysregulation scale (EDS). Pearson-Correlations of EDS and NEO personality traits was assessed to see if the same correlation was seen in both groups. Scores were compared with t-test. There was a significant difference in EDS for Anxiety (M=101.20, SD=45.27) and healthy (M=58.06, SD=15.88) subjects; $t(61)=-5.60$, $p<.001$, in Neuroticism(N) score for Anxiety (M=57.83, SD=12.37) and healthy (M=47.76, SD=10.83); $t(122)=-4.77$, $p<.001$, and in Extraversion (E) for Anxiety (M=48.58, SD=12.23) and healthy(M=54.70, SD=9.85)subjects; $t(85)=2.92$, $p=.005$. EDS was significantly linked with N for all-subjects ($r=.664$, $p<.001$, $n=58$). This relation was sustained only in the anxiety-group($r=.664$, $p<.001$, $n=43$). E was also linked with EDS for all-subjects ($r= -.294$, $p=.025$, $n=58$). This link remained significant only in anxiety-group ($P=.371$, $p=.014$, $n=43$). Anxiety-subjects had higher ED than healthy-subjects. High EDS scores also related with known risk factors for anxiety-disorders (high N and low E) in this anxiety-group. Thus ED could predispose to disease or affect treatment response among anxiety-disorders.

R-025 Ulcerative Colitis and Ileal Pouch-anal Anastomosis Outcomes at the UPR Center for IBD. *Irene S. Villamil, Yamilka Abreu, Wasilah Suleiman, Jorge Chelehuitte, Juan J. Lojo.* School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Purpose: Describe outcomes of Hispanics with ulcerative colitis (UC) and ileal-pouch anal anastomosis (IPAA) at the University Hospital. Methods: Eighty eight patients who underwent IPAA 1994-2010 were identified from our clinics. Medical charts of a cohort of 61/88 patients who had been previously consented to participate in the IBD registry and pouch dysplasia surveillance protocol were analyzed. A separate analysis was performed on a cohort of 12/88 patients that developed adverse pouch outcomes. Results: Population consists of 48% female and 52% male. Thirteen of 61 (21%) patients had at least one episode of acute pouchitis; chronic pouchitis developed in 16% (10/61). Irritable pouch syndrome was identified in 8% patients. Cuffitis was present in 42.6% of patients and a normal pouch was observed in 77%. Surgical complications such as stricture and pouch leaks were present in 21% and 3% respectively. Pouch dysplasia was diagnosed in 3%.In the second cohort of 12/88 of UC patients with adverse pouch outcomes, chronic continuous refractory disease was the sole indication for IPAA. The median interval between IPAA and complication was 4y. The most common complications were stricture and/or fistula formation (9/12), being de novo Crohn's Disease of the pouch (4/12) the leading cause of pouch failure. Pouch defunctionalization was required in 83% (10/12). Conclusion: It has been described that Puerto Ricans with UC have more extensive di-

sease and a higher rate of colectomy. In spite of this our patients have a high prevalence of normal pouches and outcomes compare to previously described series of Hispanics.

R-026 Evaluating the Evidence to Add Newborn Screening for Severe Combined Immunodeficiency in Puerto Rico. *Karina Acevedo-Torres¹, Sonia Ramírez², Jacalyn Gerstel-Thompson³, Anne M. Co-meau³, Pedro J. Santiago-Borrero⁴.* ¹Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Puerto Rico Center for Inherited Diseases, Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³New England Newborn Screening Program, University of Massachusetts Medical School, Massachusetts, United States of America; ⁴Puerto Rico Center for Inherited Diseases, Hematology Oncology Section, Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Severe Combined Immunodeficiency (SCID) is a condition in which the function of B and T cells is affected resulting in severe immune system dysfunction. The SCID patient is characterized by the absence and/or reduced quantity of functional T cells and clinically severe infections. Diagnosis of the SCID patient is critical as survival without adequate treatment is rarely beyond the first year of age. However, the exact prevalence of SCID is unknown in Puerto Rico. To ensure that sufficient data are available to decide if the SCID test should be included in the Puerto Rico Newborn Screening (PRNS) panel, we aim to determine the prevalence of SCID and Primary Immunodeficiencies (PIDs) in a one year cross sectional study. Samples (n=52,203) submitted to the PRNS were examined by RT-PCR for abundance of T-cell receptor excision circles (TRECs), the molecular diagnostic hallmark of SCID. Our results on the initial sample show that 7 infants were SCID-specific unsatisfactory, 52 were out of range (OOR; TRECs<252 copies/L) and 3 patients were diagnosed with DiGeorge. Eighteen out of the 52 patients had subsequent normal SCID results using an independently obtained sample and sixteen infants from NICU died before repeating the analysis. The remaining patients with OOR are currently being followed seeking a definitive diagnosis. Although no SCIDs were found, many patients with PIDs were diagnosed and treated. Implementing the SCID test will allow early diagnosis and comprehensive treatment of children with SCID and PID's. Supported by PR Center for Inherited Diseases, CDC grant U01EH000362 and HHSN267200603430C.

R-027 Cognitive Impairments in a Patient with Traumatic Brain Injury and a Subtle Corpus Callosum Lesion. *Ángel Viñuela¹, Mario Corona², José Díaz-Pimentel¹, M.T. Margarida³, Carmen Serrano¹.* ¹Neurology Department, University

of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Neurosurgery Department, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³Neuropsychology Department, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Diffuse axonal injury (DAI) is an important cause of long-term neurological impairment in patients with traumatic brain injury (TBI). The deficits related to DAI, are often underestimated by basic neurologic exam and conventional imaging studies. Structural disconnection produced by DAI typically causes disabilities of complex cognitive processes, as these functions rely on the structural and functional integration of large-scale brain networks. The corpus callosum, in particular its splenium, is especially susceptible to axonal disruption in TBI, and axonal damage within this structure has been correlated with dysfunction of retrosplenial and posterior cingular cortices. These cortices are part of the "default mode network", a set of brain regions densely interconnected with the rest of the brain, which activation and deactivation is pivotal during attention demanding tasks. We present the case of a 21 year-old female admitted with severe TBI (Glasgow Coma Scale 8/15) secondary to a MVA. Initial neurological examination was remarkable for mutism, apraxia, and right arm paresis. These deficits showed progressive recovery during the following weeks. Brain MRI was remarkable for small areas of restricted diffusion and T2 hyperintensity in the splenium, and the lateral aspect of the left cerebral peduncle, consistent with areas of non-hemorrhagic DAI. Clinical evolution is presented including detailed neuropsychological testing to assess cognitive impairment. This case illustrates the importance of detailed examination and follow-up in patients with TBI even in cases with subtle axonal damage.

R-028 Out-of-hospital Cardiac Arrest Management Evaluation in the Northeast Region of Puerto Rico. *Nannette M. Lugo-Amador.* Department of Emergency Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: UPR Hospital in Carolina is an urban teaching 200 bed hospital. The population served by this hospital is 390,038. Objective: Determine the out of hospital cardiac arrest survival in this area of Puerto Rico using the Utstein method. Methods: Prospective observational cohort study of adult patients presenting with an out of hospital cardiac arrest to the UPR Hospital emergency department. Study endpoints will be survival and neurologically intact survival at hospital discharge, 6 months and 12 months. Results: A total of 144 consecutive cardiac arrest events were analyzed for a period of 2 years. One-hundred fifteen events met criteria for primary cardiac etiology (79.86%). The average age for this group was 68.47 years. There were 45 female (39.13%) and 70 male (60.86%) participants. The average time to start cardiopulmonary resuscitation (CPR) was 14.60 minutes. A total of 68 events were

witnessed (59.13%). The survival rate to hospital admission was 23.66%. The overall cardiac arrest survival was 9.30% and overall neurologically intact survival was 4.30%. Neurologically intact survival at 6 and 12 months was 2.15%. The rate of bystander CPR in our population was 16.13% with a survival rate of 6.66%. Conclusion: Survival from out of hospital cardiac arrest in the area served by the UPR Hospital is low but comparable to other cities in the US as reported by the CDC Cardiac Arrest Registry to Enhance Survival (CARES). This low survival rate might be due to low bystander CPR rate and prolonged time to start CPR.

Sixth Concurrent Session

R-029 First Neonates Managed with Cooling for Neonatal Encephalopathy in Puerto Rico. *Alessandro M. Acosta, Lourdes García, Gloria Reyes, Juan Rivera, Israel Matías, Marta Valcárcel.* University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The reported prevalence of neonatal encephalopathy is 1.64-3.8 per 1000 live term births. It is expected that 70 - 163 neonates will have hypoxic-ischemic encephalopathy in Puerto Rico every year. Hypothermic therapy applied within 6 hours of injury is neuroprotective in certain newborns. The neonate undergoes cooling for a period of 72 hours. Equipment for cooling during transport is not available in PR. This is an observational research describing the population of infants in PR with encephalopathy who received brain cooling. Data was obtained from the Vermont-Oxford Network Registry and patient records. Variables evaluated included temperature and age upon admission, neurological status and laboratories during hospitalization, perinatal risk factors, disposition and length of stay. Range and mean for appropriate variables were calculated. Eleven patients received hypothermic therapy from February 2010 - August 2011; 9 patients were admitted from other institutions. The mean arrival temperature was 33.2°C (range 29.2° C – 36.9° C), only 3 neonates had temperature between 33 – 35° C upon arrival. The mean arrival age was 4.7 hours (range 0 – 11). The 3 neonates that arrived after 6 hours of birth had temperature above 34.0° C upon admission. One patient died prior to discharge. During the 18 month period fewer than expected newborns with neonatal encephalopathy were referred for hypothermic therapy. Further studies are required to analyze system –based practices to identify opportunities for improvements in the quality and safety of the diagnosis, care and follow-up of infants with neonatal encephalopathy.

R-030 Unexpected Type B Lactic Acidosis in Pediatric Cancer Patients. *José E. Lugo-Bernier, Ricardo García, Erskin Bezares, Nilka Barrios.* University Pediatric Hospital, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Lactic acidosis sometimes occurs without hypoxia. Congenital disorders, DKA, liver and kidney diseases, medicines and some malignancies may cause lactic acidosis. This is known as Type B Metabolic Acidosis. Tumor cells even in the presence of normal oxygen concentration switch their metabolic machinery towards the glycolytic pathway. Therefore, more energy is spent by the cell regenerating glucose from lactate in the Cory cycle than is usually generated in converting glucose to lactate. It may be possible that these changes enable cancer cells to favor cell proliferation over a more efficient ATP production. We present two patients similar in age, history and type of malignancy, but outcomes were completely opposite. Treatment options for lactic acidemia in cancer patients have not been fully established. Chemotherapy has been the most commonly used therapy. Hemodialysis and a short course of IV bicarbonate infusion are also frequently used. Type B lactic acidosis seems to be a marker of poor prognosis regardless of treatment. Although, the pathophysiology and treatment of type B lactic acidosis secondary to malignancy is not completely understood, it is important to have a high index of suspicion in order to treat the malignancy rapidly. Lactic acidosis without evidence of hypoperfusion, should have a prompt consideration of malignancy when no other obvious causes of type B lactic acidosis are present. Lactic acidosis should be considered in cancer patients with metabolic acidosis of unknown origin. Treatment with chemotherapy should not be delayed, especially in patients with leukemia, since it occurs more frequently.

R-031 Diffuse Large B-cell Lymphoma, Non Germinal Center B-cell-like of Breast. A Case Report. *María J. Betoli-Avella, R. Vélez, Elsie Diez.* Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Diffuse large B cell lymphoma (DLBCL) is a neoplasm of large B lymphoid cells with nuclear size equal to or exceeding normal macrophage nuclei or more than twice the size of a normal lymphocyte that has a diffuse growth pattern. It may present with nodal or extranodal disease with up to 40% initially confined to extranodal sites. Lymphoma of the breast may present as a primary or secondary tumour, both are rare, accounting for < 1% of all malignant mammary neoplasm. Primary breast lymphomas may appear at any age, but the majority of patients are postmenopausal women. Secondary mammary involvement by lymphoma should be excluded before a diagnosis of primary breast lymphoma is made. There are no morphological criteria to differentiate between the two. We present the case of a 46 year old woman who presented a right breast mass. A modified radical mastectomy was done. Histopathology evaluation and immunohistochemical stains confirmed the diagnosis of a diffuse large B-cell lymphoma, non-germinal center B-cell-like.

- R-032 Cystic Adnexal Mass in a 16 year old female: Ovarian Pathology or Complication of Mullerian Anomaly?** *Guido E. Santacana-Laffitte, Lorell Ruiz, Yasmín Pedrogo, Lourdes García, Edgar Colón.* School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Mullerian anomalies encompass a wide variety of malformations in the female genital tract, usually associated with renal and anorectal malformations. Of these anomalies, approximately 11% are uterus didelphys, which occurs when midline fusion of the mullerian ducts is arrested to variable extent. We report a case of a 16-year-old female with uterine didelphys, jejunal malrotation, hematometra, hematosalpinx, and bilateral, subcentimeter, homogenous, circular, cystic like renal lesions; who initially presented with left lower quadrant abdominal pain, non-bloody vomiting, and a history of irregular menstrual periods. Initial CT was confusing for an adnexal cystic mass, but further imaging disclosed the above müllerian anomalies.

- R-033 Paget disease associated with Invasive Adenosquamous Carcinoma of the Penis: Case Presentation and Review of the Literature.** *Federico Salcedo, Román Vélez, Alexandra Jiménez.* Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Extramammary Paget disease (EMPD) is a rare intra-epidermal adenocarcinoma. It usually presents as a slowly-expanding, erythematous plaque, with sharp demarcation and an erythematous, scaly surface. Histopathologic features include the characteristic Paget cells. Since other entities can demonstrate a pagetoid spread appearance, immunohistochemistry is employed to differentiate EMPD. Positive staining for CK7, a low molecular weight CK, in conjunction with immunonegativity for high molecular weight CKs, have consistently been proven to be the most useful diagnostic markers. The prognosis for patients with EMPD is in part related to their relationship with an internal malignant condition. EMPD is reported to have an underlying adnexal adenocarcinoma in fewer than five percent of patients and a visceral malignant condition in 10 to 20 percent of patients. The association with underlying malignant conditions demands extensive evaluation on the diagnosis of EMPD. We present the case of an 87 year old male who presented an ulcerated lesion with erythema and edema in the glans penis. The epidermis demonstrated positivity for CK7 in the pagetoid infiltrate and for mucicarmine in the underlying adenosquamous carcinoma. The problem areas showed immunonegativity for pankeratin, and the Ki67 proliferation marker was very high. A diagnosis of extramammary Paget disease associated with invasive adenosquamous carcinoma of the penis was given.

Seventh Concurrent Session

- R-034 PHQ-9 Adaptation for Depression Assessment in Puerto Rican Cardiac Patients.** *Vivian E. Febo-San Miguel¹, Juan C. Zevallos², Guillermo Bernal³, Luis R. Perichi-Guerra³, Sue Eisen⁴.* ¹School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ⁴School of Public Health, Boston University, Massachusetts, United States of America.

Background: Depression is a mental condition that aggravates the course of cardiovascular disease (CVD) and increases the risk of death and other events. This mental condition has been associated with costly health care and poor quality of life. Appropriate instruments are needed to assess depression in Puerto Rican patients. The purpose of this study was to determine the psychometric properties of the Spanish Patient Health Questionnaire-9 (PHQ-9) in a sample of Puerto Rican patients with diagnosed CVD. Methods: First, a bilingual committee and a focus group adapted the nine items of the PHQ-9 to attain cultural semantic, content, and technical equivalence. The culturally adapted PHQ-9 was then tested in Puerto Rican patients with a diagnosis of CVD for internal consistency reliability. Finally, the Pearson product-moment correlation was utilized to assess concurrent validity between the culturally adapted PHQ-9 and the already validated Beck Depression Inventory (BDI) as the gold standard. A convenience sample of self-identified Puerto Ricans aged 45-75 years was enrolled from outpatient clinics. Results: Preliminary findings from 69 patients showed good internal consistency across the PHQ-9 items (Chronbach's Alpha =0.87). The correlation between both instruments was high (0.82; 2 tailed sig. =0.01). Conclusions: The PHQ-9 is a reliable instrument to evaluate depression among Puerto Rican patients with CVD. As for concurrent validity, the high correlation between both instruments PHQ-9 and BDI confirms that the same construct was determined. Supported by NCRR R25RR017589; NIMHD, 5S21MD000242. Approved by IRB

- R-035 Cambio Climático, Disponibilidad de Agua y Evolución de las Precipitaciones en las Últimas Décadas: Zona Metropolitana de San Juan y Cuenca del Río Piedras.** *Pablo A. Méndez-Lázaro, Alejandro Nieves-Santiago, Nichole Ortiz-Cruz, Julianne Miranda-Bermúdez, Paola Prieto-Pulido, Shirley Delgado-Rivera.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

El agua es el recurso más preciado para el ser humano y su entorno. Se considera un recurso renovable sin embargo, la contaminación, la mala gestión y el cambio climático pueden disminuir la cantidad disponible del recurso. La variabilidad climática es

un aspecto muy relevante en relación a la disponibilidad del agua y los recursos hídricos en las regiones tropicales en general y Puerto Rico en específico. Por ello, en este trabajo se han analizado series de datos climáticos para estudiar las tendencias de la precipitación en el contexto actual de cambio climático. El objetivo principal de este estudio fue analizar las tendencias recientes de la precipitación en la zona metropolitana de San Juan y en la cuenca del Río Piedras, su relación con las variaciones climáticas regionales y globales en las últimas décadas. El análisis de tendencia de precipitación, se realizó con las pruebas no paramétricas Rho de Spearman, Mann-Kendall y Mann-Kendall Secuencial. Los análisis indican que la precipitación no muestra un patrón espacio-temporal único, sin embargo, fue más común observar tendencias regresivas en los meses de verano y aumento en los meses de invierno.

R-036 Vulnerabilidad Estructural de los Hospitales de Puerto Rico Ante un Sismo de Gran Magnitud.

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Trasfondo: Según el Colegio de Ingenieros y Agrimensores de Puerto Rico, existe un grado de vulnerabilidad de los hospitales del país según el año de construcción. La CIAPR indica que los hospitales construidos con antelación a la adopción del Reglamento de Edificación del 1987 tienen un riesgo alto de daños significativos en caso de un terremoto fuerte en la Isla, incluso posible colapso. Objetivo: Identificar el año de construcción de los hospitales de Puerto Rico para determinar la posible vulnerabilidad estructural ante un sismo de gran magnitud. Método: Se utilizaron cuestionarios para recopilar información sobre: características generales del hospital; planes de emergencias; equipos e infraestructura; acuerdos colaborativos; capacitación del personal; comunicación de emergencia; servicios de laboratorio; protocolos de tratamiento; seguridad física; y vigilancia epidemiológica. De la muestra de 44 hospitales, 39 participaron en el estudio. Resultados: Se encontró que la gran mayoría de los hospitales incluidos en el estudio (92.1%) fueron construidos antes del 1987. Conclusiones: Según su año de construcción, la gran mayoría de los hospitales incluidos en el estudio tienen un riesgo alto de sufrir daños significativos como consecuencia de un terremoto de gran magnitud. Todo hospital construido antes del 1987 debe implementar un programa de evaluación estructural y reparación antisísmica. Subvención del estudio: Subvencionado con fondos de ASPR-USDHHS administrado por la Oficina de Preparación y Coordinación de Respuesta en Salud Pública del Departamento de Salud de Puerto Rico bajo el contrato 2010-DS0609.

R-037 Diversidad de las Claves de Emergencia de los Hospitales de Puerto Rico. *Nilsa D. Padilla-Elías¹, Marisol Peña-Orellana¹, Ralph Rivera-Gutiérrez¹, Heriberto Marín-Centeno¹, Juan A. González-Sánchez², Héctor Alonso-Serra¹.* ¹Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico; ²Escuela de Medicina, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Trasfondo: Los hospitales tienen que estar preparados para manejar de manera efectiva y eficiente un evento catastrófico con víctimas en masa. Para esto varios países han estandarizado las claves de emergencias de los hospitales para mejorar su respuesta. Este estudio indagó sobre las claves o alarmas de emergencias que poseen los hospitales de Puerto Rico. Objetivo: Auscultar las claves de emergencias que utilizan los hospitales de Puerto Rico para responder a una emergencia o desastre. Método: De la muestra de 44 hospitales, 39 participaron en el estudio. Se utilizaron cuestionarios para recopilar información sobre: características generales del hospital; planes de emergencias; equipos e infraestructura; acuerdos colaborativos; capacitación del personal; comunicación de emergencia; servicios de laboratorio; protocolos de tratamiento; seguridad física; y vigilancia epidemiológica. Resultados: Las claves de algunos hospitales utilizan colores, mientras que otros usan palabras claves o códigos. Se encontró que un mismo color de clave puede tener diferentes significados en instalaciones de salud distintas. Conclusiones: Los hallazgos del estudio evidencian que no existe uniformidad ni claridad en las claves de emergencias que utilizan los hospitales de Puerto Rico. Un mismo color tiene diversos significados. Esto podría afectar una movilización efectiva para el manejo de una emergencia o desastre. Subvención del estudio: Subvencionado con fondos de ASPR-USDHHS administrado por la Oficina de Preparación y Coordinación de Respuesta en Salud Pública del Departamento de Salud de Puerto Rico bajo el contrato 2010-DS0609.

R-038 Reverse Vestibuloplasty: A New Approach for the Correction of Gummy Smile. *Kamyr M. Martínez, Daniel Mártir, David Malaret Alicea, José G. González.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Excessive gingival tissue display has often been described as being esthetically displeasing. Various etiologies have been described for this condition including vertical or skeletal excess, delayed passive eruption and hyperactivity of the elevator muscles of the lip. Traditional approaches for correction of this discrepancy include orthognathic surgery and crown lengthening. However few approaches have been directed towards targeting the soft tissues involved. Through this case report, we will describe the use of a reverse alveoloplasty technique which

involves the reduction of excessive gingival tissue by limiting the retraction of the elevator muscles. This technique involves performing a maxillary frenectomy followed by a six week healing period. The maxillary buccal vestibule is then repositioned and sutured to the lip mucosa with the mucogingival junction. Botulinum toxin A is placed in order to limit muscle traction during the final healing period. The final result consists of a narrow vestibule with restriction of muscle pull and consequent reduction in display of gingival tissue.

R-039 Modelo Promoción para la Salud PACCHI: Programa Educativo sobre Comportamiento Sexual.

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El programa educativo PACCHI (Parents in Charge of their Children) es un proyecto que se desarrolla por (IIPESAG). Se diseñó como un programa de promoción para la salud integral enfocado en tres de las conductas de riesgo: conducta sexual, hábitos alimentarios y falta de actividad física. Estas tres conductas interactúan entre sí y se proyectan hacia una serie de actividades educativas dirigidas a impactar la manera de pensar de los participantes. Focaliza en las estrategias de comunicación en salud y su fin era trabajar con la imagen corporal hacia una mejor autoestima. Diseño: PACCHI fue implantado como un proyecto piloto para refinar su diseño por primera vez en una escuela del distrito escolar San Juan 2, con un grupo de 16 estudiantes de noveno grado. PACCHI está compuesto por once actividades educativas. Entre algunos de los temas: ¿Qué es Sexualidad Humana?; Conductas de riesgo, ¿Qué son?; Mi derecho a decidir, mi responsabilidad; Hábitos alimentarios hacia la perfección y Placer vs. Oportunidad Resultados: De acuerdo con lo expresado por los participantes, el programa podría cambiar percepciones de manera positiva y lograr que los participantes aclararan dudas y abundan sobre los temas ofrecidos. Conclusiones: Al ser un programa dirigido a adolescentes, debe ser ofrecido en un ambiente que logre un mayor impacto en la población. El proceso de diseño será completado por IIPESAG e implantado en otras escuelas de Puerto Rico y compartido con otros países que tienen programas similares.

Eight Concurrent Session

R-040 Public Knowledge and Decision-Making Factors Toward Child Vaccination.

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Background: Child vaccination continues to be a challenging problem in the United States despite been proven effectively in preventive medicine. Objective: To determine caretaker's knowledge and decision-making factors that influences compliance for full immunization. Methods: Anonymous surveys were answered by caretakers of children from 0 to 5 years old, who received services at Women Infant Children (WIC) clinics in the San Juan, Bayamón, Caguas, Fajardo, Arecibo, Ponce and Mayagüez regions. Results: Sample included 702 caretakers (82% females, 17% males) with a mean age of 28±8 years (range 15-71). Ninety-five percent (95%) completed high school education or more, 47% are working caretakers and 30% are householders. Sixty-four percent (64%) had government health insurance, 32% had private insurance and 3% did not have medical coverage. Children are mostly vaccinated at immunization clinics (62%) and pediatrician's office (36%). Although 92.5% of caretakers vaccinated their children, 16.5% missed their appointments due to sickness (49.5%). Seven percent (7%) of caretakers did not vaccinate their children mainly because vaccines were not readily available. Caretakers could only identify (>70% correct) 5 out of 15 vaccine preventable diseases. Thirty-one percent (31%) of caretakers thought that vaccines could cause autism. Conclusions: Caretakers are unaware of how immunization can prevent many diseases. Also, efforts to educate caretakers are greatly needed, in order to achieve completion of immunization schedule.

R-041 Promoviendo la Salud y Participación en Ocupaciones en Adultos Mayores a Nivel Comunitario.

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La necesidad de capacitar futuros profesionales de la salud para trabajar con adultos mayores en escenarios de base comunitaria es el racional del desarrollo de esta experiencia educativa con énfasis en el aprendizaje en servicio. Objetivos: desarrollar en estudiantes conocimientos, destrezas básicas y actitudes en cuanto al trabajo y al proceso de evaluación e intervención de Terapia Ocupacional a nivel comunitario. Obtener un perfil ocupacional grupal de 17 adultos mayores de 60 años que participan en actividades de una comunidad eclesíastica que identifique las prioridades de participación en ocupaciones, la influencia del ambiente en su ejecución, y riesgos de caídas en su hogar. Diseñar plan de intervención grupal con un enfoque de promoción de la salud, prevención de riesgos y condiciones de salud, y con recomendaciones para atender las necesidades de los líderes eclesíasticos. Metodología: Se utilizó cuestionario socio-demográfico, entrevistas a líderes, e instrumentos de avalúo de participación ocupacional y de identificación de riesgos a caídas. Resultados: Necesidad de intervención educativa y basadas en ocupación para promover la participación social, uso del tiempo libre, solución de problemas y riesgos a caídas en el hogar. El 100 % de los estudiantes, participantes y

líderes comunitarios expresaron un alto grado de satisfacción con las experiencias educativas. Proyecciones: Continuar con experiencias educativas y de aprendizaje en servicio. Apoderar a la comunidad en cuanto al desarrollo de iniciativas que promuevan la participación ocupacional de los adultos mayores en ambientes saludables.

R-042 Pharmacists' Perception on Pharmaceutical Care Practice in Community and Hospital-Based Pharmacies: A Survey Study. *Maricelis Mangual.* University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Background: Pharmaceutical care is an important concept in pharmacy practice. According to ASHP, the principal elements to provide pharmaceutical care are: medication-related, care, outcomes, quality of life, and responsibility. Objectives: The main objectives of this study were: (1) to determine if pharmaceutical care is being offered in both community and hospital-based pharmacies; and (2) to evaluate pharmaceutical care from the pharmacists' perspective in community and hospital-based pharmacies. Methods: An anonymous survey was given to a convenience sample of 100 Puerto Rican pharmacists who worked at community and hospital-based pharmacies. The instrument included questions on: general information, drug information sources, information gathering, patient counseling, and drug monitoring. Descriptive statistics were performed using Excel. Results: Only 18% of community and 12% of hospital pharmacists always had measurable goals with patients. A total of 33% of community pharmacists always had care-related goals with patients, whereas 24% of hospital pharmacists never had any. If there are medication-related problems, 49% of community and 14% of hospital pharmacists always consult the patient. Before consulting with patients, 22% of community and 41% of hospital pharmacists check information resources. Conclusion: This study identified several areas for improvement in pharmaceutical care offered in both community and hospital Puerto Rican pharmacies. Community pharmacists reported better working environments and more time with patients to offer pharmaceutical care than hospital-based pharmacists.

R-043 Asociación entre seguro médico y utilización de servicios en personas con epilepsia en Puerto Rico. *Elvis Santiago, Cynthia M. Pérez, Gilberto Ramos-Valencia, Annie Alonso-Amador.* Biostatistics and Epidemiology, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Varios estudios sugieren que el tipo de seguro de salud (público o privado) es una variable que modifica el patrón de la utilización de servicios de salud en personas con epilepsia. En Puerto Rico (PR), sin embargo, no se dispone de información que sustente dicha observación. Este estudio examinó la asociación entre el tipo de seguro de salud y la utilización de los servicios de salud en la población de PR entre las edades de 18

a 64 años para los años 2002 y 2003. La muestra de estudio, obtenida del Estudio Continuo de Salud para los Municipios de PR, incluyó 421 personas con epilepsia. Para evaluar la asociación entre el tipo de seguro de salud y la utilización de los servicios de salud se utilizó regresión logística para estimar el Prevalence Odds Ratio (POR) con 95% de confianza (IC 95%) controlando por variables de confusión. Las mujeres con epilepsia y seguro público tuvieron menor posibilidad de visitar al médico (POR= 0.36; IC 95%: 0.21, 0.64) y de ser hospitalizadas (POR=0.33; IC 95%: 0.15, 0.73) en comparación con las mujeres cobijadas por el plan de salud privado cuando se controla por edad. Sólo uno de cada cuatro pacientes con epilepsia bajo Reforma recibe atención de un neurólogo para tratar su condición en comparación con 1.30 por cada 1 atendido por generalista en los planes privados. En las mujeres bajo Reforma sólo 1 de cada 8 recibe atención del neurólogo para tratar su condición comparado a 1.16 por cada 1 atendida por generalista en los planes privados. Estos resultados evidencian la existencia de desigualdades en los servicios de salud en personas con epilepsia.

R-044 La Aportación de los Líderes Comunitarios a la Promoción de la Salud en los Municipios del Norte de Puerto Rico. *Daritzia M. Román-López, María T. Borges-Cancel, Lydia E. Santiago-Andújar.* Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Los líderes tienen varias funciones y responsabilidades críticas para la implementación exitosa de los esfuerzos de la promoción de la salud basado en la comunidad. Objetivo general: Describir las aportaciones realizadas por los líderes comunitarios a la promoción de la salud en los municipios del norte de Puerto Rico. Objetivos específicos: Describir las características socio demográficas de los líderes comunitarios. Describir las características de liderazgo que poseen un grupo de líderes comunitarios. Identificar los factores que motivaron al líder a involucrarse con la comunidad. Reconocer el estilo de liderazgo que poseen los líderes comunitarios. Describir el conocimiento de los líderes comunitarios sobre la promoción de la salud. Identificar las actividades que el líder realiza en promoción para la salud en la comunidad. Identificar las barreras para la implementación de las actividades para la promoción de la salud en la comunidad. La investigación se realizó mediante la metodología cualitativa. Se utilizó el método de la entrevista a profundidad y una guía de preguntas abiertas y cerradas. Los participantes de este estudio fueron 10 líderes comunitarios que residen en los municipios del norte de Puerto Rico, mayores de 21 años y que se hayan involucrado en el desarrollo de actividades para la comunidad. Hallazgos: La burocracia, la política y la falta de compromiso han sido barreras para la implantación de actividades. Reto: Crear una alianza entre la Universidad de Puerto Rico y las comunidades para que brinde apoyo a los líderes para la implementación de las actividades en promoción para la salud.

R-045 Benefits and Challenges of Online Education: A Personal Experience. *Bárbara Segarra-Vázquez.* Department of Graduate Studies, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Benefits and Challenges of Online Education: A Personal Experience Online education offer people access to education despite geographical boundaries and personal commitments. Many universities have taken advantage of the technological evolution to improve the learning process and provide flexibility to their students. In 2008, more than 4.6 million students were taking at least one online course; a 17 percent increase over the number reported the previous year. Faculty plays an important role in online education, from the design to the course offering. There are many benefits to online education such as: flexibility, development of communications skills, and increased critical thinking. However, there are also challenges that may include: decrease student-student and faculty-student interaction, students' false expectations, and increase time commitment online courses require. This presentation includes a discussion of the aforementioned benefits and challenges as well as the experience of this author as an online student in a doctoral degree program and as an instructor in online courses.

Ninth Concurrent Session

R-046 Balloon Test Occlusion and Hypotensive Challenge as a Safe and Effective Technique. *Rodolfo E. Alcedo-Guardia, Erwin Rayo, Jorge Mendoza, Caleb Feliciano-Vals, Rafael Rodríguez-Mercado.* School of Medicine, Department of Neurosurgery, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Introduction: The treatment of giant and fusiform cerebral aneurysms and skull base tumors may require occlusion of the parent vessel. This could cause a stroke that often involves a large vascular territory with high morbidity and mortality. The balloon test occlusion (BTO) combined with procedures to enhance the sensitivity of the test has been reported. We present our experience using BTO with hypotensive challenge as an operative technique. Methods: We retrospectively reviewed the medical records of all consecutive patients that underwent BTO and hypotensive challenge at our institution from 2006 to 2011. Results: During the latter period we found 17 patients, 3 males and 14 females. Sixteen (95%) carotid artery BTO's and 1 (5%) vertebral artery BTO were performed. Thirteen patients tolerated the BTO with hypotensive challenge (76%), 4 (23%) did not. Of the patients that did not tolerate the procedure, 2 presented transient hemiparesis, 1 developed transient monoparesis, and 1 experienced hemiparesis as well as dysarthria. Of the patients that tolerated the BTO, 11 underwent coil occlusion of the parent vessel, 1 patient underwent carotid artery ligation, and 1 patient is awaiting flow diverting device.

One of the patients that tolerated the carotid BTO underwent ICA ligation during a radical neck dissection for a tumor and post op developed an MCA infarct and died. Conclusions: the balloon test occlusion with hypotension is an effective and safe procedure to evaluate the risk of stroke in cases where the therapeutic option is the occlusion of the parent vessel with a PPV of 93% in our series.

R-047 Ischemic Heart Disease Mortality Trends in Puerto Rico: Forecasting Using Age-Period-Cohort Models. *David A. Torres¹, Hernando Matte², Luis R. Pericchi¹, Juan C. Zevallos².* ¹University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Population-based ischemic heart disease (IHD) mortality data provide valuable quantitative information of the impact of genetics, lifestyle behaviors and medical services. Because mortality data are usually available with a delay of three or more years, projections of IHD mortality may be a valuable resource for public health planning and resources allocation. The purpose of this study was to forecast IHD mortality in the Puerto Rican population for years 2009-2014. Methods: We obtained IHD mortality data (ICD-10 Codes I20-I25) for years 2000-2008 from the Instituto de Estadísticas de Puerto Rico. To forecast up to 2014 IHD mortality, we utilized a robust age-period-cohort (APC) model with autoregressive errors fitted with Bayesian methods. Results: IHD mortality rates (x 100,000 pop) decreased from 149 to 108 for men, and from 94 to 65 for women during 2000-2008. In comparison with year 2000, age-adjusted forecast of IHD mortality rates for 2010 show a reduction of about 40% for both genders, and a men/women IHD mortality ratio of 1.6. The forecast of IHD mortality rate up to year 2014 appears to be stable and shows a similar reduction pattern for both men and women. Conclusions: The APC model accurately forecasts time trends in IHD mortality rates in the Puerto Rican population. In addition, this modeling allows the possibility of forecast IHD mortality trends in a variety of age groups and gender specific comparisons. Supported by NCCR R25RR017589; NIMHD, 5S21MD000242.

R-048 Factores Asociados a Múltiples Parejas Sexuales en Hombres que Asisten al Centro Latinoamericano de Enfermedades de Transmisión Sexual (CLETS) durante el 2009-2010. *Keysha K. Reyes¹, Hermés García².* ¹Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico; ²Centro Latinoamericano de Enfermedades de Transmisión Sexual, San Juan, Puerto Rico.

Introducción: El perfil epidemiológico de hombres de alto riesgo en relación de a sus prácticas sexuales es poco conocido. Objetivo: Crear un perfil epidemiológico de la población de hombres con múltiples parejas sexuales que asisten al Centro Latinoamericano de Enfermedades de Transmisión Sexual

(CLETS) en San Juan, Puerto Rico. Método: El diseño de este estudio es uno transversal, en donde se examinaron los expedientes médicos de hombres y mujeres que visitaron la clínica por primera vez durante el 2009-2010. Para propósito de este estudio, sólo los hombres (n=350) o 58.6% de la muestra total fueron analizados. Todo hombre que haya reportado, en los últimos 6 meses, 4 parejas sexuales o más se definió como una persona con múltiples parejas sexuales. Resultados: El 8.6% de la muestra del estudio reportó tener múltiples parejas sexuales en los últimos 6 meses. La edad promedio de este grupo fue de 28.8±8.5 años. La mayoría de los hombres que reportaron múltiples parejas sexuales (75.7%) no se ha casado y su grado de educación es mayor de escuela superior (70.2%). Más de la mitad (54.1%) reportó haber tenido sexo con un hombre alguna vez en su vida, y 13.5% reportó no utilizar condón en el último año. La prevalencia de ETS en este grupo de hombres fue de 21.6% para clamidia, 10.8% para gonorrea y sífilis y 2.7% para HIV. Conclusión: Con estos datos preliminares, se espera obtener un mejor perfil sobre ésta población de alto riesgo para poder ofrecer en un futuro mejores servicios de orientación y prevención para las ETS.

R-049 Los Homicidios en Puerto Rico: Un Análisis de sus Características Sociodemográficas: 2000-2006. Luz E. León-López, Erick Villanueva-Rosa. Centro de Investigaciones Demográficas. Programa Demografía, Departamento de Ciencias Sociales, Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico.

Tanto el nacimiento como la muerte son hechos vitales que se dan bajo un contexto bio-social por el que pasan los seres humanos. Existen diversas diferencias, muchas veces marcadas e inconfundibles, en el nivel de probabilidad de que dichos eventos ocurran. En el caso particular de los homicidios, múltiples son los factores que actúan de manera singular o pluridinámica, como agentes que predeterminan los cambios en la probabilidad de ocurrencia del evento. Este estudio tuvo como objetivo examinar los diferenciales sociodemográficos de la mortalidad por homicidios en Puerto Rico. Además, se examinó el comportamiento de estos diferenciales por sexo. La fuente de información principal fueron las Estadísticas Vitales del Dpto. de Salud de Puerto Rico para el periodo de 2000-2006. El estudio fue de carácter transversal descriptivo. Actualmente los homicidios constituyen la segunda causa de muerte de naturaleza externa, y ésta a su vez se ubica en la octava posición dentro de las principales causas de muerte en la Isla. El volumen de las muertes por homicidios ha aumentado considerablemente en los últimos años. Los resultados del estudio señalan que las tasas de homicidio en hombres sobrepasan significativamente a la de las féminas. Los homicidios ocurren con mayor frecuencia en edades jóvenes y productivas, en grupos no casados, con bajos niveles de educación, en ocupaciones de cuello azul y en zonas metropolitanas. Identificar cuáles son las características asociadas a los homicidios en PR adquiere peculiar relevancia;

sobre todo en estos tiempos donde se enfatiza la importancia de los determinantes sociales de la salud.

R-050 Genetics of Inflammatory Bowel Disease in Puerto Rico. Veroushka Ballester¹, Roberto Vendrell², Talin Haritunians³, Dermot P. McGovern³, Jerome I. Rotter³, Kent D. Taylor³. ¹Medicine Division of Gastroenterology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³Cedars Sinai Medical Center, Los Angeles, California, United States of America.

Background: Our understanding of the genetics of IBD has largely arisen from studies in Caucasians and may not be generalizable to minorities. Aim: To test known IBD single nucleotide polymorphisms (SNPs) for association with Puerto Rican CD and UC subjects. Methods: 647 Puerto Ricans with IBD (CD 403, and UC 244) from the UPR-IBD Center and community gastroenterology practices and 310 controls were included in the study. Blood samples were obtained and genotyped using the ImmunoChip (Illumina, San Diego, CA). Disease associations were tested using the likelihood-ratio method implemented in LAMP. Significance was defined as LOD >4 (approximately equals a p value of 1E-4). This study was approved by the MSC-IRB. Results: 148 SNPs from 99 loci previously reported in 4 meta-analyses of Caucasian IBD were analyzed. CD was associated with IL23R (rs11209026, LOD 4.23, IBD LOD 4.6) and NOD2 (rs2066842/SNP5/P268S, LOD 5.3; rs2066843/SNP6, LOD 5.1). UC was associated with MST1 (rs3197999, LOD 4.2) and the MHC; class I rs1156534 LOD 7.4; class II rs3135394 LOD 4.1). IBD overall was associated with APEH (rs9822268, LOD 4.3). Discussion: Our study revealed a strong association between NOD2, IL23R, APEH/MST1 and the MHC and IBD in the Puerto Rican population. GWAS in Caucasians have shown that NOD2 and IL23R are strongly associated with CD and IBD respectively, and APEH/MST1 less so. In contrast, APEH/MST1 may be more important for IBD in Puerto Rico. These findings suggest that there may be ethnic-related genetic variations that play a role in the pathogenesis of IBD in Hispanics. This study was supported by U01 DK 062413 (NIH, NIDDK).

R-051 Health Services Satisfaction for Parents of Congenital Defect Children: A Conceptualization of the Valid Measures to Be Used by the Puerto Rico Health Department. Beatriz Laureano-Rodríguez, Javier O. Morales-Nazario, Yedidiach Ortiz-González, Ivette Martín-Meléndez, Víctor Emanuel Reyes-Ortiz. Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

It is estimated that each day two children are born with a congenital defect (CD) in PR. For decades CD has been one of the most relevant causes of infant mortality in the island. However the Puerto Rico Health Department (PRHD) lacks a validated tool to measure the quality of the services offered to this population. Several researchers have posed that among populations unable to express such as newborns Parents' measures of satisfaction can serve as a proxy for services quality. The aim of this project is to present a tool to assess satisfaction among parents of children born with CD, using the Ronald M. Andersen theory and other theories such as Pascoe, Donabedian, Massip. Our tool intends to present an option for measuring the multidimensional and general satisfaction levels with the current services. Discussion of the topic could provide an opportunity for improvement, prior to its implementation by the PRHD. Also, the current presentation will bring new insights for an under researched population in the island due to its hard to reach nature.

Tenth Concurrent Session

R-052 Burnout among Hispanic Informal Health Caregivers (IHC): Assessment and Development of Culturally Sensitive Health Education Material. *Juliana M. Santiago-Marchany¹, Víctor Emanuel Reyes-Ortiz², Javier Morales-Nazario².*
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Burnout may be considered as a stressful situation risking caregiver's physical health, mood, and perceptions. It is also a multifactorial syndrome with no specific casualties, needing interventions tailored for each population. This research intends to synthesize the findings documented in peer review journal regarding the needs, risks profiles, and the existing health programs for IHC in order to develop culturally sensitive health education material. Using online databases a literature review covering from 1990-2011 was conducted. Only free full-text articles written in English or Spanish were included. From a search of 1,194 articles only 30 complied with the inclusion criteria base on their abstract. A total of 25 had quantitative designs and the rest share some qualitative or mixed methods designs. Social determinants of suffering burnout Hispanics IHC included being woman between 40 to 75 years with low SES and educational level. Increased health risks included deterioration on the physical health, sleep disturbances, muscular-skeletal conditions, mental health problems and fatigue. Last, Hispanic IHC showed preferences for peer support groups over any others educational programs which seemed to work among other ethnical groups. Thus, educational material should provide information regarding peer support groups which seems to be the preferred health education intervention. Also it is shown that there is an existing gap in literature

regarding Hispanic IHC, which has been "under-documented" affecting the epidemiology of the syndrome.

R-053 Health Educational Strategies to Mitigate Environmental Noise Exposure: A Strategy to Prevent Hearing Loss in Older Adults. *Neisha Rodríguez, Rodolfo Trujillo, Yomarie Aponte, Gerald Jerome-Duverseau, Yaritza Nieves, Víctor Emanuel Reyes-Ortiz.* University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The effects of persistent exposure to environmental noise on health and hearing loss are a current health problem in many cosmopolitan cities. World Health Organization has reported that noise control strategies are required as many of the most vulnerable populations to hearing loss do not have access to hearing provision or have a very limited access. To our knowledge in Puerto Rico there are not population-based epidemiological studies on the association between self-reported hearing problems and environmental noise exposure in older adults. However, recently there have been reports of non-compliance of noise control program in urban areas. The aim of this study was to describe effective noise control strategies from a health educational programs perspective in order to prevent golden age communities from hearing loss. A literature review using different online public data base was performed on the topic. Evidence base data was collected from over 30 peer review articles to establish milestones for an educational campaign. The strategies were based in those independent variables describe in literature adversely impacting this older age community. Strategies took in consideration risks factors such as heritage, gender, age, race/ethnic background and voluntary exposure to loud music, among others. This study presents the conceptualization of culturally sensitive strategies obtained after literature review which could be effective in the prevention of hearing loss among older adults.

R-054 Homicides in Infants 0-24 Months in Puerto Rico, 1999-2009. *Liza Mariel Bermúdez.* Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Forensic findings and sociodemographic characteristics of infants 0-24 months victims of homicide in Puerto Rico have not been published. Previous studies have suggested that the majority of infants have visited medical care facilities prior to the fatal injury. Objective: This retrospective study was designed to describe the clinical and sociodemographic characteristics, pathological findings and risk factors of all infant homicide victims (0-24 months) referred to the PR Forensic Sciences Institute from 1999-2009. Forensic records were reviewed to identify sociodemographic variables such as: age, gender, parental education, and illicit drug use. Also, delay in medical care at time of fatal incident, location at time of death, person taking care of infant at the time and relationship to infant, previous history of trauma, pediatric follow up, immunizations, previous history of

Child Protective Services and/or Family Department referrals. Results: The majority of infants were males (76%) and stepfathers were the most common perpetrators (27.0%). The most common cause of death was severe body trauma (40%). Toxicology was negative in 95.8%. The majority had not been admitted to a neonatal intensive care or retained in the nursery. Most had no systemic illness (63.3%) and were not using prescribed medications (74.8%). Risk factors identified: parents had not completed high school, 30% of fathers were incarcerated, incomplete immunizations (26%) and a history of child protective services (15%). Pediatricians and health professionals may identify factors which place infants at risk.

R-055 Comparison of Sociodemographic, Lifestyle and Clinical Factors Among Overweight and Normal Weight Adolescents. *Arelys Cabrera-Serrano, Yasmín Pedrego, Cynthia Pérez.* University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Objective: Overweight and obesity in pediatric population have dramatically increased over the past few years in developed countries. Studies about risk factors for adolescent obesity in Puerto Rico are limited. This study compared socio-demographic characteristics, lifestyles, blood pressure levels and lipids between normal weight and overweight Puerto Rican adolescents. Methods: This study was a secondary analysis of the database generated for a pilot study conducted at the Puerto Rico Medical Center during 2009-2010 (IRB#6050110). The study population consisted of 101 consecutive adolescents aged 12-19 years old attending the General and Specialized Pediatric Clinics located at the Pediatric Hospital and Cardiovascular Center of Puerto Rico and the Caribbean. Adolescents were classified according to their BMI. They participated in blood pressure and anthropometric measurements and a personal interview. Results: Forty-four percent of the participants were overweight/obese. However, 89% of overweight/obese group and 14% of normal weight adolescents identified themselves as overweight/obese ($p<0.05$). Overweight/obese and normal weight adolescents were comparable ($p>0.05$) regarding sociodemographic characteristics, smoking history and physical activity. Levels of systolic blood pressure, total cholesterol, triglycerides, and LDL-cholesterol were significantly ($p<0.05$) higher in overweight/obese adolescents. HDL-cholesterol levels were significantly ($p<0.05$) lower in overweight/obese adolescents. Conclusion: The results of this study might be used to inform educational and prevention programs to reduce childhood obesity.

R-056 Occupational and Social Implications of the Exposure to the Carcinogen Beryllium. A Critical Review of the Literature. *Nycole M. García-Román.* Department of Environmental Health-Industrial Hygiene, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Beryllium is a metal that is found in nature. Because of its hardness, high melting point and lightweight it is used mostly for military applications, but it's also commonly used in electronics, aircrafts, atomic energy applications, sporting goods, dental prosthetics, auto parts, x-ray equipment, ceramic manufacturing, alloys and other consumer products. For some of these applications there is no substitute for beryllium. This metal is extremely toxic, especially by inhalation. Evidence suggests that the current OSHA guideline is not protective enough for workers exposed to this metal, which are susceptible to developing chronic beryllium disease (CBD) and beryllium sensitization (BeS). In Puerto Rico, although there are no beryllium processing plants, it represents an occupational risk in electronics recycling plants and in the dental prosthetics industry. Social and occupational determinants such as the small size of organizations at risk, lack of awareness to risk factors due to the lack of education and information available to workers are evident in the meta analysis performed of the literature. Many of these workers are exposed and under risk, due to ineffective regulations to protect them.

R-057 La Polisemia de "los Determinantes Sociales de la Salud" y sus Implicaciones para la Promoción de la Salud Colectiva. *Marta M. Bustillo-Hernández, Ana Luisa Dávila, Lydia Santiago, Edgardo Ruiz-Cora, Hiram Arroyo.* Programa doctoral en Determinantes Sociales de la Salud, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Es una premisa ya casi incuestionable que la salud colectiva es impactada por varios determinantes sociales más allá de los procesos y condiciones biomédicas o de los comportamientos individuales. En este trabajo se examina el estado actual de la conceptualización y la investigación sobre lo que se ha denominado en los foros internacionales o locales "los determinantes sociales de la salud". Hilvanaremos la discusión a partir de intentar contestar las siguientes preguntas: ¿qué son los determinantes sociales de la salud y cómo se han estudiado éstos? ¿Cuáles son las diferencias y qué importancia tiene su deslinde entre utilizar términos tales como "disparidades de salud" e "iniquidades de la salud"? ¿Cuál es la evidencia que sustenta la determinación social de la salud? ¿Cuáles son los debates, las lagunas y los asuntos críticos que aún están por abordarse? ¿Cuáles son algunas de las barreras que existen para incidir efectivamente en los determinantes sociales de la salud por parte de los y las profesionales de la salud? Concluimos que es urgente la identificación de la pluralidad de enfoques, la identificación de lagunas tanto en la teorización como en la evidencia existente sobre las determinaciones de lo social ante la salud. Se discutirán sus implicaciones para la formación de salubristas, para la investigación en las desigualdades de la salud y sus consecuencias en la elaboración y defensa de políticas sociales que atiendan las desigualdades ante la salud.

Poster Sessions

First Poster Session

R-058 Efecto del Miedo a Caídas en la Participación Social de Adultos Mayores Residentes en una Égida en la Región Norte de Puerto Rico. Luz A. Muñiz-Santiago, Mariangelix Arizmendi-Rivera, Zullybel Mendoza-Keppis, Carol D. Zaborsky-Agosto. Programa Maestría en Terapia Ocupacional, Escuela de Profesiones de la Salud, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

El temor a caídas experimentado por adultos mayores esta asociado con la disminución en actividades sociales, movilidad y calidad de vida. Como consecuencia, estos pueden restringir actividades que son capaces de ejecutar. Los participantes de este estudio fueron adultos puertorriqueños independientes de 65 años o más residentes en la comunidad. El diseño del estudio fue exploratorio, con una metodología correlacional transversa. La muestra (n=69) fue no probabilística. Se investigó la relación entre el miedo a caídas y la participación social, en conjunto con las variables edad, género y experiencia previa de caídas. Se utilizó la version en español del FES I para medir miedo a caídas, del ACS-PR para medir nivel de participación social, y un cuestionario sociodemográfico para recoger otras variables de interés. El estudio evidenció una correlación negativa débil ($r = -.254$) entre el miedo a caídas y el nivel de participación social. También se encontró que el miedo a caídas influye negativamente mas en la participación social de los que informaron haber experimentado caídas previas. Se encontró diferencia por género, siendo las mujeres las más afectadas por el miedo a caídas, limitando su participación social. No se evidencio diferencia por edad. Estos hallazgos evidencian la necesidad de desarrollar estrategias dirigidas a aumentar en las mujeres adultas mayores conocimientos con relación a asumir conductas, rutinas y hábitos conducentes a un ambiente mas seguro y actitudes que promuevan independencia y participación en las diferentes ocupaciones significativas, promoviendo auto eficacia personal y una vejez productiva.

R-059 Symptoms during Pediatric Cancer Treatments as Reported by Puerto Rican Mothers on the TRSC-C (Spanish version), Methods Used to Alleviate their Children's Symptoms, and Impact on Functional Status. Velda J. González¹, Phoebe D. Williams², José N. Caraballo³, Gloria Colón⁴. ¹Kansas University School of Nursing, Kansas City, Kansas, United States of America, University of Puerto Rico Cancer Center, San Juan, Puerto Rico; ²Kansas University School of Nursing, Kansas City, Kansas, United States of America; ³University of Puerto Rico Cayey Campus, Cayey, Puerto Rico; ⁴University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Culture influences many aspects of healthcare. Clinicians must become skilled in assessing and monitoring symptoms of children during cancer treatments and the distinctive socio-cultural symptom alleviation practices utilized by parents to properly respond to the child's/family needs. Purposes: 1. Examine: (a) symptom occurrence during cancer treatments of children/adolescents; and (b) what they do to help alleviate symptoms, (c) what categories of self care are reported. 2. Examine how symptom occurrence and child functional status are inter-related. Theoretical Rationale: Orem's Self-Care Deficit Theory Methods: Cross-sectional study; mothers of 65 children/adolescents (62% male, mean age 9.2 years; mostly on chemotherapy for: 35.4 % leukemia, 24.6% solid tumors, 24.6 % nervous system tumors, 6.2% lymphoma; 9.2% Other), at the Pediatric Oncology Clinics, UPR. Spanish-PR translations of instruments had Cronbach's above .80: the TRSC-C: the SASC form; Demographic form and Lansky scale. Results: Symptoms reported by more than 45% were: hair loss, nausea, loss of appetite, vomiting, feeling sluggish, and depression. Self-care categories most reported were: Diet/nutrition/life-style changes; Mind/Body Control; and taking prescribed medicines to control pain, constipation; nausea; vomiting. TRSC-C scores correlated inversely with Lansky functional status ($r = -0.26$; $p < .05$). Conclusion: Cancer treatment symptoms significantly affect children's functional status. Assessing PR parent reported symptoms and use of self-care can promote culturally competent pediatric oncology nursing practice.

R-060 Knowledge of a Sample of Puerto Rican Public Health Graduate Students Regarding Global Warming and Climate Change. Efraín Pagán, Víctor Emanuel Reyes-Ortiz, René Rolando Dávila-Torres, Glorimar Caraballo-Correa, Rafael Ríos-Dávila. Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Global warming (GW) has consequences on communities' health leading to complex health issues. In fact GW and climate change (CC) contributes to higher health inequities where those more poor will suffer the greatest impact. This poses to public health practitioners (PHP) a health issue where poverty alleviation, social justice and ethics need to be considered. Literature had described that the knowledge PHP possess on GW & CC impacts the approach in national and global climate policies developed. This study explores the knowledge of public health students (PHS) on GW & CC. Univariate, bivariate and logistic/lineal regression analysis were performed using SPSS (version 19.0). Representation of all programs from the GSPH was obtained (n= 201), 77.8% were females. PHS age ranged 21 – 56 years old and 52% had taken environmental health courses (EHC). 66.2% had an inadequate knowledge regarding GW & CC (scale cronbach $\alpha = .945$; $\alpha = .956$). No significant association was observed between independent variables and PHS's knowledge, including having approved EHC ($p > 0.05$). Logis-

tic regression self-efficacy levels could predict higher knowledge on GW & CC among PHS. In conclusion, participants have low knowledge regarding GW & CC which could not be attributed to any of their social attributes including educational level. A need for inclusion of more robust discussion on GW & CC could increase awareness on its impact in the population's health. PHP lack of knowledge regarding the effects of GW & CC on health can undermine significant improvements obtained on national and global health issues observed in the past decades.

R-061 Correlates between Biosocial Characteristics and other Substance Use among Hispanic Adolescents. *Edith López-Toro, Víctor Reyes-Ortiz, René Dávila-Torres, Michelle Reyes-Robles, Viviana Fontáñez-Pereira.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Marihuana use among adolescents is an important risk behavior strongly related to other illicit drug use. Identification of factors associated to the use of marihuana among Hispanic adolescents is important for early interventions designs that prevent and preserve the health of the adolescents. The aim of this study is to identify how different biosocial characteristics are associated to the use of marihuana. A secondary database analysis was made on the SAMHSA, NSDUH 2009 survey using SPSS ver 17.0 software. Results show that among participants age was significantly associated with ever used of marihuana ($p < 0.01$). Marihuana use was also significantly associated to ever use of illegal substances such as Cocaine, Heroin, PCP, Psilocybin and "Ecstasy" ($p < 0.05$). Incarceration was also significantly associated to marihuana use ($p < 0.01$). Likewise good health perception tends to decrease with the use of marihuana ($p < 0.01$). OR showed significantly increase probability of illegal substance use, and incarceration among Hispanics adolescents. Conversely to other population groups in the sample level of poverty, drug abuse history, alcohol consumption, gender, other drugs use, income and mental and emotional difficulties were not associated to marihuana use. In conclusion, prevention programs should start early in adolescence (< 13 years old) and prevent incarceration, in order to avoid illicit drug use improving their overall health perception. Our study was consistent with the literature showing that the use of marihuana is significantly associated with the use of other drugs.

R-062 Prevalence of the CYP2D6*10 polymorphism in the Puerto Rican Population: Preliminary Data. *Bianca F. Nieves¹, Lizbeth López², Jessica Y. Renta³, Carmelo Orengo³, Carmen L. Cadilla³, Pedro J. Santiago-Borrero³.* ¹Interdisciplinary Program in Natural Sciences, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

CYP2D6 product is a key enzyme for the metabolism of about 20-25% of prescribed drugs. Earlier reports suggest that the CYP2D6*10 variant is associated with a poor metabolizer status and, therefore, a higher risk of adverse effects or non-response (pro-drugs). Notably, the presence of this polymorphism in Puerto Ricans has not yet been fully determined. Objective: This pilot study was aimed at determining the CYP2D6*10 allele and genotype frequencies in a representative sample of the Puerto Rican population. We tested departure from Hardy-Weinberg equilibrium (HWE) and compared % carriers in Puerto Ricans versus other populations. Methods: We interrogated 100 genomic DNA samples extracted from dried-blood spotted on Filter Cards, which were kindly supplied by the Puerto Rico Newborn Screening Program for ascertaining frequency distribution of CYP2D6*10 polymorphism in Puerto Ricans. Genotyping tests were performed with the TaqMan SNP assay. A chi-square test was used to assess whether the observed allele and genotype frequencies met HWE. A z-test for proportions was used to compare % carriers in Puerto Ricans versus other populations. Results: 84 T/T homozygous, 2 C/C homozygous and 14 heterozygous were identified. Our preliminary findings suggest that the CYP2D6*10 allele is rare among Puerto Rican newborns, with a MAF of 9%. No departure from HWE was found. The observed frequency of this polymorphism in Puerto Ricans was found to be lower than those early reported in Caucasians, Yorubas, and Asians. This study is exempt by IRB (protocol A4070110) and was partially funded by the RCMI grant G12RR03051.

R-063 Inhalant and Its Association to the Use of Other Drugs among Hispanics Adolescents Living in the USA: Secondary Data Analysis of the National Survey on Drug Use and Health 2009. *Daniel D. González-Santiago¹, Zeleida M. Vázquez-Rivera², Víctor E. Reyes-Ortiz², René R. Dávila-Torres².* ¹School of Health Sciences, Walden University, Minneapolis, United States of America; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Although general smoking prevalence has declined, similar declines have not been observed in some underrepresented populations such as Hispanics living in the USA. The objective of this study was to show a sociodemographic profile and the association among inhalants and drugs use among a group of Hispanic adolescents (12-17 years old) smokers. This case study analyzed the existing data set collected by SAMHSA on the 2009 National Survey on Drug Use and Health (NSDUH) for information about drug use in the USA. Only the data collected on inhalants and drugs use among a group of Hispanic smokers was used. A total of 3087 cases were considered for analysis. Data showed that Hispanic smokers perception of health status differed significantly among those smoking and not smoking ($p < 0.001$). Also those who reported incarceration had significant differences in smoking patterns ($p < 0.001$) as well as those

with no mental health services. Gas, nitrous oxide, glue, shoe polish, toluene spray paint, lacquer thinner, other paint solvents and other anesthetic gases were significantly associated to smoking behaviors ($p < 0.005$). Similarly, reporting more than 3 inhalants were significantly associated to smoking cigarettes ($p = 0.04$). Likewise marijuana, cocaine, heroin and psilocybin were significantly associated to smoking cigarettes ($p < 0.002$). Conversely alcohol, medical insurance, gender, socioeconomic status, poverty level among others was not associated to smoking cigarettes. These factors should be considered in developing culturally sensitive tobacco cessation interventions for Hispanic smokers living in the USA.

R-064 Essential Characteristics that Enable Older Adults to Remain in their Homes: A study in Metropolitan Communities of Puerto Rico. *Marlén Oliver-Vázquez, Nirzka Labaul-Cabeza, José Carrión-Baralt, Edgardo Ruiz-Cora.* Human Development, Gerontology Program, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The permanence of older adults (65 years and older) in their own independent homes have a positive effect on health and, social and individual independence. The vast majority of older adults want to remain in their homes for the longest time possible, and only a severe assault to health and autonomy precipitate a move to other living arrangements. The likelihood of remaining within the home for older adults is higher if homes are adapted to the needs that arise from the process of aging. This qualitative study identified the essential characteristics that facilitate the permanence of older adults in their homes according to a group of residents from three Puerto Rican Metropolitan communities. 84 interviews were conducted with older adults of lower middle income that had resided in their homes for more than 10 years. Interviews used an open-ended semi-structured qualitative questionnaire that gathered information on home history, characteristics, limitations, meaning and satisfaction. Interview transcripts were coded and analyzed using a grounded theory approach. The ideal home for older adults was characterized along the following domains: function of the physical structure, internal environment, security, access to services, social support, and the external community environment. These domains were associated by study participants with better health, wellbeing and the possibility of remaining in the home during old age. Study participants satisfaction with their homes was expressed as a function of a sense of accomplishment, belonging, and the personal liberty it afforded them in old age.

R-065 Antibacterial Activity of Five Medicinal Plants Commonly Used in Puerto Rico. *Janice M. Nieves, Belinda Román-Avilés, Jannette Gavillan.* Department of Biology, University of Puerto Rico Cayey Campus, Cayey, Puerto Rico.

Various plant metabolites have therapeutical properties and have widely been used in traditional medicine. Low cost availability and the need for natural remedies led to an increase in research focused on the use of medicinal plants. In Puerto Rico (PR) medicinal plants are widely used, however the therapeutic capacity of PR flora has not amply been explored. Our goal is to define the biologically active compounds in aqueous extracts of five medicinal plants from PR, *Psidium guajava* (PG), *Annona muricata* (AM), *Lippia stoechadifolia* (LS), *Mentha nemerosa* (MN) and *Mentha X Piperita* (MXP). These plants are commonly used as home remedies to treat symptoms of respiratory or gastrointestinal diseases. We aim to determine the antimicrobial activities of these plants against the microorganisms *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Salmonella enteritidis* and *Campylobacter jejuni*. Phytochemical screening showed that PG, LS, and MN were positive for Tannins, Saponnins, Cardiac Glycosides, Alkaloids and Terpenoids, MXP was positive for Tannins, Saponnins, Alkaloids, Steroids and Cardiac Glycosides while AM was positive for Terpenoids. Our data suggest that PG, LS, and MN have the highest antibacterial potential. Surprisingly, when bacteria were treated with the above extracts no antibacterial function was observed. Plates without bacteria incubation and plates with bacteria but no extract treatment were used as positive control and negative control respectively. Quantitative tests of the phytochemical compounds are imperative to further investigate the lack of anti-bacterial activity under these experimental conditions.

R-066 Resilience and Protective Factors in a Sample of 60+ years Old Adults Living in Puerto Rico. *Yarimar Martínez-Marrero, Arnaldo Cruz-Rivera, Jorge Dueño, Xiomara Camacho.* Graduate Occupational Therapy, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Resilience refers to an individual's tendency to cope with stress. Older adulthood is characterized by a process of resilience when individuals use their inner strengths and external resources to overcome challenges. 20% of the Puerto Rican population are 60 years of age or older which makes relevant to study the protective factors that enhance adults to enjoy an optimum quality of life. The study goal is to describe the profile of the sample of 60+ year-old participants based on the level of resilience perceived and its relation to occupational participation. Through a descriptive-exploratory experimental design 25 participants of 60 years of age and older completed an Occupational Participation Questionnaire and the CD Resilience Scale. 84% were female with an average age of 71. 64% were single/widow and 44% were living alone. 56% perceived their health status as good, while a majority stated to have some kind of difficulty in doing their activities of daily living. 84% stated that

they meditate or pray to a higher power and 72% tries to understand life in a positive way. The CD-RISC obtained an Alpha Cronbach index of .81. The average of the level of resilience was 86.72, with a SD of 9.01. The averages of the five factors of the CD-RISC were: Spirituality (.97); Control and Personal Competence (each with .91); Tolerance of negative affect (.83); and Self-confidence (.80). This study will contribute to health prevention efforts by determining relevant factors that need to be included in an occupation-based health promotion program aimed to enhance this population's functional performance. Approved by IRB A9160111

R-067 Development of Standards for Flow Cytometry with the Same Fluorescent Intensity Profile as Labeled Biological Cells. *Carol B. Torres-Nieves¹, Nahira I. Miscalichi-Casiano², Nicole P. Rebollo-Rodríguez³, Mariví Báez-Colón⁴, Angela R. Valdés-Márques³, Alejandro Ramírez-Rivera¹.* ¹Department of Pharmacology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ⁴Univeristy of Puerto Rico Bayamón Campus, San Juan, Puerto Rico.

Background: Flow cytometers are complex instruments that require careful operation to obtain meaningful and consistent data. This is usually accomplished with the help of specialized fluorescent microbead standards that are highly uniform. **Hypothesis:** Standards that have properties that match those of the biological cells will be easier to use to setup instruments and be more independent across instruments. **Objective:** To create microbead standards that have the same non-uniform fluorescence intensity profile as labeled biological cells, specifically CD4 and CD8 T-lymphocytes. **Methodology:** Aliquots of fluorescein labeled microbeads were allowed to settle on a flat surface to form a thin uniform layer which was photo-bleached with a uniform high intensity illumination (e.g., UV and/or white light) through a optical density gradients which was generated by means of novel algorithm derived directly from list mode files of the specific labeled biological cells to be mimicked. **Results:** Optical density gradients were generated from list mode files of CD4 and CD8 T-lymphocytes and used to photo-bleach fluorescein labeled microbeads that produced flow cytometry histogram intensity profiles that closely matched the original biological cell populations. **Conclusion:** Microbead standards that have the same fluorescent profile properties as biological cells can be produced and will be useful in setting up and validating the operation of flow cytometers, as well as improving clinical diagnostics. **Funding:** Support by NIH-RCMI Grant G12-RR-03051 and by the Center for Quantitative Cytometry, NC.

R-068 Knowledge and Attitudes of Nephrologists Toward the Recommendation of PA to their Patients in Puerto Rico. *Marta I. Amaral¹, María García², Joan Modesto³.* ¹Department of Graduate Studies-College of Education, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²VA Medical Center, San Juan, Puerto Rico; ³University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Physical activity (PA) can enhance quality of life in chronic renal disease patients. Therefore, is very important that patients received information, and recommendations regarding PA. In Puerto Rico, chronic renal disease patients received information about their disease, treatment and its management from their primary physician which in many cases is the nephrologist. Therefore, the aim of the study was to assess the knowledge and attitudes of a group of nephrologists toward the recommendation of PA to their patients. The investigators randomly selected 50 nephrologists form their professional organization in Puerto Rico. They received a questionnaire that asks about their attitudes, beliefs and knowledge about PA (returned rate= 28%). All the respondents agreed that: 1) physical inactivity is an important health risk, 2) increasing PA is beneficial for the majority of individuals, and 3) PA is beneficial for dialysis patients. All disagreed on: 1) do not have time to talk with their patients about PA, 2) do not think exercise is important, 3) do not think that their role as physician is to talk about PA to their patients, and 4) do not think that have the confidence to talk about PA to their patients. Moreover, 75% worried about the risk of engaging in PA by their patients, 50% believe the patients will not participate in a PA program even if advise to, 21% believed that the patients are not interested in PA. In conclusion, the group of nephrologists that participated in this project believed that PA is important and beneficial for their patients but do not offer PA advise to them for different reasons.

R-069 Las Organizaciones de Voluntarios y su Rol en el Manejo de Emergencias y Desastres en Puerto Rico. *Víctor D. Molina-De Jesús, Taisha Meléndez-Larroy, Ralph Rivera-Gutiérrez, Heriberto Marín-Centeno, Patricia Monserrate-Vázquez, Liza I. Millán-Pérez.* Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Trasfondo: El nivel de preparación de una comunidad ante emergencias debe incluir su fuerza laboral voluntaria. Muchas organizaciones sin fines de lucro en Puerto Rico dependen de voluntarios. **Objetivos:** Los objetivos del proyecto incluyeron: 1) crear un registro de organizaciones de voluntarios; 2) presentar un perfil de las organizaciones, roles que tienen y los servicios que ofrecen en situaciones de emergencias y desastres, y 3) proveer recomendaciones para mejorar la preparación y la capacidad de respuesta a emergencias y desastres de las organizaciones voluntarias en Puerto Rico. **Método:** Se realizaron en-

entrevistas a los representantes de 107 organizaciones explorando el manejo de los voluntarios y las funciones que realizan durante emergencias. Resultados: Un 68% de las organizaciones expresó tener algún rol ante emergencias. Se observó una alta participación femenina, entre las edades de 45 a 65 y empleados a tiempo completo. Conclusiones: A partir de los resultados y el perfil obtenido de los voluntarios se desarrollaron recomendaciones dirigidas a: incentivar la participación de los voluntarios de edad avanzada; el desarrollo de un currículo de adiestramiento para voluntarios; incentivar la participación de las organizaciones en las etapas de preparación y mitigación ante emergencias; el desarrollo de redes de colaboración; y la integración de las organizaciones de voluntarios a los planes de manejo de las agencias estatales y municipales. Subvención: El proyecto fue realizado bajo el contrato 2010-DS0595 con la Oficina de Preparación y Coordinación de Respuesta en Salud Pública (OPCRSP) del Departamento de Salud.

R-070 Vulnerabilidad de los Servicios de Salud Mental de los Hospitales de Puerto Rico ante un Desastre. *Patricia E. Monserrate-Vázquez, Marisol Peña-Orellana, Nilsa D. Padilla-Elías, Ralph Rivera-Gutiérrez, Liza I. Millán-Pérez, Víctor D. Molina-De Jesús.* Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Trasfondo: Las víctimas de un desastre experimentan sentimientos de desamparo e inseguridad. La Organización Panamericana de la Salud plantea algunas limitaciones relacionadas a los servicios de salud mental en el manejo de eventos catastróficos. Objetivo: Identificar los recursos disponibles para los servicios de salud mental en los hospitales de Puerto Rico, en caso de un desastre. Método: Se utilizaron cuestionarios para recopilar información sobre: características generales del hospital; planes de emergencias; equipos e infraestructura; acuerdos colaborativos; capacitación del personal; comunicación de emergencia; servicios de laboratorio; protocolos de tratamiento; seguridad física; y vigilancia epidemiológica. De la muestra de 44 hospitales, 39 participaron en el estudio. Resultados: Los profesionales identificados para ofrecer servicios de salud mental en caso de un desastre son trabajadores sociales (92.1%), psiquiatras (42.1%) y psicólogos (23.7%). Sólo un 18.4% de las instituciones hospitalarias cuentan con espacio físico para atender éstas necesidades. Conclusiones: Los hospitales deben fortalecer sus servicios de salud mental a ser ofrecidos luego de un desastre y deben considerar el espacio físico para atender las víctimas. Además, deben contar con un registro de voluntarios, tales como capellanes y estudiantes practicantes, que puedan atender aspectos relacionados con la salud mental. Subvención del estudio: Subvencionado con fondos de ASPR-USDHHS administrado por la Oficina de Preparación y Coordinación de Respuesta en Salud Pública del Departamento de Salud de Puerto Rico bajo el contrato 2010-DS0609.

R-071 Percepción de los Tecnólogos Radiológicos del Cumplimiento con las Guías de Protección Radiológica en Pacientes Pediátricos. *Edgardo L. Rosado.* School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Propósito: Identificar la percepción de los tecnólogos radiológicos con el cumplimiento de las guías de protección radiológica al realizarles radiografías a pacientes pediátricos. Muestra: Centros Radiológicos de hospitales, gubernamentales y no gubernamentales en San Juan, Puerto Rico. Estudio no experimental transaccional descriptivo, no probabilístico con 123 tecnólogos radiológicos que laboran con pacientes pediátricos. Participantes: 106 tecnólogos radiológicos, con un 86 % de participación (66% mujeres y 34% hombres). Método: Cuestionario autoadministrable. Hallazgos: 1) no cumplimiento con ninguna de las guías de protección radiológica; 2) se percibe no están utilizando la protección radiológica; 3) áreas de mayor radiosensibilidad (glándula tiroidea y área gonadal) no están siendo protegidas; 4) demostraron desconocimiento del principio ALARA y su aplicación como guía de protección radiológica para el paciente pediátrico; 5) las instituciones hospitalarias no están ofreciendo actividades de capacitación ni promueven la asistencia de los tecnólogos radiológicos a actividades educativas con temas de protección radiológica y radiología pediátrica; 6) no están participando por iniciativa propia en actividades de desarrollo profesional; 7) perciben que no todas las unidades radiográficas cuentan con los equipos de protección radiológica para ser utilizados en los pacientes pediátricos. Impacto: Se incorporó como parte de la recertificación de este profesional tres (3) créditos de educación continua en readiestramientos en temas de radiología pediátrica y protección radiológica en niños, Junta Examinadora de Puerto Rico.

R-072 Análisis Cualitativo de los Factores Contextuales que Configuran las Prácticas Sexuales y el Uso del Condón entre Adolescentes en Comunidades de Alto Riesgo. *Juan L. Negrón-Ayala¹, Juan C. Reyes-Pulliza², Tomás Matos³.* ¹Departamento de Ciencias Sociales, Universidad de Puerto Rico, Recinto de Bayamón, Puerto Rico; ²Universidad de Puerto Rico, Recinto de Ciencias Médicas; ³IRESA, Escuela de Medicina, Universidad Central del Caribe, Bayamón, Puerto Rico.

Introducción: Los datos epidemiológicos señalan que cada vez más los adolescentes incurren en conductas sexuales de alto riesgo. Se ha registrado una tendencia ascendente en el número de casos de ETS y embarazos no deseados. Es necesario ampliar el conocimiento sobre los factores contextuales que moldean las prácticas sexuales, en especial el uso de condones. Métodos: Se aplicó un análisis categórico de contenido a un grupo de entrevistas semi-estructuradas realizadas a 32 adolescentes (16 ♂ y 16 ♀) de 12-15 años para explorar el contexto en el que se inscriben las prácticas sexuales y las instancias

en la que se racionaliza el uso de condones. Se identificaron las condiciones proximales (nivel de pares) y las condiciones socioculturales (nivel comunitario/social) de estas prácticas. Resultados: Las narrativas de los participantes revelan que las prácticas sexuales y el uso del condón se inscriben en el ámbito de lo imprevisto, la ausencia de planes y conversaciones, la idea de estabilidad y las percepciones de riesgo. La incapacidad de controlar de las condiciones que median el acto sexual inhabilita las consideraciones sobre el uso del condón. A esto se suma que la decisión sobre no utilizar del condón se articula en la percepción de estabilidad en la relación de pareja que no necesariamente implica monogamia. Esta racionalidad parece contradecir la adjudicación de mayor riesgo al embarazo por sobre las ETS. Conclusiones: La ausencia de control y planes se revelan como factores contextuales de importancia para comprender la dinámica las prácticas sexuales, en particular el uso del condón. Financiado por NIH 5R01DA15301

R-073 Hospitals Morgues in Puerto Rico are Prepared for a Mass Fatalities Incident: Reality or Myth? *Marisol Peña-Orellana¹, Nilsa D. Padilla-Elías¹, Ralph Rivera-Gutiérrez¹, Juan A. González-Sánchez², Héctor Alonso-Serra¹, Heriberto Marín-Centeno¹.* ¹Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico; ²Escuela de Medicina, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Background: Hospitals in Puerto Rico must be prepared to handle a dramatic increase in deaths that can be produced by a catastrophic disaster. A mass fatalities incident (MFI) will significantly increase the usual quantity of deaths that hospitals manage on a daily basis. A survey was conducted to assess the level of preparedness of hospital emergency rooms to deal with a MFI. Objectives: To examine hospital preparedness for a MFI and morgue capacity. Methods: A total of 39 out of a sample of 44 hospitals participated in the study. Seven questionnaires were administered to explore: hospital general characteristics; emergency plans; equipment and infrastructure; collaborative agreements; personnel trainings; emergency communications; laboratory facilities; treatment protocols; security; and epidemiologic surveillance. Results: While three-fourths (73.6%) of the hospitals report having a morgue, their average storage capacity is only three bodies. Two-thirds (66.7%) of the institutions cannot augment their morgue capacity. Most installations without a morgue do not possess an agreement with any other institution for the management of bodies. Hospitals have a very limited number of bags utilized for the handling and transport of bodies. Conclusion: Capacity and capability to handle and store human remains by hospitals in Puerto Rico is very limited and most hospitals do not have plans to increase their capacity in response to an MFI. Funding: Supported by ASPR-USDHHS funds administered by the Puerto Rico De-

partment of Health Office of Public Health Preparedness and Response under contract 2010-DS0609.

R-074 Overcrowding among Emergency Departments in Puerto Rico. *Juan A. González-Sánchez¹, Héctor Alonso-Serra², Ralph Rivera-Gutiérrez², Heriberto Marín-Centeno², Marisol Peña-Orellana², Nilsa D. Padilla-Elías².* ¹Emergency Medicine Department, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Background: Emergency departments (ED) play an exclusive role in a health care system. In addition to attending the usual load of incoming patients, EDs must be able to receive an unexpected number of victims of a mass casualty incident. However, factors such as overcrowding may affect ED availability to receive new patients. Objectives: To assess the level of ED overcrowding and associated factors in hospitals in Puerto Rico. Methods: A survey was conducted to characterize ED level of preparedness and response to a mass casualty incident. A total of 39 out of a sample of 44 hospitals participated in the study. Questionnaires explored: hospital general characteristics; emergency plans; ED capacity and volume; equipment and infrastructure; collaborative agreements; personnel trainings; emergency communications; laboratory facilities; treatment protocols; security; and, epidemiologic surveillance. Results: EDs are filled to capacity more than 60% of the time. EDs report that the factor most commonly associated with overcrowding is the inability to transfer emergency patients to inpatient beds. Conclusion: Overcrowding in EDs is very common and is most commonly associated to inability to transfer ED patients to inpatient beds. This situation endangers the ED ability to respond to a mass casualty incident. The management of ED overcrowding must be considered as part of a comprehensive hospital preparedness plan to respond to mass casualty events. Funding: Supported by ASPR-USDHHS funds administered by the Puerto Rico Department of Health Office of Public Health Preparedness and Response under contract 2010-DS0609.

R-075 Influence of Surface Roughness on Streptococcal Biofilm Formation. *Janice N. Hernández¹, Luiz Meirelles², Robert G. Quivey², Roberta Faustoferr².* ¹Department of Oral Biology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico/University of Rochester, New York, United States of America; ²University of Rochester, New York, United States of America.

Dental implants are the standard of care in restoring edentulous spaces and they can be fabricated from materials with different surface properties. Increased surface roughness is believed to promote the osseointegration of dental implants, but it may also

affect the formation and acid-tolerance of microbial biofilms. Hypothesis: Biofilms grown on solid surfaces with high roughness are more acid-tolerant than the ones grown on smoother surfaces. Objective: To determine the ability of *Streptococcus mutans* to adhere to resin surfaces with different roughness. Methods: Four groups of resin discs were prepared, each with different surface roughness. The surface roughness parameters were calculated using the Atomic Force Microscopy images with the program SPIPTM (Image Metrology, Denmark). The strain used for the biofilm formation was *S. mutans* UA159, which is a member of the acid-producing family of bacteria and the microorganism most responsible for dental caries. Biofilms were subjected to an acid challenge and survivors were enumerated. Results: The average roughness for the resins discs was 0.36 μm and 0.19 μm (Al₂O₃ blasted discs), 0.16 μm (grinded disc) and 0.03 μm (polished disc). The Al₂O₃ blasted resin discs (2psi and 3psi) had the most acid-tolerant biofilms as compared to the other resins with different surface roughness. The Log N/No at 90 min for the Al₂O₃ blasted resin discs was -3.29 (2psi) and -1.37 (3psi). Conclusion: The results suggest that surface roughness affects acid adaptation and acid survival of *S. mutans* UA159 biofilms on dental implants. Supported by NIH grant 5 T32 DE 7202-20.

R-076 Associations Between Intimate Partner Violence Victimization and Other Health Indicators Among Women and Men — Puerto Rico, 2005. *Kanako Ishida.* Epidemic Intelligence Service Program, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America.

Intimate partner violence (IPV) can have adverse effects on physical and mental well-being. This is the first study to explore associations between IPV and health in Puerto Rico. In this cross-sectional analysis of 2005 Behavioral Risk Factor Surveillance System data from Puerto Rico, we examined associations between IPV and 13 health indicators, using logistic regression to control for demographic, socioeconomic, and psychosocial variables. IPV was defined as physical or sexual assault (actual, attempted, or threatened) by a current or former spouse or dating partner. Lifetime prevalence of IPV was 19.6% among women and 14.5% among men. Among women, IPV victimization was associated with self-assessed poor physical (adjusted odds ratio [aOR]: 1.88; 95% Confidence Interval [CI]: 1.31–2.68) and mental (aOR: 1.86; CI: 1.31–2.63) health status, low level of life satisfaction (aOR: 3.39; CI: 2.00–5.75), cardiovascular disease (aOR: 1.69; CI: 1.08–2.66), HIV-related risk factors (aOR: 2.38; CI: 1.08–5.21), smoking (aOR: 2.72; CI: 1.63–4.53), and binge drinking (aOR: 2.27; CI: 1.34–3.85). Among men, IPV was associated with low level of life satisfaction (aOR: 2.90; CI: 1.31–6.41), asthma (aOR: 2.56; CI: 1.07–6.16), and HIV-related risk factors (aOR: 3.53; CI: 1.24–10.07). We identified associations between IPV and multiple health indicators, which varied by sex. Although causality cannot be determined,

these results indicate complex associations between IPV and health beyond physical lesions caused by abuse. Understanding this association offers opportunity for more comprehensive health interventions among IPV victims.

R-077 Mitochondrial Proliferation is not Affected by Inhibition of the Intracellular Renin-angiotensin System. *Louis A. Ruiz González¹, Rebecca M. Parodi-Rullan².* ¹Department of Physiology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Inhibition of the renin-angiotensin system (RAS) has shown to exert cardioprotection against hypertrophy and heart failure independent of their anti-hypertensive effects. However, molecular mechanisms underlying the beneficial effects of RAS inhibition on cardiac cells remain to be elucidated. Direct effects of RAS inhibitors on cardiac cells are mediated through the intracellular RAS system. We examined the contribution of mitochondrial proliferation to the anti-hypertrophic actions of the RAS inhibitors, losartan and aliskiren. An in vitro model of hypertrophy was induced by treatment of H9c2 myoblastic cells with angiotensin II (Ang II, 200 nM, 24 h). Cells were treated with the RAS inhibitors at concentrations of 1, 10, and 50 μM 40 min before hypertrophy induction. Results demonstrated that AngII increased cell surface area by 19% ($P < 0.05$). Hypertrophy-induced stimulation of cell signaling was associated with phosphorylation of ERK1/2 MAPK which was 39% ($P < 0.05$) higher than control cells. Treatment with losartan or aliskiren prevented hypertrophy as evidenced by normalization of cell surface area and ERK1/2 phosphorylation. Fluorescence activated cell sorting (FACS) analysis with the fluorescent mitochondria-specific dye MitoTracker Green (0.4 μM) revealed reduced mitochondrial proliferation in AngII-treated cells which was not prevented by RAS inhibition. In conclusion, this study demonstrates that inhibition of the RAS attenuates AngII-induced hypertrophy in H9c2 cells that is not associated with mitochondrial proliferation. Supported by the Novartis Pharmaceuticals Corporation and American Physiological Society.

R-078 Food Consumption and Categories of the Subjective Global Assessment in Patients with an Initial Diagnosis of Colorectal Cancer Attending the Dr. Isaac González Martínez Hospital. *Damarys S. Santiago-Ortiz, Michael J. González, Marcia Cruz.* Department of Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

In Puerto Rico colorectal cancer is the third cause of cancer death for men and women. Malnutrition in cancer patients is a major cause of morbidity and mortality. The consequences of malnutrition may include a decreased response to treatment

and higher healthcare costs. Patient Generated Subjective Global Assessment (PGSGA) is a standardized instrument used to determine the risk or nutritional deficiency in cancer patient. In this study we used the PGSGA to assess the patient's nutritional risk. The primary aims of this study are: assess the nutritional status using the PG-SGA and determine if there is an association between this instrument, sociodemographic characteristics and food intakes in patients with colorectal cancer. The study design is cross-sectional. We assessed a sample of 25 participants of 21 years of age and older. A bivariate analysis was performed using Fisher Exact and Kruskal Wallis tests. Analysis showed that the mean age was 59.7 ± 10.4 years. According to the scores of PGSGA, participants had a weight loss of 5% or more and had no appetite (56% and 80% respectively). In this study 80% of participants consumed less than 21 grams of fiber and less than 5 μ g of vitamin D per day. Also the study shows that 72% consumed vegetables three times per month or less. The multivariate logistic regression model showed a marginally significant association between not prudent diet (low in: fruits, vegetable, vit D and fiber; high in: red meat, fats and sugar) and B/C categories. The results of this analysis confirm the need for nutritional assessment tool to detect early nutritional deficiencies in cancer patients.

R-079 QbD for Slightly Soluble Antibacterial and Water Soluble Histamine H1 Receptor Antagonist Drugs. *Neysha Martínez-Orengo, Evone Ghaly.* School of Pharmacy, Graduate Program, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Quality by design is a multidimensional combination and interaction of input variables and processes parameters that have been considered to provide assurance of quality. In this poster, we will present specifically the study of formulations containing chlorpheniramine maleate as water soluble active ingredient. Purpose: Build quality in the product and not depend on testing only quality in the output product. Reduce product failure associated with variability in ingredient and process. Methods: Three Factors Three Levels Box-Behnken Design. The three factors are drug particle size at 3 levels (micronized, moderately milled and unmilled); formulation component at 3 levels (Ac-Di-Sol, Cross povidone, Explotab) and the third factor is processing parameter-impeller speed granulation time at 3 levels (4, 7, 12 min). Results: Predicted values in weight, hardness, and dissolution demonstrated to be very similar which makes NIR an effective alternative method for evaluation of formulations. Conclusions: Quality by design permits testing of the different phases of production and not only the final output product. Characterization of the product, (density, friability and assay) showed that the granulation procedure was well performed. This was proved when weight, hardness and dissolution profiles of the batches obtained with conventional equipment were compared to predicted NIR values, obtaining R² ranging between 80 and 100.

R-080 Role of the HIV-1 Envelope in Patients with Cognitive Impairment. *Krystal Colón¹, Frances M. Zenón¹, Gisela Delgado², Vanessa Rivera³, Loyda M. Meléndez¹.* ¹Department of Microbiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³Ponce School of Medicine, Ponce, Puerto Rico.

HIV-1 recognizes CD4 receptor and a coreceptor, CCR5 or CXCR4 for infection. The principal region that determines the viral tropism is the V3 loop of the env protein gp120. We will determine if gp120 sequences have a role in the antioxidant dysfunction in HIV-positive women with cognitive impairment. We hypothesize that specific sequence changes within the HIV-1 gp120 will cause antioxidant dysfunction leading to HIV-associated neurocognitive disorders. Cell supernatant and viral isolates derived from 21 HIV-1 infected women with neurocognitive disorders. These HIV isolates were previously characterized for cellular tropism and co-receptor usage. Supernatant from 14 day post-infection was used to extract viral RNA and to measure total antioxidant capacity (TAC). The PCR products (gp120) were cloned into pCR2.1 or pcDNA3.1/V5-HIS and sequenced. Our results demonstrate that TAC from supernatant tends to decrease as cognitions deteriorate. For tropism TAC was significantly decreased for X4-tropic ($p > 0.001$) and X4/R5-tropic viruses ($p > 0.05$) compared to R5-tropic viruses. Phylogeny of the gp120 demonstrated very low diversity interpatient and a greater diversity intrapatient. V3 loops from normal patients demonstrated less variability than patients with HIV-associated dementia. Our data suggest that X4- and X4/R5-tropic caused a decrease in the TAC probably leading to antioxidant dysfunction causing accelerated cognitive dysfunction. Sequence diversity in demented patients may suggest that envelope contribute to decreased TAC. Supported in part by: R01-MH08316-01, R25-GM061838, G12RR03051 and SNRP-NINDS-1-U54NS431. Approved by IRB.

R-081 Food Consumption Patterns of Urban Households in Puerto Rico: An Elasticity Approach. *Yetsabel Aucaille.* Department of Mathematical Sciences, University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico.

We describe food consumption patterns of urban Puerto Rico households and explore some socioeconomic factors behind them. We focus our attention on income as an explanatory variable because it is important for predicting the food needs of a changing society as well as for analyzing the impact of alternative income policies. We use data from a representative survey of urban household income and expenditure conducted from 1999 to 2003 by the PR Department of Labor and Human Resources. Descriptive data was computed by quintiles. Regressions parameters were computed for each food group using the expenditure on that food group as the dependent variable. The

independent variables used were total spending on consumer goods, level of education of the household head and household size. The estimation method was either ordinary least squares or weighted OLS whenever heteroscedasticity was diagnosed. Elasticities, defined as percentage change in the dependent variable over percent change in an independent variable, were computed and evaluated at sample means. The double-logarithmic function gave the best fit. All income elasticities were positive and less than one. Puerto Rico food demand was found to be more inelastic than that of low income countries and more akin with that of high income countries. All statistically significant household size elasticities were positive and less than 0.2. Greater education was negatively correlated with expenditure on flours (carbohydrates), suggesting that education can have a role as a policy tool for fighting obesity problems. Supported by USDA-Hatch H410 grant.

R-082 Sensibilización de los Estudiantes de Derecho sobre el Estudio, Identificación y Análisis de los Determinantes Sociales de la Salud. *Nylca J. Muñoz.* Department of Social Sciences, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La Comisión sobre Determinantes Sociales de la Salud establecida por la OMS emitió el informe final sobre el estudio de los determinantes sociales de la salud en el 2008. Como parte de los principios a la acción esbozados identificamos definir la magnitud del problema, evaluar las intervenciones, ampliar la base de conocimientos, dotarse de personal capacitado en materia de determinantes sociales de la salud y sensibilizar a la opinión pública acerca de los determinantes sociales de la salud. Ello, en un llamado a transitar a través de la intersectorialidad. En atención a lo cual, se elaboró un seminario para estudiantes de Derecho, con el propósito de sensibilizar en cuanto a la importancia del concepto salud, la influencia en los determinantes sociales y evaluar las intervenciones en materia de derechos humanos y análisis políticas públicas como estrategias para reducir las inequidades en salud. Participaron 11 estudiantes de derecho. Los estudiantes trabajaron con revisión de literatura para la definición del concepto salud: Presentaciones orales sobre investigaciones al nivel mundial relacionadas con el enfoque de derechos humanos como estrategia para denunciar y evaluar las condiciones de salud en determinados grupos vulnerables; y elaboración de un trabajo final escrito sobre su apreciación en cuanto al problema de salud identificado en la población escogida y uno o más determinantes sociales particulares. Como resultado, se constató la sensibilización de los estudiantes y su identificación como actores en la reducción de las inequidades.

R-083 Identification of the Essential Stress Sensor Proteins of the Cell Wall Integrity Pathway in a *myo1Δ* Strain of *Saccharomyces Cerevisiae*. *Ednalise Santiago Cartagena, Sahily González-*

Crespo. School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The PKC1/Cell Wall Integrity Pathway (CWIP) in *Saccharomyces cerevisiae* is activated by stress sensor proteins Wsc1-3, Mid2, and Mtl1, the plasma membrane proteins responsible for sensing different types of cell wall and physiological stress for maintenance of cell wall integrity. A deletion mutant of MYO1 (*myo1Δ*) encoding the myosin II heavy chain, has a primary defect in cytokinesis and structural deficiencies in the cell wall that activate the PKC1/CWIP. We proposed to investigate which of these cell wall stress sensors are involved in PKC1/CWIP activation in *myo1Δ* strains. Double mutants containing *myo1Δ*; and a deletion of each stress sensor gene were constructed and tested according to cell morphology and viability phenotypes, as well as the level of activation of the PKC1/CWIP. The results showed that each of these double mutants displayed cell morphology similar to *myo1Δ*. The *wsc1Δmyo1Δ*; and *wsc3Δmyo1Δ* strains presented a severe synthetic growth defect. PKC1-MAPK activity levels indicated that Wsc1p, Wsc3p, and Mid2p were the primary sensors involved in activation of this pathway. In conclusion, cell wall stress sensor proteins of the PKC1/CWIP can detect stress caused by the *myo1Δ* defect in cytokinesis at the cell wall. Supported by grants from NIAID/NIGMS (SC1AI081658), NCRRCMI (G12RR003051) and MBRS-RISE (R25GM061838).

R-084 Translation, Cultural Adaptation and Validation of the Revised Fibromyalgia Impact Questionnaire. *Lynette Rivera, Susana Mendiola, Gloridel Molina, Marjorie Centeno, Aira Matías, María Rohena.* Occupational Therapy, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Currently, there exists a great need in Puerto Rico to develop cultural adaptations of instruments that measure health status in order to assess intervention outcomes. The Revised Fibromyalgia Impact Questionnaire (FIQ-R) is a self-administered questionnaire suited to measure physical function, overall impact and symptoms experienced by fibromyalgia patients (Bennett, Friend, Jones, Ward, Han & Ross, 2009). The FIQ-R is one of the most accepted instruments worldwide for the purpose of research. The purpose of the first phase of this study was to translate and create a cultural adaptation of the FIQ-R with authorization from the author and by means of a panel of experts. This panel was comprised of 10 professionals and 10 individuals diagnosed with fibromyalgia (FM) in order to create the Spanish FIQ-R, Puerto Rico version (FIQR-PR). The professional panel was constituted by rheumatologist, physiatrist, occupational therapists, physical therapists, psychologist, health educator, translators and linguist. The second phase purpose was to test the reliability and validity of FIQR-PR with the Short Form Health Survey (SFv2-36). It was administered to 50 adults with FM. A methodological design was used to determine whether

the Spanish version retains its semantic, idiomatic, empirical and conceptual equivalence, as well to determine the internal consistency and criterion validity of the FIQR-PR. Descriptive and inferential statistics determined the psychometric properties of the questionnaire. The content validity index (Lawshe, 1975) of the FIQR-PR was .89 and showed good correlation with SFv2-36 ($r=0.61$ to 0.59 , $p<0.01$). Approved by IRB: A8690110

R-085 Endometriosis, Género y Calidad de Vida: Perspectivas de Pacientes y Profesionales de la Salud. Damaris De Jesús-Carrasquillo. Clinical Psychology, ODS, Inc.

La endometriosis es una condición ginecológica crónica que se produce cuando tejido del endometrio crece fuera de este y se adhiere a otros órganos. Sus principales síntomas son el dolor crónico y la infertilidad. Se estima que en Estados Unidos un 10% de las mujeres en edad reproductiva padecen de endometriosis, mientras que en Puerto Rico una de cada 25 mujeres ha sido diagnosticada con la condición. Esta condición provoca un impacto multidimensional en la calidad de vida (CV) de las pacientes, ya que afecta dimensiones físicas, emocionales y sociales. Se realizó un estudio cualitativo, con el objetivo de explorar y describir cómo padecer de endometriosis afecta la calidad de vida de las pacientes. Se realizaron entrevistas semi-estructuradas a ocho pacientes de endometriosis y a seis profesionales de la salud, que fueron grabadas en audio, transcritas y luego analizadas a través un análisis de contenido. La información recopilada fue sometida a un Análisis de Jueces para búsqueda de consenso de las categorías. Se utilizó el programa N-Vivo para codificar los datos. Las pacientes y profesionales de la salud coinciden en que existe un efecto significativo en las dimensiones física, emocional y social de la CV de las pacientes de endometriosis. Algunas categorías que se desprenden del análisis son el impacto en la dimensión física (síntomas), emocional (estado de ánimo, sentimientos), y social (laboral, espiritual, relaciones humanas). También se identificaron posturas asociadas al género, y recomendaciones sobre salud pública, tratamientos y manejo integral de la condición.

R-086 Delay Time Factors for Acute Stroke Patients. Felixa C. Flecha, Juan C. Zevallos, Juan A. González, Fernando Santiago, Rafael Rodríguez. Endowed Health Services Research Center, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Early recognition of acute stroke symptoms and prompt seeking of medical care reduce brain damage and subsequent disability and mortality. However, scarce information exists among Puerto Rican patients on factors influencing arrival time to the hospital after the onset of acute stroke symptoms. This report examines this endpoint in patients hospitalized with an acute stroke during 2007 and 2009. Methods: We conducted a secondary analysis of the Puerto Rico Stroke Study, a non-concurrent prospective study that collects syste-

matic information from medical records of hospitals located in the five most populous cities of Puerto Rico. Delay time was defined as the period from acute symptoms onset until the earliest documented care in the Emergency Rooms (ER) of participating hospitals. We conducted descriptive statistics and a multivariate analysis of delay time by age, sex, mode of transportation, and stroke type. Results: From 2,789 medical records, 819 had documented delay time. The mean age of the study population was 71 years old and 51% were females. One out of three patients used an ambulance/helicopter to arrive to the ER and 78% were ischemic strokes. A third of the patients arrived within 4.5 hours of symptoms onset. Patients using ambulance/helicopter arrived earlier to the ER than those using other modes of transportation (OR 2.2 95%CI (1.6 – 3.1) $p=0.000$). Conclusion: The use of ambulance/helicopter doubles the probability of early arrival to the ER and thus increases the possibility of better outcomes in Puerto Rican patients hospitalized with an acute stroke.

R-087 Relationship of eDNA and Glucans in Initial Exopolysaccharide Matrix of Oral Biofilms. Jorge L. Pantoja¹, Marlise Klein², Hyun Koo². ¹School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico. ²University of Rochester, New York, United States of America.

Dental caries is the single most common biofilm-dependent oral infectious disease worldwide. Cariogenic dental biofilms harbor a mixed flora in vivo, but the microbiota is enmeshed and covered by exopolysaccharide matrix. Streptococcus mutans is one of the prime architects of this matrix via glucosyltransferases (Gtfs). Extracellular DNA (eDNA) is an important component of the biofilm matrix, and eDNA from Gram-positive bacteria such as Streptococcus mutans induces adhesion and aggregation of bacteria on surfaces. Hypothesis: Presence of eDNA during initial matrix assembly may contribute to formation of EPS matrix, enhancing the glucan synthesis. Objective: To test if eDNA affects the production of glucan by GTFB in presence of sucrose and sucrose plus starch on saliva coated hydroxyapatite surface. Methods: eDNA was isolated from S. mutans UA159 using the MasterPure kit (Epicenter). Glucan formation on saliva coated hydroxyapatite beads was measured by scintillation counting in four groups of substrates: sucrose, sucrose+eDNA, sucrose+starch, sucrose+starch+eDNA. Amylase activity was measured using a colorimetric assay. Results: The data showed that eDNA increased the production of glucan by GtfB up to a 25% in the presence of sucrose and starch ($P<0.05$). Conclusion: The presence of eDNA may have an effect on increasing the amount of glucans produced by GtfB, specially when sucrose and starch are available at same time. The findings of this study will help understand the interaction between glucan and eDNA in order to further design a mechanism to inhibit/reduced the glucan production pathway. Supported by DE007202-20

R-088 SorLA and Caveolin-1 Shared Subcellular Distribution Patterns in Glia. *Iris K. Salgado¹, Melissa Serrano¹, José O. García², Namyr A. Martínez¹, Héctor M. Maldonado³, Walter I Silva¹.* ¹Department of Physiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Institute of Neurobiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³School of Medicine, Universidad Central del Caribe, Bayamón, Puerto Rico.

SorLA is an established sorting and trafficking protein in neurons with demonstrated relevance to Alzheimer's disease (AD). It shares these roles with the caveolins, markers of membrane rafts microdomains. To further our knowledge on sorLA's expression and traffic, we studied sorLA expression in various cultured glia and its relation to caveolin-1 (cav-1), a caveolar microdomain marker. RT-PCR and immunoblots demonstrated sorLA expression in rat C6 glioma, primary cultures of rat astrocytes (PCRA) and human astrocytoma 1321N1 cells. PCRA were determined to express the highest levels of sorLA's message. Induction of differentiation of C6 cells into an astrocyte-like phenotype led to a significant decrease in sorLA's mRNA and protein expression. A set of complementary experimental approaches establish that sorLA and cav-1 directly or indirectly interact in glia: (1) co-fractionation in light density membrane raft fractions of rat C6 glioma, PCRA, and human 1321N1 astrocytoma cells; (2) a subcellular co-localization distribution pattern in vesicular perinuclear compartments seen via confocal imaging in C6 and PCRA; (3) additional confocal analysis in C6 cells suggesting that the perinuclear compartments corresponds to their co-localization in early endosomes and the trans-Golgi; and, (4) co-immunoprecipitation data strongly supporting their direct or indirect physical interaction. A direct or indirect cav-1/sorLA interaction could modify the trafficking and sorting functions of sorLA in glia and its proposed neuroprotective role in AD.

R-089 Cellular Effects of Caffeine on Mammalian Locomotor Function. *Marla S. Rivera-Oliver¹, Nikol M. Matos-Vergara², Luis R. Marrero-Cordero³, Manuel E. Díaz-Ríos⁴.* ¹Department of Biology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Cayey Campus, Cayey, Puerto Rico; ³University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ⁴University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Caffeine, an adenosine receptor antagonist, is a potent stimulant that can have significant and widely variable effects on the activity of neuronal pathways in the central and peripheral nervous system. It is also the most common stimulant in the so called "energy beverages" (EB) which are being recently used at an alarming frequency by the overall community including

teenagers. The effects of caffeine on voluntary muscle activation have been demonstrated in recent human studies and the central mechanisms that may enhance activation are being elucidated but studies looking into the effects of caffeine at the level of the spinal locomotor network and component neurons are lacking. We began assessing the effects of caffeine on locomotor function by using the neonatal mouse isolated spinal cord preparation and also looked at the effects of caffeine on the intrinsic properties of ventral horn neurons via the patch clamp technique in lumbar cord slices. Addition of caffeine to the perfusion significantly increased cycle frequency and burst amplitude of the ongoing locomotor-like rhythm, while decreasing motoneuron burst duration in most preparations in a reversible manner. Addition of this same concentration of caffeine to spinal cord slices increased neuronal excitability by depolarizing the membrane potential, reducing the threshold for firing action potentials and reducing the action potential afterhyperpolarization (AHP). Further physiological and pharmacological analysis under voltage-clamp conditions will help to identify the ionic currents mediating the responses of spinal interneurons and motoneurons to caffeine.

R-090 Increased Expression of Eukaryotic Protein Synthesis Initiation Factor eIF4G by the Daidzein Metabolite Equol May Contribute to Breast Cancer Malignancy. *Columba de la Parra, Elisa Otero-Franqui, Suranganie Dharmawardhane.* School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The role of dietary soy in cancer has been the subject of intense investigation and is thought to be cancer preventive. However, the beneficial effects of soy on established breast cancer is controversial. We recently demonstrated that dietary daidzein and combined soy isoflavones promoted breast cancer progression in a nude mouse model by increasing both primary mammary tumor growth and metastasis. Dietary daidzein significantly upregulated cancer promoting molecules including eukaryotic protein synthesis initiation factors (eIF) eIF4G and eIF4E. Herein, using tumors from mice treated orally with daidzein, we show that increased eIF expression is associated with expression of mRNAs with long structured 5' untranslated regions and internal ribosomal entry sites (IRES) that are sensitive to eIF4E and eIF4G levels. We then tested the hypothesis that daidzein upregulates protein synthesis initiation in breast cancer, but found that daidzein treatment did not affect the levels of eIFs in the same MDA-MB-435 cell line in vitro. Therefore, we tested the effect of equol that is metabolized from daidzein by the gut bacteria in mice and humans. Results show that equol specifically upregulated eIF4G, but not eIF4E, in MDA-MB-435 and MDA-MB-231 human breast cancer cells. Equol treatment also increased gene and protein expression of c-MYC and protein expression of other cell survival and proliferation promoting

molecules with IRES sites. Upregulation of eIF4G by equol may regulate cap-independent protein synthesis initiation resulting in cancer cell survival, proliferation, and thus, tumor progression.

R-091 Molecular Tolerance of the BK Channel After 6-hour Alcohol Exposure is Protein Synthesis-Dependent. *Cristina M. Velázquez-Marrero¹, Alexandra Bernardo¹, Garrett E. Seale¹, José O. García¹, Stephanie Palacio².* ¹Institute of Neurobiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Anatomy and Neurobiology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Molecular tolerance develops in the BK channel after alcohol exposure and is characterized by two components: a reduction in the current potentiation in response to acute EtOH, which occurs within minutes of exposure, and a decrease in current density that occurs after 24 hours of exposure (Feinberg-Zadek et al., 2008). We focused on the reduction in current density, which was used to assess channel internalization. Using the whole-cell patch-clamp technique we measured current density in both a HEK293, heterologous expression system, and in pyramidal neurons from rat hippocampal cultures. The inhibitor cycloheximide (CHX) was used to block general protein synthesis, with and without concurrent 6hr 20 mM EtOH treatment. Results show that after a 6 hr EtOH exposure, a decrease in current density was observed in both cell types. Co-treatment with CHX 10 nM prevented internalization of the channel, confirmed by current density measurements, immunocytochemical analysis, and redistribution of the channel at the membrane observed with discontinuous sucrose gradient fractionation.

R-092 Prevalence Study of CYP2D6*31 Polymorphism in Puerto Ricans. *Muriel P. Peguero¹, Marisarah Torres-González², Jessica Y. Renta-Torres³, Carmen L. Cadilla-Vázquez³, Pedro J. Santiago-Borrero³.* ¹School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Recent reports suggest that the CYP2D6*31 variant might be associated with antipsychotic response in Puerto Rican patients suffering from psychiatric disorders. However, the presence of this polymorphism in the Puerto Rican population has not yet been fully determined. Objective: This pilot study was aimed at determining the CYP2D6*31 allele and genotype frequencies in a representative sample of the Puerto Rican population. We also tested departure from Hardy-Weinberg equilibrium (HWE).

Methods: We interrogated 150 genomic DNA samples extracted from dried-blood spotted on Guthrie Cards, which were kindly supplied by the Puerto Rico Newborn Screening Program for ascertaining frequency distribution of functional CYP2D6*31 polymorphism in Puerto Ricans. Genotyping tests were performed with the TaqMan SNP assay. A chi-square test was used to assess whether the observed allele and genotype frequencies met HWE. Results: The 150 samples were found to be homozygous for the common allele (wild-types). Our preliminary findings suggest that the CYP2D6*31 allele is quite rare among Puerto Rican newborns, with a frequency of <1%, hence, a larger number of samples needs to be examined to accurately determine the allele and genotype frequencies. No departure from HWE was found. We recommend that the presence of this polymorphism in a cohort of mental health patients be evaluated. This study is exempt by IRB as cited in protocol A4070110 and was partially funded by the Research Centers in Minority Institutions grant G12RR03051.

R-093 Reproductive Healthcare Utilization and Sexual Behaviors among Hispanic Females, 2006-2010. *José R. Guzmán-Pereira, Lorinet Martell-Martínez, Víctor E. Reyes-Ortiz.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: The statistics show that Hispanic female lacks access to reproductive healthcare increasing their health disparities. Literature has shows that Hispanic females engage in higher sexual risky behaviors than non-Hispanic adolescents affecting their health status adversely. Objectives: The study explores the association between reproductive healthcare use and sexual behaviors of Hispanic females. Methods: CDC 2006-2010 National Survey of Family Growth; a nationally representative survey that included women 15-44 years was used for this study. Variable analyzed for reproductive healthcare utilization were: use of clinics and birth control methods, received pregnancy test, Pap test, pelvic exam among others. Independent variables included: ever had sexual intercourse, sexual partners, use of contraceptive, ever been pregnant and use of clinic for STD prevention. Chi-squared test with a $p < 0.05$ were used for significant associations of the variables. Results: Only 17.4% reported visit STD clinic and 20.0% received information about birth control. Most women had sexual intercourse (86.4%) and least one pregnancy (69.0%). Association was found between having sexual intercourse, sexual partners, use of contraceptive, ever been pregnant, use of clinic, and reproductive healthcare utilization ($p < 0.05$). Conclusion: Association between reproductive healthcare utilization and sexual behavior was found. These associations could be associated to lack of knowledge of reproductive health care and its access. Public health interventions are suggested to maximize access to reproductive healthcare for Hispanic females.

R-094 Associations between Sexual Risk Behaviors and Religiosity among Female Hispanic Adolescents. *Lorinet Martell-Martínez, José R. Guzmán-Pereira, Víctor E. Reyes-Ortiz.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The statistics show that adolescents are the most vulnerable population engaging in risky sexual behaviors (RSB). STD's, reproductive health problems and unintended pregnancy had elsewhere associated to RSB. Nevertheless, religiosity has barely been explored as a factor influencing RSB female Hispanic adolescents' decision making process. The study explores the association between sexual risk behaviors and religiosity in a national sample of Hispanic female adolescents. The CDC's NSFG public database, a nationally representative survey for years 2006-2010 was used. Participants of 14-19 years old were included. Sexual behaviors included: ever had sexual intercourse, sexual partner in last year, use of contraceptive, use of clinic for STD prevention and ever being pregnant. Religiosity factors included: religious services attendance, religion importance, religious values, among others. Significant associations were determined at $p < 0.05$ for bivariate analysis. A total of 46.8% reported ever had sexual intercourse and 43.2% had more than 4 sexual partners in last 12 months. Most participants had a religious affiliation (81.0%) and consider religion as important (75.4%). Association was found between ever had sexual intercourse, had a sexual partner in last 12 months, use of contraceptive, use of clinic for STD prevention, ever been pregnant, and religiosity variables ($p < 0.05$). Religion beliefs could be related to riskier sexual behaviors among some adolescents. Further studies are needed to understand factors that influence the Hispanic adolescent behavior through religion.

R-095 Associations of Alcohol Consume towards Risky and Social Undesirable Behaviors in a Sample of Hispanics Adolescents and Young Adults Living in USA and Puerto Rico. *Santos Villarín-Gutiérrez, Michelle Reyes-Robles, Víctor Emanuel Reyes-Ortiz, Ivelisse García-Meléndez.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The number of young adults and adolescents with substance abuse problems had increased in the last decade. This study explores the associations between social issues and alcohol consumes behaviors in a sample of Hispanic adolescents and young adults of USA and Puerto Rico admitted to substance abuse treatment. Secondary analysis using Treatment Episode Data Set 2009; a public use database was used ($n = 6436$ Hispanics between 12 to 25 years old). Univariate and bivariate analysis were used to establish associations between variables stratified by age groups and sex. The group of 12 – 17 years was associated to family and friends' problems due to alcohol consume. Those participants between 18 – 25 years were associated to

higher alcohol consume, ever had drink, had limited activities due to alcohol, involvement in dangerous activities, and having problems with law, family and friends, and at home, work or school due to alcohol. Gender differences were also noted by age groups comparison in several categories. Correlation was found between sex and alcohol intake ($r = -1.72$; $p < 0.05$) but not among same sex and different age groups ($p > 0.05$). Age groups differed significantly in alcohol intake, but problems related to it still significantly associated. Indeed policies forbidden alcohol intake among adolescents less than 18 years. Therefore, call for action is requested from prevention perspectives. Lack of significant associations among age groups and sex of participants could implicate similar alcohol patterns among underage drinking and those older participants drinking pattern.

R-096 Characterization of HPV Infection in Hispanic Colorectal Cancer Patients. *Alejandro O. Villar-Prados¹, Heriberto M. Rodríguez², Mercedes Y. Lacourt³, Yasuhiro Yamamura⁴, Raúl D. Bernabe³.* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³University of Puerto Rico Comprehensive Cancer Center, San Juan, Puerto Rico; ⁴Ponce School of Medicine, Ponce, Puerto Rico/University of Puerto Rico Comprehensive Cancer Center, San Juan, Puerto Rico.

The role of Human papillomavirus (HPV) infection in colorectal cancer (CRC) and its mechanisms of carcinogenesis have not been elucidated. Our objectives were to evaluate the presence of HPV in patients with CRC; to probe the viral integrations of HPV 16 in CRC, and to determine the mRNA expression of the viral oncogenes E6 and E7. We conducted an age-and-gender matched case-control study using tumor and tumor-adjacent colorectal tissues from patients with CRC and without CRC. Presence of L1, E2, and E6 genes was analyzed to determine whether a full-length HPV genome existed in studied samples. A total of 45 (β -actin+) CRC patients (mean age 61 ± 11 years, 24 males) and 47 controls (mean age was 60 ± 9 years, 18 males) were evaluated. Tumors were located in proximal colon ($n=7$) and distal colon ($n=38$). HPV DNA was identified in 19 of 45 (42.2%) patients with CRC and in 2 of 47 (4.3%) controls (OR = 16.4; 95% CI 3.5-76.3, $p < 0.001$). HPV-16 was identified in 12 of 19 (63.2%) HPV (+) CRC patients and in none (0%) HPV(+) controls. The 12 HPV-16 CRC cases showed integration. Three of 12 (25%) HPV16 (+) cases expressed E6 and E7 mRNA. Conclusion: These results suggest that colorectal HPV infection is common among patients with CRC. The presence of HPV in tumors located proximal to the rectum suggests that this infection might not result from direct spread from anogenital sites. Moreover, our finding of highly frequent integration of viral DNA and the active expression of E6 and E7 viral oncogenes in the host strongly suggests that HPV may play a role in the pathogenesis of CRC.

R-097 Risky Sexual Behaviors and Condom Use Associations among a Sample of Adolescents: A Secondary Analysis Using the 2007 WHO Global School-Based Student Survey Data from Four Caribbean State Islands. *Michelle Reyes-Robles, Santos Villarán-Gutiérrez, Víctor Emanuel Reyes-Ortiz.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Sexually active adolescents are at higher risk of acquiring STDs for a combination of behavioral, biological, and cultural reasons. STD-preventing behaviors may help prevent infections and re-infections among sexually active adolescents. We examined the associations between risky sexual behaviors and condom use among a sample of adolescents in four Caribbean State-Islands that participated in the WHO Global School-Based Student Survey (GSHS) in 2007. This is a secondary analysis of the GSHS conducted in Trinidad & Tobago, Saint Lucia, Cayman Islands, and Vincent Islands. Data was collected from 11-to-16 year old in-school adolescents. Descriptive statistics and Odds Ratio [95% CI] were used to study the data. Gender was significantly associated with condom use in all Islands except Cayman Islands ($p = 0.280$). Age was significantly associated with condom use in Trinidad Tobago and Saint Lucia ($p < 0.01$). The results showed significant associations between using condom and having 2 or more sexual partners ($p < 0.01$). Also the results showed significant associations between the age of initiation of sexual intercourse and using condom in all Islands ($p < 0.01$) except Cayman Islands ($p = 0.185$). Males were more likely to report having sex and using condoms than females. The results showed that in a 12 month time-frame, more than half of the participants reported having with more than 2 partners. Condom use was reported among older adolescents and among those who reported having sex during past year. The results suggest that STD prevention programs should target younger adolescents with gender-based interventions.

R-098 Experiencias de Violencia en la Familia y la Relación de Pareja en Estudiantes de la UPR. *María I. Jiménez-Chafey, Ángel A. Villafañe-Santiago.* Departamento de Consejería para el Desarrollo Estudiantil, Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico.

Investigaciones sobre la violencia en las relaciones de pareja sostienen que estas conductas son preocupantes entre las parejas jóvenes, e incluso su magnitud es superior a las adultas. Estudios sobre violencia sugieren que el haber experimentado o sido testigo de violencia en la familia de origen aumenta el riesgo de ser víctima o agresor en la relación de pareja. Los objetivos principales de este estudio son: explorar la prevalencia de indicadores de violencia en las relaciones de parejas en una muestra de estudiantes y evaluar si existe una relación entre experiencias de violencia en el hogar y en las relaciones

de pareja. Obtenida la aprobación del Comité Institucional de Protección a los Sujetos Humanos en la Investigación de la Universidad de Puerto Rico, Recinto de Río Piedras, se administró el Cuestionario de Experiencias de Violencia en las Relaciones de Pareja y Familia en Estudiantes Universitarios (Villafañe, Jiménez, De Jesús y Vázquez, 2011) a una muestra por disponibilidad de 3662 de los once recintos de la UPR. Aproximadamente una quinta parte de los estudiantes reportaron experiencias de violencia en alguna de las cuatro subescalas (Hacia el Estudiante, Del Estudiante hacia la Pareja, Observada entre los Padres, De los Padres hacia el Estudiante), reportando mas experiencias de violencia psicológica que físicas. Hubo una relación significativa entre todas las subescalas; la más fuerte fue el haber observado violencia entre los padres y haber sido víctima de violencia durante la crianza. Esto sugiere el desarrollo de programas de prevención e intervención temprana con esta la población.

R-099 Characterization of the First Member of the Fasciola Hepatica Ferritin Protein Family. *Kimberly Cabán-Hernández, José F. Gaudier, Ana M. Espino.* Department of Microbiology and Medical Zoology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Fascioliasis, caused mainly by *Fasciola hepatica*, is an important parasitic disease of livestock and an emerging human pathogen. During development in the mammalian host, *F. hepatica* parasites feed on blood, hepatocytes and bile; therefore, it seems likely that iron compounds are required for parasite nutrition and egg production. It is also expected that ferritin molecules in *Fasciola* provide a protective mechanism against the harmful effects of iron. Previously, we identified a 5'-end incomplete cDNA encoding a ferritin-like protein of *Fasciola hepatica* (FhFtn-1). Recently, we isolated and cloned the full length cDNA of this ferritin using RT-PCR based on the *P. westermani* ferritin sequence. The cDNA encoded a 228 amino acids polypeptide of 26.4kDa. Phylogenetic tree analysis showed that FhFtn-1 clustered with the ferritins of *P. westermani*, which suggest a common ancestry for ferritins of these two trematodes. Using qPCR we found that FhFtn-1 mRNA was upregulated in eggs and adult compared to NEJ and miracidium stages. Recombinant FhFtn-1 protein was expressed and purified from an *E. coli* system. FhFtn-1 had iron uptake capacity and oxidase Fe+2 similar to the positive control. ELISA assays showed strong reactivity between FhFtn-1 and sera from rabbits with 2-12 wk of *F. hepatica* infection. This represents the first characterization of a member from the *Fasciola* spp ferritin family. Since the importance of ferritins in the parasite metabolism FhFtn-1 could represent a new target for therapeutic intervention or immunodiagnosis of fascioliasis. MBRS-RISE R25GM061838, NIH-SCORE 1SC1AI096108-01A2 and NCRR US4RR022762.

R-100 Enzyme-linked Immunosorbent Assay for Detection of Rabbit Antibodies Specific to Fasciola Hepatica Ferritin Protein (FhFtn-1). *Caleb Ruiz-Jiménez, Kimberly Cabán-Hernández, Ana M. Espino.* Microbiology and Medical Zoology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Fascioliasis is an important trematode pathogen of livestock worldwide with severe economic losses in cattle, sheep and goats. Fascioliasis is also considered a major neglected disease with more than 17 million people infected and more than 181 million people at risk of infection mainly in South America. Current efforts for the control of fascioliasis need of antigens and diagnostic techniques, which allow the early detection of active infection. Recently, our laboratory cloned and characterized biochemically a 26.4kDa ferritin protein (FhFtn-1) of *Fasciola hepatica*. In the current study we have developed an indirect enzyme-linked immunosorbent assay (ELISA) to analyze the antibody response that is elicited against this protein during the active infection in a rabbit model of fascioliasis. The FhFtn-1-ELISA was optimized and standardized with a sample set of 65 rabbits sera with confirmed *F. hepatica* infection from which 21 were collected from animals with acute infection, 20 from animals with chronic infection and 24 were collected from healthy animals. A cutoff OD492 value of 0.249 was calculated using the normal serum samples. FhFtn-1-ELISA showed a sensitivity of 100% and 90% for the detection of acute and chronic fascioliasis respectively. Based on these results it is possible to anticipate that FhFtn-1 will be a valuable antigen for serodiagnosis of fascioliasis. Studies are in progress to examine the diagnostic value of this antigen for serodiagnosis of human fascioliasis. This study was supported by MBRS-RISE R25GM061838, NIH-SCORE 1SC1AI096108-01A2 and NCRR U54RR022762.

R-101 Cystatin B and Cathepsin B Studies in Monocytes, Plasma, CSF and Post-mortem Brain Tissue of HAND Patients: A link to Diagnosis and Therapy. *Yisel M. Cantres-Rosario¹, Marínés Plaud-Valentín², Viviana Meléndez³, Yamil Gerena², Richard Skolasky⁴, Valerie Wojna².* ¹Department of Microbiology and Medical Zoology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico; ⁴Spine Outcomes Research Center, Johns Hopkins, Baltimore, Maryland, United States of America.

HIV-1 associated neurocognitive disorders (HAND) remain prevalent despite antiretroviral therapy and biomarkers for diagnosis are needed for prevention. We hypothesized that lysosomal cysteine protease cathepsin B and its inhibitor, cys-

tatin B are associated with progression to HAND. Monocytes, plasma, and CSF from stored samples of 130 HIV seropositive Hispanic women cohort stratified by normal (31), asymptomatic neurocognitive impairment (ANI) (32), and HIV associated dementia (HAD) (31). Thirty-two patients at two consecutive visits were stratified into progressors and non-progressors. Samples were evaluated for cystatins B and C, and cathepsin B expression and activity. Data was analyzed using Kruskal-Wallis one-way analysis of variance. Expression of cathepsin B, cystatin B and identification of microglia was determined from post-mortem brain tissue from NeuroAIDS patients by confocal microscopy. We found significant increases in cystatin B and cathepsin B expression in plasma and blood monocytes from women with HAD ($p < 0.05$) and decreased cathepsin B activity in the CSF. Cystatin B and cathepsin B expression is increased in hippocampus and basal ganglia of post-mortem brains from HIV-1 positive individuals with neurocognitive impairments. Decreased cathepsin B in the CSF may reflect retention of cathepsin B in the brain. These results support the roles of monocytes, cathepsin B and cystatin B in the development of HAND and could be considered potential biomarkers or targets for therapy. Supported by U54 RR022762, U54NS43011, R01 MH083516, and G12RR03051, R25-GM061838-10 and National NeuroAIDS Tissue Consortium.

R-102 Aging Increases Mitochondrial DNA Damage and Oxidative Stress in Liver of Rhesus Monkeys. *María R. Castro¹, Edu Suárez², Edmundo Kraiselburd³, Ángel Isidro⁴, José Paz⁵, León Ferder⁵.* ¹Department of Pharmacology and Toxicology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Ponce School of Medicine, Ponce, Puerto Rico; ³Caribbean Primate Research Center, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ⁴Department of Physiology and Pharmacology, Ponce School of Medicine, Ponce, Puerto Rico; ⁵Ponce School of Medicine, Ponce, Puerto Rico.

While the mechanisms of cellular aging remain controversial, a leading hypothesis is that mitochondrial oxidative stress and mitochondrial dysfunction play a critical role in this process. Here, we provide data in aging rhesus macaques supporting the hypothesis that increased oxidative stress is a major characteristic of aging and may be responsible for the age-associated increase in mitochondrial dysfunction. We measured mitochondrial DNA (mtDNA) damage by quantitative PCR in liver and peripheral blood mononuclear cells (PBMCs) of young, middle age, and old monkeys and show that older monkeys have increases in the number of mtDNA lesions. There was a direct correlation between the amount of mtDNA lesions and age and a 16% decrease in mtDNA copy number in old monkeys, supporting the role of mtDNA damage in the process of aging. Liver from older monkeys showed a significant 36% increase in lipid peroxidation, a 2-fold increase in protein carbonylations

and significant reductions in reactive oxygen species (ROS) scavenging enzyme activities. Similarly, PBMCs from the middle age group showed a 35-fold increase in carbonylated proteins. Together, these results suggest that aging is associated with defective mitochondria and increased production of ROS, that in turn result in extensive damage at the mtDNA, lipid and protein levels. Further more, our results that mtDNA damage might be a good biomarker of human aging. Supported by NIH P40RR003640, G12RR03051, 1U54RR026139-01A1. Protocol approved by IACUC (A1700208).

R-103 Development of a Vaccinia Virus-Free DNA Vaccine against Smallpox. *Eric Miranda¹, Pablo E. Vivas-Mejía², Eddy O. Ríos-Olivares¹.* ¹Departamento de Microbiología e Inmunología, Universidad Central del Caribe, Bayamón, Puerto Rico; ²Puerto Rico Comprehensive Cancer Center, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Smallpox is a threat in an event of a bioterrorist attack. Non-vaccinated immunocompromised people could not be safely vaccinated with the current vaccine. We hypothesize that a vaccine consisting of DNA plasmids coding for vaccinia virus antigens, the cytokines MIP 1 α ; and Flt3-L, plus Imiquimod will enhance the antigen-specific immune response. To test this hypothesis, a vaccine was produced consisting of the vaccinia genes L3L, E6R, and A27L cloned in the pVax1 vector. IFN- γ , IgG, TH1 and TH2 cytokine profiles were measured after immunizing humanized HLA-A2.1 transgenic mice to describe cell- and humoral-mediated immune responses by ELISPOT and ELISA analysis. Our ELISPOT data shows an increase in IFN- γ in L3L immunized mice versus the non-vaccinated group. Sera obtained after the second immunization with E6R plus adjuvant showed an enhancement in IFN- γ and IL-2 response versus animals immunized with antigen alone. Moreover, a higher increase in IFN- γ was observed after the third immunization. Serum obtained after the third immunization with L3L plus adjuvant showed a dramatic increase in the production of IL-12 and IFN- γ versus animals immunized with antigen alone. CD4⁺ T-cell cellular proliferation was higher in mice immunized with DNA vaccine plus adjuvant, compared to mice immunized with vaccine alone. We conclude that the proposed vaccination cocktail is inducing the expected antigen-specific TH1 immune response in a vaccinia virus-free DNA vaccination platform. Supported by grants from PRAABRE: P20RR016470, and RCMI: 2G12RR03035 at Universidad Central del Caribe, and G12RR003051 at Medical Sciences Campus, UPR.

R-104 Cortactin Regulates Synaptic Growth. *Carolina Maldonado¹, Gonzalo J. Falcón^{1,2}.* ¹University of Puerto Rico Cayey Campus, Cayey, Puerto Rico; ²Institute of Neurobiology, University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico.

Cortactin is a major actin regulator that is able to cause changes in cortical actin organization and modify actin-rich structures essential to membrane motility. It is regulated by multiple binding partners and its function is essential to diverse cellular processes like cell adhesion, motility, morphogenesis and tumor invasion. Cortactin plays a major role in shaping growth cone morphology and spreading as well as regulating the morphogenesis of dendritic spines within developing neurons. Despite these attempts to characterize the role of cortactin in the nervous system, our understanding of its function in more mature synapses is still unclear. Here, we used genetics and immunohistochemistry to characterize the role of cortactin at the NMJ. We showed that Cortactin is present presynaptically and is required to limit membrane sprouting at the NMJ. Cortactin mutant synapses present abnormal synaptic structures that are not opposed by post-synaptic markers. These "sprout boutons" contain synaptic markers but are deficient in the cell adhesion molecule Fas II and the microtubule associated protein Futsch. In addition, microtubule structures seem to be affected. We propose that Cortactin is important for the targeting and capture of microtubule ends at cortical actin sites. Finally, mutants for molecules involved in cell invasion processes such as β integrin and FAK present similar phenotypes at the NMJ. We hypothesize that β integrin, FAK and cortactin belong to a signaling complex designed to limit/stabilize synaptic growth at the NMJ.

R-105 A Dehydratase Domain from a Bacterial Polyunsaturated Fatty Acid Synthase: Expression and Activity. *Delise J. Oyola-Robles¹, María M. Rodríguez-Guilbe¹, Mei-ling Bermúdez¹, Mónica Rivera¹, Néstor M. Carballeira².* ¹University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Polyunsaturated fatty acids (PUFAs) are important components of human health and important ingredients in biodiesel preparations. PUFAs from deep-sea bacteria are synthesized by a modular polyketide synthase, which contains several domains including two dehydratase (DH) domains responsible for the introduction of double bonds. In order to study double bond formation in PUFAs, we have expressed and purified the individual protein fragments from a deep-sea PUFA synthase. Protein constructs were designed using a bioinformatic tool for the prediction of protein linkers which revealed the presence of two previously uncharacterized pseudo-domains. The resulting design comprising two putative DH domains in tandem was expressed in *E. coli*, purified by chromatography and assayed against surrogate substrates by UV spectroscopy. Results showed that the designed construct is more active against CoA-linked substrates than for N-acetylcysteamine thioester, as revealed by reaction kinetics. Additionally, *E. coli* strains engineered to over-express DH1-DH2 can produce 3-5 times more FAs than the wild-type strain, suggesting that dehydration may

be rate-limiting. We anticipate this result can be implemented to drive the production of FAs in bacteria and be a viable option for the production of biodiesel precursors. This work was funded by Grant CHE0953254 from the NSF and MBRS-RISE Program (R25GM061838) of the UPR-MSU.

R-106 Interaction of *Fasciola Hepatica* Excretory-Secretory Products with TLRs on Human Monocytes. *Olgary Figueroa-Santiago, Ana M. Espino.* Department of Microbiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

During the early stage of *Fasciola hepatica* infection, the parasite secretes several proteins termed Excretory-Secretory Products (ESPs) which are believed to play important role in the parasites survival and in the development of chronic infections. The capacity to modulate the immune response of the host has been recently associated to the existence of the ESP. Also ESPs induces several mechanisms that favor the polarization of host immune response to the Th2 phenotype. To understand this sophisticated mechanism of evasion it is necessary to know the interaction between *F. hepatica* antigens and the Toll-like receptors (TLRs) that are expressed on antigen presenting cells such as monocytes. In the current study we identified the TLRs that interact with *F. hepatica* ESPs. The ESPs were separated by molecular mass using high flow ultrafiltration system followed by ion exchange chromatography (IEC) using an FPLC system. All fractions were evaluated in their capacity to interact with TLRs of human monocytes cells (THPI-CD14), which expresses most of the TLRs. In a first experiment cells were exposed to an optimized concentration of each antigen fraction or TLR agonist. In a second experiment, cells were exposed to each TLR antagonist and then stimulated with a determined antigen fraction. Our results demonstrate that ESPs >10-30kDa as well as 2 from 4 antigenic fractions purified by IEC strongly activate NF- κ B via interaction with TLR2, TLR4 and TLR8. This study is supported by grants from SCORE 1SC1AI096108-01A2, MBRS-RISE R25GM061838 and NCRR U54RR022762.

R-107 Novel G Protein-Coupled Receptor of Progesterone in *Sporothrix schenckii*. *Waleska González, Nuri Rodríguez.* Department of Microbiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Sporothrix schenckii responds to signals from the environments and adjust its metabolism to different environmental conditions. Different receptors perceive these signals when ligands bind to the receptors, resulting in the activation of different signal transduction pathways. The yeast two-hybrid assay was used to inquire into the complex signaling system that regulates the flow of information from the environment through the heterotrimeric G proteins in *S. schenckii*. We identified a receptor homologous to the human progesterone-adiponectin

Q family receptors (PAQR) as an interacting partner of SSG-2, a G α protein, of *S. schenckii*. This interaction was corroborated using Co-IP. Protein transmembrane (TM) domain analysis of SSPAQR1 revealed the 7 TM domains characteristic of these receptors and the presence of feature that characterize the Class II PAQRs. Using a yeast-based ligand binding assay, progesterone was identified as the ligand for this receptor. The effects of the hormone on *S. schenckii* yeast and mycelium growth was observed in medium containing different concentrations of progesterone (from 0.010mM to 0.500mM). No yeast cell growth was observed in agar plates at progesterone concentrations higher than 0.010mM incubated at 35°C. *S. schenckii* mycelia grew on all plates containing progesterone, at all concentrations tested and incubated at 25°C. However, as the concentration of progesterone increased, a reduction in the colony diameter was observed. This study constitutes the first report of a receptor in *S. schenckii* and the first time that a member of the PAQR family is reported to interact with a G α protein.

R-108 Silencing of a Natural Resistance Associated Macrophage Protein (Nramp) in *Sporothrix schenckii* and its effect on iron and manganese uptake. *Lizaida Pérez-Sánchez, Nuri Rodríguez-del Valle.* Microbiology and Medical Zoology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Nramp proteins are a family of divalent cation transporters that intervene in the uptake of metals such as manganese (Mn) and iron (Fe). These cations are important in the response to oxidative stress in fungi and as co-factors of metabolic functions in the cell. Nramp proteins are recognized as important mediators of host-pathogen interactions in bacteria where studies have linked the disruption of Nramp homologs with an increased sensitivity to oxidative stress and reduced virulence. In pathogenic fungi the role of Nramp in virulence has not been study. RNA interference (RNAi) was used to study the function of the *ssnramp* gene in *S. schenckii*. The pSilent-Dual2G (pSD2G) plasmid was used to generate an RNAi construct from the *ssnramp* gene 5' region (pSD2G-5'). This construct was used to transform *S. schenckii* yeast cells. Transformants were phenotypically characterized in growth curve experiments using define liquid media with different Mn concentrations (0mM to 10mM) and w/wo 5mM EDTA (metal chelating agent) to detect growth defects. The pSD2G-5' transformants were affected in their growth in liquid media with EDTA. The growth defect was suppressed when the Mn concentration was increased to 10mM. Phenotypic characterizations were also performed on solid media lacking different divalent cations. The pSD2G-5' transformants were defective in growth on solid media without Mn and without Fe. Our results provide evidence that the product of the *ssnramp* gene is needed for optimal growth of *S. schenckii* yeast cells when Mn and/or Fe are limited in the media. Support by the Dean of Medicine (UPR-MSU) and MBRS-RISE (R25GM061838).

R-109 Alpha Secretase Inhibitor Decreases the Secretion of Insulin Receptor Ectodomain from Human T Lymphocytes Exposed to High Glucose Concentrations. *Nahira I. Miscalichi-Casiano, Emma Fernández-Repollet.* Department of Pharmaceutical Sciences, School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Recent studies have shown that the soluble Insulin Receptor ectodomain (sIR α) is elevated in the plasma of Type I & II diabetic patients. We also discovered that the sIR α can be secreted from cultured T lymphocytes; however, the mechanisms responsible for this secretion remain to be elucidated. In this study we analyzed the effects of an α -secretase inhibitor (TAPI) on the secretion of sIR α from T lymphocytes at different glucose concentrations. Molt-4 T cells were cultured for 1, 6, and 24 hours at 37°C and 5% CO₂, with either low (LG; 4mM), normal glucose (NG; 7mM), or high glucose (HG; 15mM) in the presence or absence of TAPI (20 μ M). The levels of secreted sIR α were detected using a fluorescence-ELISA microplate developed in our laboratory. Culture media collected from treated cells was added to a microplate containing a capture monoclonal antibody (mAb IR α) and then detected using a primary antibody (pAb IR α) followed by a FITC-secondary antibody for 1 hour. The fluorescence emission was measured using a cytofluor 4000 microplate reader. Our data revealed that prolonged exposure (24hrs) to HG increases significantly ($p < 0.05$) the levels of sIR α secreted to the culture medium (22020 \pm 833 MFI), when compared to LG (11349 \pm 633 MFI). A significant decrease ($p < 0.05$) on the levels of sIR α was observed after exposure to TAPI with HG (19639 \pm 784 MFI). In conclusion, this study support that α -secretase plays an important role in regulating the insulin receptor shedding from T lymphocytes membrane, after exposure to high glucose concentration. Partially supported by NIH-RCMI grant G12-RR-03051.

R-110 Frequency of the PON1 (rs662), CYP2C19*2 and CYP2C19*3 Polymorphisms in the Puerto Rican Population. *Carmelo Orenge-Mercado¹, Pedro J. Santiago-Borrero², Jorge Duconge³, Carmen L. Cadilla².* ¹Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico. ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Clopidogrel (Plavix®) is a thienopyridine prodrug that requires enzymatic activation to form the active thiol compound, in order to perform its function as inhibitor of platelet aggregation in cardiovascular patients. Earlier reports have identified polymorphisms in the PON1 and CYP2C19 genes to be associated with the active compound formation. Patients carrying these polymorphisms are in a higher risk of life-

threatening thrombosis. Highly heterogeneous populations, including the Puerto Rican population have been underrepresented in these types of studies. Therefore, the allele frequencies of these polymorphisms in our population have yet to be determined. We aimed to determine the allele and genotype frequencies of PON1 (rs662), CYP2C19*2 and CYP2C19*3 polymorphisms in a representative sample obtained from the Puerto Rican Newborn Screening Program. In addition, we compared the obtained allele frequencies against those of other populations, as well as evaluate departure from the Hardy Weinberg equilibrium (HWE). Genotyping experiments were performed in 100 DNA samples extracted from Guthrie cards using the Taqman Assays. Results showed that the minor allele frequency of CYP2C19*2 and *3 and their corresponding genotypes in this Puerto Rican cohort were comparable to other ethnic groups, particularly Caucasians (0.09 and 0, respectively). On the other hand, the PON1 (rs662) allele frequency was found to be 0.50, higher than other ethnic groups. All polymorphisms analyzed were found to be within HWE ($X^2 < 3.84$). This study is exempt by IRB (protocol A4070107) and was partially funded by the RCMI grant G12RR03051.

R-111 Evolución Reciente del Régimen Hidrológico en Ríos Mediterráneos de Cabecera en España. *Julianne Miranda.* Department of Environmental Health, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La falta de disponibilidad del agua es un problema de salud pública. De esta manera, nos hemos enfocado en el estudio y cuidado de los recursos hídricos. Este proyecto se realizó como parte del internado de la Maestría en Salud Ambiental del RCM. El mismo se llevó a cabo en la Universidad de Salamanca y el Centro Hispano Luso de Investigaciones Agrarias (CIALE). El objetivo principal de este estudio fue determinar si han ocurrido cambios en los regímenes de los ríos mediterráneos de España. Para ello, se manejaron datos hidrológicos, en específico, valores máximos y mínimos de caudal y se realizaron análisis estadísticos para interpretar tendencias en los ríos. El área de estudio comprende distintas cuencas hidrográficas en el territorio nacional de España. Fueron seleccionados aquellos ríos que discurren en régimen natural y que tuvieran un mínimo de 40 años de datos disponibles. La distribución de las estaciones seleccionadas refleja el sistema montañoso de España. Se observó que varios ríos tuvieron adelantos y retrasos en su valor máximo y mínimo del caudal. También se encontró que existe una asociación (55.7%) entre el caudal y el pasar de los años y a su vez, que la mayoría de los que tuvieron significancia tenían una tendencia negativa o de disminución de caudal. Esto confirma que la disminución del caudal en los ríos es un indicador de menos agua en el cauce, teniendo como consecuencia menor disponibilidad del recurso, reduciendo las posibilidades de ser utilizada para atender las necesidades de la salud pública.

R-112 Spx Regulation of Virulence Related-attributes in *Streptococcus Mutans*. *Leila Soto Villamil^{1,2}, José A. Lemos², Isamar Rivera², Evangelia Morou¹, Augusto Elías¹.* ¹School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Rochester, New York, United States of America.

Streptococcus mutans is the major etiologic agent associated with dental caries. Hypothesis: The regulatory proteins SpxA and SpxB may be critical in the development of important virulence-related traits, including oxidative stress responses, biofilm formation, and competence development. Objective: Determine the role of Spx regulation in the expression of genes involved in biofilm formation (gtfB, gtfD) and competence development. Methods: The promoter regions of the *S. mutans* gtfBC and gtfD genes were fused to a reporter gene. The parent strain (UA159) and the Δ spxA or Δ spxB strains carrying the fusions were assayed for gene promoter activity. Competence development assay was performed by adding plasmid DNA to the cultures with or without addition of exogenous competence stimulating peptide. Results: The reporter assays failed to reveal a role for SpxA or SpxB in the transcription of gtfBC. Promoter activity for gtfD was increased in Δ spxA, suggesting that gtfD is subjected to negative regulation by SpxA. In contrast, the decrease in gtfD promoter activity in Δ spxB indicates positive regulation. Both of the spx mutant strains demonstrated a deficiency in competence development when compared to UA159, suggesting positive regulation of competence development by Spx proteins. Conclusion: Our results show that Spx plays a role in the regulation of sucrose dependent biofilm formation and the development of competence in *S. mutans*, both virulence traits associated with the pathophysiology of *S. mutans* and dental caries. This work was supported by the Training Program in Oral Science T90DE21985-01.

R-113 Analysis of Oxidative Stress Status of Plasmodium Berghei Mutants with Altered Glutathione Levels. *Vivian Padín-Irizarry¹, Rocío Castro², Sylvette Ayala-Torres².* ¹Department of Microbiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Malaria remains a major public health problem throughout the world. The disease, caused by Plasmodium parasites, is transmitted by Anopheles mosquitoes. Plasmodium infections increase oxidative stress in both the vector and the host. The glutathione (GSH) pathway is one of the parasite's primary redox defense systems against harmful reactive oxygen species (ROS). Genes involved in the GSH pathway, include γ -glutamylcysteine synthetase (ggcs, rate limiting enzyme in GSH biosynthesis) and glutathione reductase (gr, GSH recycling). We previously reported that mutant parasite lines with disrupted Plasmodium berghei ggcs- (pbggcs-) or pbgr- genes stop development in mosquitoes. Interestingly, neither gene is essential for blood sta-

ge development. However, the pbggcs- presented growth delay when compared to wild type (wt). The aim of this study is to analyze oxidative stress status of pbggcs- and pbgr- mutant parasites to understand potential mechanisms underlying growth delay. The experimental approach includes determining intracellular ROS, carbonylation of proteins and to determine the DNA damage of nuclear and mitochondrial DNA. Preliminary results show that parasites with significantly lower levels of GSH display higher ROS and number of carbonylated proteins than wt parasites. In contrast, ROS levels are lower and proteins are less carbonylated in mutant parasites with elevated GSH levels. These studies will provide new insights into the importance of GSH during the oxidative stress response and will help develop novel strategies to control the disease.

R-114 Age-dependent Accumulation of DNA Damage and Mutations in APEX1 Haploinsufficient Mice. *Ceidy Torres Ortiz¹, Karina Acevedo-Torres², Christi A. Walter³, Sylvette Ayala-Torres², Carlos A. Torres-Ramos².* ¹Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Texas Health Science Center at San Antonio, Texas, United States of America.

Repair of DNA lesions induced by Reactive Oxygen Species (ROS) is important to human health since DNA damage has been linked to aging and carcinogenesis. Apurinic/apyrimidinic endonuclease 1 or Apex1, is a key enzyme in the process of Base Excision Repair (BER), a process responsible for repairing the majority of the DNA lesions induced by ROS. Studies using APEX1 haploinsufficient mice (APEX1^{+/-}) show increased oxidative stress. We hypothesize that APEX1^{+/-} leads to age-dependent increases in DNA damage and mutations caused by increased levels of ROS. We tested this hypothesis by determining the amount of DNA damage and antioxidants gene expression from liver tissue in three different age groups (6-, 16- and 28-months-old) using wild type (WT) and APEX1^{+/-} mice. To detect DNA damage we performed a gene specific assay based on PCR that can detect a variety of DNA lesions. Our results show age-dependent increases in mtDNA and nDNA damage in both WT and Apex1^{+/-} mice. Analysis of spontaneous mutant frequencies using the lacI transgene system (Big Blue Mouse) show age-dependent increases in mutation frequency in liver tissue from old mice in both Apex1^{+/+}lacI^{+/+} and Apex1^{+/-}lacI^{+/+} mice. Finally, analysis of gene expression using RT-PCR shows increase levels of the mitochondrial superoxide dismutase (SOD2) gene in the 28-month-old Apex1^{+/-} mice. We conclude that APEX1 haploinsufficiency leads to age-dependent accumulation of ROS, DNA damage, and mutations in liver. These results underscore the role of BER in maintaining genome stability in liver during aging. Sponsored by 5SC3GM08475902, 5R25GM061838-09, and G12RR03051.

R-115 Physiological Characterization of Deletion Strains of *Streptococcus Mutans*: A High-throughput Approach. *Jhezanuel C. Goncalves-Cordero*^{1,2}, *Robert G. Quivey*², *Roberta Fausto-ferri*², *Evangelia Morou*¹, *Agusto Elías*¹. ¹School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Rochester, New York, United States of America.

Streptococcus mutans significantly contributes to dental caries in humans. The organism has developed adaptive mechanisms to survive acidic environmental stress, including changes in membrane fatty acid composition. The *fabH* and *fabD* genes encode proteins that are responsible for the biosynthesis of membrane fatty acids in *S. mutans* and are considered essential genes. Objective: To evaluate the *Streptococcus mutans* mutant strains, SMu1590 (*fabH*) and SMu1587 (*fabD*) ability to withstand various stress conditions such as acid and oxidative challenges and to form biofilms in the presence of sucrose and glucose. Hypothesis: SMu1590 and SMu1587 will grow and form biofilm like the parent strain (UA159). Methods: A Bioscreen growth curve was used to evaluate how the different mutants deleted for *fabH* (SMu1590) and *fabD* (SMu1587) behave in acid and oxidative environment. Biofilm quantification also was used to compare biofilm formation of different strains with parent strain (UA159). Results: Bioscreen growth curve MU1587 (Δ *fabD*) showed growth defects in acid and oxidative stress growth conditions. MU1590 (Δ *fabH*) grew similarly to the parent strain UA159 under all conditions tested. Both mutants displayed significantly decreased biofilm formation in the presence of sucrose or glucose, as compared to parent strain. Conclusion: The putative *fabD* mutant (MU1587) is an authentic mutant strain and the data also suggests that the putative *fabH* mutant is not a deletion mutant. Funding: NIH grant 5 T32 DE 7202-20

R-116 Function Evaluation of a Fluorescently Tagged Inositol 1,4,5-trisphosphate Receptor. *Kristian T. Poventud*^{1,2}, *David I. Yule*², *Lyndee Knowlton*², *Agusto Elías*¹, *Evangelia Morou*¹. ¹School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Rochester, New York, Puerto Rico.

Inositol 1,4,5-trisphosphate (IP3) receptors found around the body are also located in the acinar cells of the Salivon in salivary glands used in the process of secreting saliva. In the past decades locating and observing the functionality of the different types of IP3 receptors has been restricted because of the vitality these three receptors carry in the survival of each cell. Hypothesis: The function and location of "R3 cherry" (fluorescence tag) for the Type 3 inositol 1,4,5-trisphosphate receptors (IP3R3) will help us evaluate them within each cell at special agonist concentrations. Methods: DT-40 stable cell line made of Chicken B lymphocyte helped us generate a triple KO with

the intention of transfecting the DNA of interest (type 3 IP3 receptors) to the cells by first linearizing the DNA and then transfecting it. Pre-loading the transfected cells in calcium signaling dye (Fura 2-am) made the agonist (Carbachol CCh) concentration responses easier to be viewed through the calcium these cells are going to liberate. These calcium signals were viewed by measuring a difference in wavelength in high-speed digital imaging confocal microscopy. Results: A different result in the stable line response was obtained compared to the wild type suggesting sensitivity problems in the receptor transfection and linearizing process. Conclusion: Future studies will clear out sensitivity problems presented and investigate if a genetic defect in the calcium signaling machinery expressed in salivary gland cells is responsible for patients with some forms of "dry mouth" disease. Funding: NIH grant 5 T32 DE 7202-20

R-117 Characterization of EHOp-016, a Novel Small Molecule Inhibitor of Rac GTPase, as a Potential Inhibitor of Metastatic Cancer. *Linette Castillo-Pichardo*¹, *Brenda L. Montalvo-Ortiz*², *Eliud Hernández*², *Alina De La Mota-Peynado*², *Tessa Humphries-Bickley*², *Cornelis P. Vlaar*². ¹Department of Biochemistry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The Rho GTPase family regulates cellular functions that promote cancer progression and metastasis. Of the Rho GTPases, Rac via its downstream effector p21-activated kinase (PAK) regulates actin cytoskeleton reorganization to form cell surface extensions (lamellipodia) required for cell migration/invasion during cancer metastasis. Rac hyperactivation and overexpression is associated with aggressive cancers; and thus, interference of the interaction of Rac with its direct upstream activators, guanine nucleotide exchange factors (GEFs), is a viable strategy for inhibiting Rac activity. We synthesized EHOp-016, a novel Rac inhibitor, based on the structure of the established Rac/Rac GEF inhibitor NSC23766. Using MDA-MB-435 metastatic cancer cells that overexpress Rac and exhibit high endogenous Rac activity, we show EHOp-016, with an IC50 of 1.1 microM, is a 100-fold more efficient than NSC23766. EHOp-016 is specific for Rac1 and Rac3 and does not inhibit other Rho GTPases. EHOp-016 also inhibits the Rac activity of MDA-MB-231 metastatic breast cancer cells and inhibits Rac-directed lamellipodia formation in both cell lines. EHOp-016 inhibits the association of the Rac GEF Vav2 with a nucleotide-free Rac1 (G15A) in MDA-MB-435 cells that demonstrate high levels of active Vav2. EHOp-016 inhibits PAK1 activity and migration of metastatic cancer cells and, at effective concentrations, does not affect the viability of transformed mammary epithelial cells (MCF-10A). Therefore, EHOp-016 holds promise as a targeted therapeutic agent for the treatment of metastatic cancers with high Rac activity.

R-118 Estradiol and Metabotropic Glutamate Receptors Interaction within the Anxiety Neural Circuitry at the Behavioral and Protein Levels.

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Anxiety is one of the most common psychiatric disorders affecting females twice more than males. In hippocampal cells, estradiol regulates group I/II metabotropic glutamate receptors (mGluRs: mGluR1a/5 and mGluR2/3, respectively), by membrane interaction. Thus, estradiol might modulate female anxiety within the basolateral amygdala (BLA) through mGluRs. We hypothesized that: 1) amygdalar activation of mGluRs might produce anxiolytic-like effects; and 2) mGluR protein expression will be up-regulated, in an estradiol dependent manner. Ovariectomized female rats, with (OVX+EB) and without (OVX) estradiol treatment were compared to male rats. We infused (S)-3,5-dihydroxyphenylglycine (DHPG), a group I mGluR agonist into the BLA. Anxiety was analyzed using the elevated plus maze (EPM) and risk assessment behaviors (RABs); and protein expression by western blots experiments. DHPG (1.0 μ M) increased the percentage of open time and entries; and reduced RABs in OVX+EB ($p < 0.05$), but not OVX and/or male rats. In the amygdala, protein expression of mGluR1a ($p = 0.04$) and mGluR2/3 ($p = 0.02$) were up-regulated in OVX+EB than OVX and/or male rats. No differences were found for mGluR5. In the hippocampus no changes were detected. Thus, activation of group I mGluRs, within the BLA, depends upon estradiol to modulate female anxiety. This effect may be underlined by region-specific estradiol genomic and nongenomic effect.

R-119 A Mitochondria-targeted Antioxidant Protects Huntington's Disease Cells from Death and DNA Damage.

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Huntington's disease (HD) is a devastating disorder distinguished by involuntary movements, deficient motor function and cognitive impairment. Oxidative stress and mitochondrial dysfunction have been strongly implicated in HD-associated neurodegeneration. However, the precise mechanisms by which mutant huntingtin (htt) modulate the levels of oxidative damage that result in mitochondrial dysfunction are not known. Previously we showed increased levels of mitochondrial DNA (mtDNA) damage and lower mitochondrial respiratory function in cell and animal models of HD. Therefore, we wanted to test the hypothesis that mutant htt induces toxicity via the generation of mitochondrial reactive oxygen species. To test our hypothesis, we employed immortalized striatal neuronal cell lines derived from wild type (WT) HdhQ7 mice and the HD knock-in HdhQ111 mouse model of HD. We measured the levels of mitochondria-generated superoxide (O_2^-) using confocal microscopy and found that HD cells exhibit 1.3-fold higher levels of mitochondrial O_2^- compared to WT cells. Using the trypan blue exclusion method we found that treatment with XJB-5-131, a mitochondria-targeted antioxidant, protects HD cells from rotenone-induced cell death. Moreover, XJB-5-131 prevented the induction of basal and rotenone-induced mtDNA damage in HD cells to levels similar to WT and untreated cells, respectively. Our findings show that a mitochondria specific antioxidant suppresses toxicity in HD striatal cells and raises the possibility of pharmacological targeting of mitochondria to treat HD. Supported by U54-NS039408-06, R25-GM061838, and G12RR-03051.

R-120 Prelimbic Inactivation Blocks Avoidance without Reducing Freezing: Resolving the Conflict.

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In fear conditioning, prelimbic cortex (PL) inactivation reduced both tone and contextual freezing, suggesting that PL mediates fear. In avoidance conditioning, rats respond to the tone by moving to a safe place, escaping the shock. As avoidance responses are learned, freezing responses diminish, suggesting fear reduction. Does PL play a role in avoidance, even though freezing is diminished? To address this issue, rats previously trained to press a bar for food were later trained to avoid a fear conditioned tone by stepping onto a nearby platform. After 10 days of training, avoidance responses gradually increased, while tone-induced freezing gradually decreased. After conditioning, rats were infused with saline (SAL) or GABAA agonist muscimol (MUS) in PL and subjected to an avoidance expression test. PL inactivation blocked avoidance responses and, as expected, reduced contextual freezing. Surprisingly, however, PL inactivation did not reduce freezing to the tone, even though it blocked avoidance. These findings suggest a more complex

role for PL than simply mediating freezing. In threatening situations, PL may resolve conflicts between behaviors so that the most advantageous defensive behavior is favored. Contextual freezing is incompatible with bar-pressing for food whereas avoidance is incompatible with tone freezing. Inactivating PL prevents the expression of the more advantageous behaviors (contextual freezing and avoidance). This interpretation is consistent with the conflict monitoring function of the dorsal anterior cingulate cortex, a human homologue of PL.

R-121 Tyrosine Hydroxylase-like Immunoreactive Neurons in the Biomphalaria Nervous System.

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The parasitic disease schistosomiasis, or “snail fever”, is estimated to affect up to 10% of the world’s population. The digenetic trematode worm *Schistosoma mansoni* that causes the form of schistosomiasis found in the Western Hemisphere employs the freshwater snail *Biomphalaria glabrata* as its primary intermediate host. It has been reported that trematode infection can modify snail behavior, specifically altering feeding and mating. Moreover, infection can alter the levels of biogenic amines, e.g. dopamine, that are major regulators of molluscan behaviors. This study examined the localization of tyrosine hydroxylase-like immunoreactivity (THli), a marker for dopaminergic neurons, in the central and peripheral neural systems that participate in food-finding and mate-detection in gastropods. Within the central nervous system (CNS), THli neurons were located in the cerebral, pedal, buccal, and visceral ganglia. The medial lip nerve (MLN) and lateral lip nerve (LLN) of the cerebral ganglion were particularly rich in THli fibers. Examination of the distal termination of the MLN and LLN revealed clusters of THli neurons in the lips and at the base of the tentacles. The THli neurons had a bipolar morphology, with one process penetrating the epithelium and the other giving rise to an axon projecting to the cerebral ganglion. Overall, the central distribution of THli neurons suggests that, as in other gastropods, dopamine regulates the feeding, locomotion, and reproductive systems of *Biomphalaria*. The peripheral localization of THli neurons indicates that dopamine is also a major chemosensory neurotransmitter.

R-122 Localization of Serotonin in the Central Nervous System and Periphery of Biomphalaria Glabrata: An Intermediate Host for Schistosomiasis.

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to Rico; ²Institute of Neurobiology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The parasitic disease schistosomiasis, or “snail fever”, affects an estimated 200 million people worldwide. The digenetic trematode worm *Schistosoma mansoni* that causes the form of schistosomiasis found in the Western Hemisphere employs the freshwater snail *Biomphalaria glabrata* as its primary intermediate host. It has been proposed that the transition from the free-living *S. mansoni* miracidium to parasitic mother sporocyst depends upon uptake of biogenic amines, e.g. serotonin, from the snail host. However, little is known about potential sources of serotonin in *B. glabrata* tissues. This investigation examined the localization of serotonin-like immunoreactivity (SHTli) in the central nervous system (CNS) and peripheral tissues of *B. glabrata*. The anterior foot and body wall were densely innervated by SHTli fibers but no peripheral immunoreactive neuronal somata were detected. Clusters of SHTli neurons were observed in the cerebral, pedal, left parietal and visceral ganglia, suggesting that the peripheral serotonergic fibers originate from the CNS. Double-labeling experiments of the three major pedal nerves disclosed the origins of efferent serotonergic projections from specific neurons in the pedal ganglion. Overall, the central distribution of SHTli neurons suggests that, as in other gastropods, serotonin regulates the feeding, locomotion, and reproductive systems of *Biomphalaria*. The projections to the foot and body wall indicate that serotonin may also participate in defensive responses or nociception.

R-123 The Neuropeptide Proctolin Modulates Serotonin-induced Aggression in a Crustacean Animal Model.

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Neuropeptides are small molecules composed of a few amino acids used by neurons to mediate or modulate communication between each other. Proctolin (RYLPT), a neuropeptide first identified in the nervous system of insects, is thought to function as a modulatory neurohormone. We want to determine whether it plays a role in modulating aggressive behavior in a crustacean, the freshwater prawn. Adult prawns are of three types (small, yellow [Y] and blue [B] claws), each representing a level of aggression, B males being at the top of the dominance hierarchy. Prawn aggression increases when serotonin (SHT) is injected in the hemolymph. We hypothesized that neuropepti-

des such as proctolin modulate behavior by affecting the actions of transmitters such as 5HT. We first mapped proctolin distribution in the prawn's nervous system and found it in the brain, circumesophageal, subesophageal, thoracic and abdominal ganglia, being quite prominent in the olfactory glomeruli. We then performed behavioral observation experiments recording the interactions between B/Y pairs before and after injecting proctolin + 5HT. A dominance index (DI) was calculated for each pair tested. Under normal conditions, B was more aggressive (DI=2.33) than Y (DI=1.65; n=4). When Y was injected with 5HT, it became more aggressive (DI=2.50, n=5). When Ys were injected with proctolin + 5HT, the observed increase in aggression (DI=2.25, n=12) was significantly ($p < 0.05$) less than when 5HT was injected alone. These results suggest that proctolin attenuates the effect of 5HT on aggression in the prawn. Supported by: SC3GM084763, RCMI G12RR03051, RISE R25-GM061838.

R-124 Analysis of the Ryan White HIV/AIDS Program Part D Grants from 2005 through 2009. Audilis Sánchez¹, Matthew James Newland². ¹Department of Health Services Administration, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Health Resources and Services Administration, U.S. Department of Health and Human Services, Maryland, United States of America.

The Ryan White HIV/AIDS Program is the largest Federal program devoted to a single disease. The Part D of this program supports family-oriented primary medical care for women, infants, children, and youth living with HIV/AIDS. The National HIV epidemiology has shifted towards an increase of infections in women and youth. An evaluation of Part D grantees' performance during a recent 5-year period demonstrates how grantees have responded to the changing HIV epidemiology and the impact on the services. The purpose was to examine how grantees from 2005 through 2009 serve HIV infected clients, provide medical care, and fulfill the goals of the Program. The analysis assesses grantees' ability to find new cases of women and behaviorally infected youth in high prevalence areas. The bases for study were the 89 active grantees, including the Department of Health of Puerto Rico. The basic methodology was the collection of clinical and fiscal data from grantees and providers' annual reports, budgets and epidemiological data in each service area; compared and statistically analyzed using correlation and multiple regressions. The preliminary findings indicate an increase in HIV+ clients, were around 75% are females, 58% African-Americans and 25% Hispanics. More than half of these HIV+ exposures have been by heterosexual contact, 56% in 2009. This project is part of a research of the Division of Community Based Programs, HIV/AIDS Bureau at the Health Resources and Services Administration.

R-125 Parents of Children with Down Syndrome. Gladys Crespo-Ramos. Department of Social Sciences-Psychology, University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico.

This is a qualitative research conducted to identify and understand the stages that parents of children with Down syndrome go through. The Grounded Theory was used and more specifically the systematic model of Strauss and Corbin. In this study participated 11 Puerto Rican families, with a total of 18 fathers and mothers, data were collected through semi-structured interviews and recorded on video. The results of this research are the stages of DS Parents, these are the steps that parents go through when face the news and raising their children with Down syndrome. It was identified three phases called Duel Phase, Guidance Phase and Achievement Phase. The Grief Phase is characterized by the stages of denial, depression and anxiety. The second Orientation Phase is characterized with Orientation Needs. Finally Achievement Phase is characterized by the stages of Acceptance, Pride and DS Hope. The completion of each phase gives way to a virtue, using a psychodynamic framework for the creation of the theory. In form of conclusion it includes common myths about Down syndrome, a review of the services provided by the Department of Education of Puerto Rico and parent recommendations.

R-126 On Space Radiation-Induced Cancer in the International Space Station Astronauts. Pierina D. Agosto¹, Ernesto P. Esteban². ¹Department of Biology, University of Puerto Rico Humacao Campus, Humacao, Puerto Rico; ²Physics Department, University of Puerto Rico Humacao Campus, Humacao, Puerto Rico.

The carcinogenic effects of Galactic Cosmic Rays (GCR) and Solar Particle Events (SPE) on the International Space Station (ISS) crew are investigated. To mimic a carcinogenesis process, we have modified the mathematical Jones-Esposito model of radiation-induced myelopoiesis, by adding new compartments corresponding to mutated and cancerous cells populations. This new bio-mathematical model can be written in terms of a set of $n+4$ non-linear differential equations, where in this work $n=2$ is the number of assumed mutations. A dedicated MATHEMATICA computer code was written to solve the non-differential equations and thus predict at anytime the evolution of normal, mutated, killed, and cancerous cell populations. For GCR, we use the thermo Luminescent (TL) space dose measurements on board the ISS's Russian segment and detected by the "Pille" system during ISS Expedition 18. In this research, we have considered continuous cycles of four months missions to the ISS, and then coming back to Earth for a year. These cycles were repeated until a cancer cell population threshold ($2.5 \cdot 10^{-4}$) is reached. Under such assumptions, is very unlikely that a GCR exposure will increase cancer risks in ISS's astronauts. Next, we consider the SPE detected on April 21, 2002. Contrary to the GCR dose rate, the SPE dose rate is a non-constant. The propo-

sed carcinogenesis-mathematical model predicts for astronauts a cancer initiation sequence in about 18.2 hours after the SPE event reached the ISS.

R-127 Perception of Neuroscience among Students at the University of Puerto Rico-Río Piedras Campus. *Nelson D. Cruz-Bermúdez, Beatriz Su-ro-Maldonado, Frances Nieves-Casanovas, José Rodríguez-Romaguera.* Department of Psychology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Neuroscience research is carried on by scientists from diverse disciplines such as biology and psychology whose questions extend from genetics to behavior. Given the implications of neuroscience discoveries on mental health, public policy, education, marketing, and law, we wanted to explore what is the perception about neuroscience among students at the UPR-Río Piedras. This study was designed to gather information regarding students' academic interests and beliefs about neuroscience. We suspected that students would have different ideas about neuroscience depending on factors such as school of precedence, concentration and career choice. The questionnaire we developed includes questions on demographics, general interests in neuroscience and implications of neuroscience. Preliminary results (n=112) show that 88% of the students do not know a neuroscientist and 80% do not know about a neuroscience research project or laboratory. We have also found that 90% of the students from the College of Natural Sciences believe that knowledge about neuroscience makes them more competitive while only 50% of the students from the College of Business Administration believe so. Most students would like to have additional information about neuroscience and would take a neuroscience course. Other analyses will be performed. The results of this study will be useful to identify misconceptions students have about neuroscience and to evaluate the development and implementation of interdepartmental neuroscience programs. Approved by IRB. Supported by the Department of Psychology and the College of Social Sciences, UPR-Río Piedras.

R-128 Opportunities and Methodological Challenges in Mental Health Research in the Context of Puerto Rican Prisons. *Irene Lafarga-Previdi, Ana C. Vasques-Guzzi.* Department of Psychology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

The prison population of Puerto Rico consists of approximately 13,000 inmates. Preliminary studies on the needs of this population have identified stress as a variable that directly affects the health of this population. As part of our study that aimed to develop and validate a stress measurement scale for Puerto Rican inmates, we have identified variables that facilitate or hinder research in this setting. Our method entails the recruitment of 300 participants, divided by gender and security level. The stu-

dy consists of three parts: recruitment with informed consent, questionnaire administration through ACASI technology and gathering of saliva samples to measure cortisol. The experience of implementation of our prison study has shown the following enabling variables: 1) having the permission and cooperation of the superintendent and personnel, 2) direct contact with the participants and knowledge of the prison's idiosyncratic operations procedure. It has also revealed the following limiting variables: 1) restrictions of the prison system, 2) loss of contact with subjects, 3) hostile guards and 4) long consent form and questionnaire. Research in Puerto Rico's prison system requires a group of investigators that are capable of implementing flexible method plans without losing sight of the objective of the study to do research in prison. It is important to have a realistic and unbiased perspective of the population under study and their living conditions in order to have a successful research process. This study was funded by the National Institute of Drug Abuse R24-DAO24868-OJA2.

R-129 Extinction Switches Hippocampal Context Signaling from Danger to Safety. *Edith Brignon-Pérez, Enmanuelle Pardilla-Delgado, Fernando Sotres-Bayón, Demetrio Sierra-Mercado, Gregory J. Quirk.* Departments of Psychiatry, Anatomy & Neurobiology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The hippocampus (HPC) is known to signal context but its information content may change after conditioning and extinction experiences. In fact, fear expression becomes more dependent on context signaling after extinction than after conditioning. Consistent with hippocampal encoding of both contextual associations, it was found that non-overlapping sets of hippocampal neurons signal either conditioning or extinction. Further, it has been suggested that the HPC mediates contextual regulation via the medial prefrontal cortex (mPFC). We focused on the ventral HPC (vHPC) because, unlike its dorsal counterpart, vHPC projects directly to mPFC. To test the hypothesis that conditioning and extinction change hippocampal context signaling, we compared the effects of acute vHPC muscimol-inactivation (MUS) at different time points: before conditioning; after conditioning; and, after extinction. On day 1, rats received auditory fear conditioning. On day 2, rats underwent extinction training. On day 3, rats were subjected to a fear expression test. We found no appreciable contextual freezing in any phase, probably due to the competing motivation to press for food. We therefore used the rate of bar pressing prior to any tones as our measure of context fear. Before conditioning (day 1), inactivation of vHPC had no effect on press rates (per min) compared to saline-infused (SAL) rats. After conditioning (day 2), press rates in SAL rats decreased, indicating context fear, but MUS did not. After extinction training (day 3), SAL rats returned to pre-conditioning levels of pressing, indicating successful retrieval of extinction, but MUS prevented this. These results suggest that extinction switches

hippocampal context signaling, from danger (after conditioning) to safety (after extinction), perhaps because the vHPC signals the last thing learned about the context. We suggest that safety signaling by vHPC is mediated via feed-forward inhibition of prelimbic mPFC output neurons. Funding: ENDURE NeuroID NIH – NIGMS funded program to the UPRRR Grant Number: 1R25GM097635, EBP.

R-130 A structure-activity Study of 4R-cembranoid Reversal of DFP-inflicted Functional Impairment in Hippocampal Slices. *Angelie M. Del Valle-Rodríguez¹, Dinely Pérez¹, Pedro A. Ferchmin¹, Khalid El Sayed², Vesna A. Eterovic¹.* ¹Universidad Central del Caribe, Bayamón, Puerto Rico; ²University of Louisiana-Monroe, Louisiana, United States of America.

Diisopropylfluorophosphate (DFP) is an organophosphate insecticide used as a surrogate for more toxic chemical warfare nerve agents. DFP produces neurodegeneration in vivo and irreversibly decreases the area of population spikes (PS) recorded from the CA1 region of the acute hippocampal slice preparation. Tobacco-derived (1S,2E,4R,6R,7E,11E)-2,7,11-cembratriene-4,6-diol (4R) is a neuroprotective natural product that reverses DFP-induced damage in the hippocampal slice. The objective was to define the molecular features of the cembranoid molecule that lead to high potency against DFP, using the hippocampal slice assay. 4R analogues were obtained by semisynthetic or bacterial biocatalytic transformations of the natural product scaffold. Acute hippocampal slices were divided into three groups: DFP control (slices exposed to DFP), neuroprotection by the cembranoid (slices exposed to DFP, washed for 30min and then exposed to each cembranoid), and toxicity control (slices exposed to cembranoid). PS were measured before and after the treatment. Exposure to 100µM DFP for 10 min reduced the PS to approx. 30% of the original value. Superfusion with 10µM of 4R 30 min after DFP reversed the effect of DFP by 80%. Similar protective activity was observed with the 6-keto, 9β-OH, 10α-OH and 10β-OH analogues. On the other hand, the 4S and 4R-O-methyl analogues were totally devoid of protective activity but the activity was restored in the 4R-O-methyl-6-keto analogue. These results suggest that the oxygens in positions 4 and 6 are crucial for the 4R binding to its target, which triggers the protection against the organophosphate toxicity.

R-131 Langerhans Cell Sarcoma Presenting in a Child. *William A. González-Marqués¹, María S. Correa-Rivas¹, Román Vélez-Rosario¹, Erskin Bezares², Carlos Ocasio².* ¹Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

We present a 5 year old girl who developed a hyperpigmented skin lesion on her back 2 months prior to admission followed by additional lesions in the face, neck, and back, and associated left cervical lymphadenopathy. She was hospitalized and computed tomography (CT) scans revealed cervical, mediastinal, axillary, and mesenteric lymphadenopathy highly suspicious of a lymphoproliferative disorder. Since she was in stable condition, she was discharged home with plans to follow her up as outpatient. Five days later skin lesions evolved into purpuric palpable lesions in the trunk and face. She had fever, associated abdominal pain, poor oral intake, shortness of breath and dehydration. Clinical concerns were to rule out meningococemia vs a malignant process as skin lesions flourished abruptly in a matter of hours and clinical course, deterioration and death, was considered catastrophic. Autopsy disclosed a Langerhans cell sarcoma as underlying cause of death, with systemic involvement and massive lymphadenopathy, mimicking lymphoma. We present this case due to the rarity of this entity in the pediatric population.

R-132 Atypical Course of Bickerstaff's Brainstem Encephalitis Showing Relapsing Remitting Presentation: A Case Report. *Javier Chapa¹, Gishlaine Alfonso¹, Arturo Ortiz².* ¹Department of Internal Medicine, Neurology Section, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Private Neurology Clinic on Ashford Medical Center, San Juan, Puerto Rico.

Bickerstaff's Brainstem Encephalitis (BBE) is a rare inflammatory disease of the central nervous system (CNS) presenting with ataxia, ophthalmoplegia and cognitive impairment that falls in the spectrum of Guillain Barré Syndrome (GBS). In this study we describe a case of a 57 y/o woman that on 4/2011 started with gait impairment accompanied with falls, incoordination, double vision and drowsiness. Extensive work up was performed only significant for MRI hyperintensities on brainstem. Multiple sclerosis, GBS, Myasthenia Gravis, Cervical Myelitis, Viral Encephalitis and Metabolic process were rule out with clinical findings at that moment. BBE was diagnosed and with a course of steroids and immunoglobulin's symptoms and signs resolved. A follow up Brain MRI revealed absence of brainstem lesions on 7/2011 supporting the resolution of symptoms. On 9/2011 patient presented with similar clinic as 4/2011 but this time preceded by flu like illness. New work up was performed, but again was only significant for brainstem lesion on MRI. Diagnostic impression of BBE persists after ruling out other CNS disorder. At the moment little is described about BBE in literature due to its rarity but most of the patients show a monophasic remitting course with good outcome and a few show incomplete remissions. Moreover of its rarity, the significance of our report is that we present a case of BBE that show a relapsing remitting course, presentation never described in the literature before.

R-133 Cranial Nerve Palsy as a Rare Complication of Hepatitis B Vaccine: Case Report. *José A. Díaz-Pimentel¹, Bernadette Nazario-López², Maritza Arroyo-Muñiz².* ¹Neurology Section, Department of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Hepatitis B virus infection can cause serious liver disease, thus, vaccine administration can help prevent this comorbidity. However, in certain cases, vaccination can lead to serious and unexpected adverse reactions. We report a 35 y/o female that developed headache, right side weakness of the face with loss of sensation and mandibular deviation on mouth opening 12 hours after received the 3rd dose of the vaccine. During the course of the week she developed blurred vision on the right eye. Patient was referred to our clinics 3 months following onset of symptoms. After 8 months of monitor and supportive outpatient treatment, her visual disturbance corrected to baseline function however, the cranial nerve V and VII remained impaired. Neuroimaging studies rule out intracranial pathology. CSF and serum analysis ruled out infectious process. Further work up for malignancy was unremarkable. Few cases of adverse reaction after hepatitis B vaccine administration have been reported and the pathogenesis has been associated with pachymeningitis and/or immune mediated processes. Rapid identification and treatment has resulted in good prognosis in those patients. We performed Myeloperoxidase Antineutrophil Cytoplasmic Antibody test which was negative. We report this case to make scientific awareness of cranial nerve palsy as a rare complication of Hepatitis B vaccine, which needs to be detected timely so that the affected patient can have a better outcome. This is the first case reported in Puerto Rico associating hepatitis B Vaccine administration to affectation of visual function and cranial nerve V and VII.

R-134 Post-Influenza Vaccine Encephalomyelitis Presenting with Cerebellar Manifestations: Case Report. *Bernadette Nazario-López¹, José A. Díaz-Pimentel², Maritza Arroyo-Muñiz².* ¹Neurology Section, Department of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Post-influenza vaccine encephalomyelitis is a rare complication with serious neurologic sequelae to patients. We present a 44 y/o female that developed altered mental status with associated headache, lightheadedness, chills, tremors, generalized weakness and numbness, 2 days after receipt of her influenza vaccine. Prompt treatment was not provided since diagnosis was confused with other etiologies such as Guillain Barré syndrome, multiple sclerosis, encephalitis, or neuropathy. Multiple work-up tests done including brain MRI, lumbar puncture,

electrodiagnostic studies, and EEG were normal. Ten months following onset of symptoms, a Brain SPECT study was performed and showed evidence of hypofunctional cortical areas in the left hemisphere. Patient was referred to our clinics 11 months following onset of symptoms. Neurological exam was remarkable for dysmetria, dysdiadochokinesia, ataxic gait, paresthesias, echolalia, short attention span, and difficulty in inhibiting emotions. New brain MRI ordered only showed small right frontal periventricular white matter hyperintensities in T2W and FLAIR sequences. No significant changes were observed when compared to prior test. A diagnosis of post-influenza vaccine encephalomyelitis was established. Similar cases have been reported in the literature, but neurological sequelae have been minimal due to prompt diagnosis and treatment with IV methylprednisolone. This case illustrates the importance of rapid recognition of post-influenza vaccine encephalomyelitis, to establish adequate therapy and prevent of long-term neurologic complications and detrimental effects on the quality of life.

R-135 Case Report: Familial Jejunal Atresia in Two Siblings Infants. *Kary M. Bouet¹, Inés García¹, Lourdes García², María C. González², Marta Valcárcel².* ¹Neonatology Section, Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Jejunal Atresia is listed as a "rare disease" by the National Institutes of Health and affects less than 200,000 people in the US population. Jejunal atresia results from an ischemic injury from a vascular accident or from mechanical obstruction in the developing intestine. The atresia may present as an isolated finding or as part of a syndrome, for example apple peel jejunal atresia. Fifty-seven cases of apple peel jejunal atresia have been reported in the English literature. Patients with this anomaly have a high incidence of prematurity, malrotation, short gut syndrome, and mortality. We report two siblings with jejunal atresia with evidence of small bowel obstruction. Apple peel jejunal atresia was strongly considered but was discarded after upper gastrointestinal contrast study. In the past 5 years, there have been 16 cases of jejunal atresia treated in the Neonatal Intensive Care Unit in the University Pediatric Hospital. None of these neonates had apple peel jejunal atresia, once again emphasizing that this condition is very rare. To our knowledge, this is the first report of siblings with jejunal atresia in Puerto Rico. There is evidence that some cases of congenital intestinal atresia are familial and may be associated with an autosomal recessive type of inheritance. The reported neonates were born to the same parents who were not consanguineous. Chromosomal studies were performed in both neonates and were reported without abnormalities. These reports highlight the importance of prenatal evaluation and family history for early diagnosis and treatment of newborns with signs of small bowel obstruction.

R-136 Medulloblastoma with Extensive Nodularity: Case Report and Review of the Literature. *Jorge G. Billoch-Lima¹, Román Vélez-Rosario¹, Emmanuel Agosto-Arroyo¹, María Correa-Rivas¹, Gloria Colón-González², Leslie Soto-Vélez².* ¹Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Hematology Oncology Department, University Pediatric Hospital, San Juan, Puerto Rico.

Medulloblastoma, in addition to being the most common malignant brain tumor of childhood, is the prototype of the embryonal (primitive) neoplasms of the central nervous system. These neoplasms are highly cellular, poorly differentiated, and mitotically active tumors with reminiscence to the developing embryonic nervous system. They are highly aggressive and are designated to the highest grading (IV) in the World Health Organization's Classification of Tumors of the Central Nervous System. It presents as an expansile mass in the cerebellum or fourth ventricle (posterior fossa location) in a mostly pediatric population. Histologically, they are composed of densely packed cells with round to oval, hyperchromatic nuclei, sometimes forming neuroblastic rosettes. The Medulloblastoma with extensive nodularity is a variant that accounts for 3% of all medulloblastomas and is characterized by the same histologic features with intervening, well delimited nodules of reticulin free stroma, which represent regions of neuronal maturation. It is associated with a good prognosis, especially in the patient group that it affects most commonly (<3y), the same group which presents a poor clinical outcome in cases of classic medulloblastoma. We present the case of a 7 month old boy who was brought to attention due to a bulging posterior fontanel, eye staring, and irritability. Imaging studies revealed a large posterior fossa mass with foramen magnum extension and hydrocephalus. We report this case due to its rarity and to showcase its histological and immunohistochemical features, as well as to portray the latest information in the literature.

R-137 Synovial Sarcoma of the Hypopharynx in Pregnancy. *Laureano Giraldez, Francisco Ruiz, Antonio Riera-March.* Department of Otolaryngology Head and Neck Surgery, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Head and neck synovial sarcomas are a very rare form of soft tissue sarcoma that usually are found in the pharyngeal wall. This case report presents the first reported synovial sarcoma of the hypopharynx in a pregnant female. Patient with 23 year-old G1P0A0 with an IUP of 28 WGEA presents with 1 year history of dysphonia, progressive dysphagia, weight loss, followed by shortness of breath while pregnant. Patient had a large hypopharyngeal mass on flexible laryngoscopy obstructing the airway. CT of the Neck with contrast and MRI of the neck with gadolinium showed a complex cystic/solid enhancing

mass of 3.3 cm x 4.6 cm x 9.3 cm, arising from the pharyngeal wall below the hyoid bone and extending above the epiglottis to the oropharynx. Patient was taken to OR at 30 WGEA age for an awake tracheotomy, followed by direct laryngoscopy and biopsy with tumor debulking. Histologic revealed a biphasic synovial sarcoma. Patient had a well baby by C-section at 34 WGEA. A left partial pharyngectomy was performed with findings of an 8 mm exophytic tumor arising from the pharyngeal wall. Pathology confirmed biphasic synovial sarcoma with clear surgical margins. Treatment of synovial sarcoma consists of tumor excision with generous margins and then radiotherapy ± chemotherapy. We performed a lateral pharyngotomy with a partial pharyngectomy because of the small area of attachment of the tumor to the pharyngeal wall to attain clear surgical margins. We recommended chemotherapy + radiotherapy, but our patient avoided further treatment. No evidence of local recurrence or distant metastasis at 30 months follow up.

R-138 Composite Low Grade Follicular Lymphoma and Diffuse Large B cell Lymphoma: A Case Report and Review of Literature. *Ramiro Pérez-Duardo, Román Vélez, William González, María Marcos.* School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Composite Lymphomas are rare, with a relative frequency ranging from 1 to 4.7% of lymphoma cases. Currently, they are defined as the presence of two or more histologically distinct types of lymphoma involving the same anatomic site. We report a case of a 44 year old female patient who clinically presented with enlarged lymph nodes and a retroperitoneal mass. An excisional biopsy of one enlarged lymph node was performed revealing two malignant components; one consisted of a low grade Follicular and completely separated areas of diffuse large B cell lymphoma with extensive necrosis, making the histological identification somewhat difficult since the necrotic areas were originally considered of inflammatory or infectious nature. Several days later, a second biopsy of the retroperitoneal mass was performed revealing only the Diffuse Large B cell component. The patient died few days after the diagnosis. This represents an unusual combination of entities that should be evaluated for treatment options.

R-139 Loss of Anti-CD20 Expression Following Treatment with Rituximab in a Diffuse Large B Cell Lymphoma. *Glorimar Rivera, Romá Vélez, Jorge G. Billoch, Alexandra Jiménez.* Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Rituximab is a murine/human chimeric anti-CD20 monoclonal antibody that has become the key molecular targeting drug for CD20-positive B-cell lymphoma. CD20-negative phenotypic change in CD20 positive lymphomas after rituximab

treatment has been reported indicating that the phenomenon after the use of rituximab may not be rare. Mechanisms of cell destruction that has been demonstrated to be activated by rituximab binding to CD20 include direct signaling of apoptosis, complement activation and cell mediated cytotoxicity. Resistance could be mediated by alterations in CD20 expression. Clonal evolution and epigenetic changes of the CD20 protein, between others, have been proposed as possible explanation. We present the case of a twenty-nine year old male complaining of cough and shortness of breath who presented an anterior mediastinal mass for which a core needle biopsy was done. Immunostains were diagnostic of primary mediastinal (thymic) large B cell lymphoma (PMBL). Nine months later, after treatment with an anti-CD20 agent, the patient presented a pancreatic mass for which another core needle biopsy was done. Recurrent diffuse large B cell lymphoma was diagnosed, but the anti-CD20 was negative. The Anti-CD79a B-cell marker was positive which confirmed the diagnosis of diffuse large B cell lymphoma. We can, tentatively, conclude that treatment with anti-CD20 was not successful in this case, even though, through an unknown mechanism, CD20 expression was lost in the recurrent lymphoma.

R-140 Mucinous Carcinoma of the Breast Metastasizing to the Eyelid: A Case Report. *Román Vélez-Rosario, Emmanuel Agosto-Arroyo, Alexandra Jiménez-González, Anarda González-Rodríguez.* Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Mucinous carcinoma of the breast is a type of cancer that accounts for less than 2% of invasive breast carcinomas and is associated with a relatively favorable prognosis. This is the case of a 60 year-old female patient with no history of systemic illnesses, who presented with an enlarging vascular lesion, located at the left upper eyelid, clinically suggestive of a hemangioma. An excisional biopsy of the lesion was performed. The specimen consisted of an irregular fragment of dark gray rubbery tissue, covered by a thin lining of mucosa, which measured 1 cm in greatest dimension. It showed a central cystic area filled with gray fluid and blood. The microscopic examination revealed (mucin pools containing numerous nests of neoplastic cells with glandular and solid architecture). The neoplastic cells were positive to estrogen receptor, progesterone receptor, GCDPF-15 and CK7; focally positive to mammaglobin and CA125, and negative to CK20, CDX2, CA19.9, TTF-1 and HER-2-NEU. Both the morphology and immunostains confirmed the diagnosis of mucinous adenocarcinoma metastatic to the eyelid. This is an exceedingly rare metastasis site for a mucinous carcinoma of the breast. To our knowledge, only one case has been reported in the literature of a metastatic invasive breast carcinoma to the eyelid. But this case would be the first report of mucinous carcinoma of the breast metastasizing to the eyelid.

R-141 Parosteal Osteosarcoma: A case Report with Review of the Literature. *Ángel Muñoz-Mirabal¹, María Correa-Rivas¹, Juan Bibiloni², Edil O. Jiménez², Edgardo Colón³.* ¹Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Orthopedic Surgery, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³Department of Radiology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Parosteal osteosarcoma is a rare low grade osteosarcoma which arises on the surface of bone, with a slight female predominance in the third to fifth decade. It is almost exclusively seen in the appendicular skeleton; the distal femur being the most common location. Microscopically, it is characterized by well formed bony trabeculae seen in a spindle cell proliferation stroma. About 15% will show high grade spindle cell sarcoma (dedifferentiation) with the presence of such dedifferentiated areas associated with a prognosis similar to that of conventional osteosarcoma. We present a 31 year old woman with no history of systemic diseases who after stretching her arms felt a painless bump on the posterior aspect of her left arm. Anteroposterior and lateral plain radiographs of the arm disclosed a lobulated superficial mass attached to the humeral bone without medullary invasion. A computerized tomography of the lesion confirmed the superficial juxtacortical location of the osteoblastic bone lesion of approximately 3 cm in greatest dimension and no medullary invasion. Chest computed tomography revealed no metastases. A biopsy of the lesion disclosed a parosteal osteosarcoma of the left humerus. We report this case because its rarity and unusual location of the tumor, and review the medical literature.

R-142 Anti-NMDA Receptor Encephalitis: Case Series Report at the University Pediatric Hospital. *Jessica González¹, Jocelyn Montalvo², Leyda I. Sánchez², María Dávila², Alicia Fernández².* ¹Department of Neurology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Anti-NMDA (N-methyl D-aspartate) receptor encephalitis is a recently characterized acute form of encephalitis, caused by autoimmune reaction against NR1- and NR2-subunits of the glutamate NMDA receptor. This multistage syndrome is characterized by a subacute onset of psychiatric symptoms, language disturbances, seizures, movement disorders and dysautonomias. This is followed by a fluctuating state of consciousness, alternating between episodes of catatonia

and agitation. The disease is associated with tumors, mostly ovarian teratomas; however, there are a substantial number of cases with no detectable malignancy, especially in children. Most of the patients recover slowly after treatment with intravenous immunoglobulins (IVIG's), intravenous (IV) steroids, plasma exchange and immunomodulators. Three confirmed cases of anti-NMDA receptor encephalitis have been diagnosed and treated at our institution, two males and one female, between the ages of 9 and 17 years. Patients presented with psychiatric symptoms, language disturbances, dyskinesias and seizures. Work up for malignancy was negative for the three patients. Two patients have begun showing clinical improvement after receiving treatment with IVIGs, IV Steroids, Plasmapheresis, and immunomodulators. The other patient has not received immunomodulatory therapy due to recurrent sepsis and continues on mechanical ventilation, sedated and paralyzed without improvement of symptoms.

R-143 When Proteins Attack. *Esteban A. Del Pilar-Morales¹, Ulises Nobo², Arelis Febles³, Carlos Sánchez³, Javier Chapa³, Mervin Figueroa³.* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Hospital HIMA de Caguas, Puerto Rico; ³Hospital Universitario de Adultos, San Juan, Puerto Rico.

Case of a 56 year old woman with hypertension experienced headaches and episodes of disorientation. She was seen by her primary physician on several occasions, and treated for tension headaches. Given disorientation, a dementia work-up was undertaken. Lumbar puncture performed to further evaluate and rule out infectious etiologies. Evaluation of CSF did not reveal abnormalities in regards of cell count or chemistry. Given clinical presentation CSF sample sent for analysis of 14-3-3 and tau protein, suspecting Creutzfeldt-Jakob disease. Further work-up with brain MRI with contrast enhancement as well as electroencephalography were performed, which were compatible with CJD. CSF analysis showed a positive result for 14-3-3 and tau proteins, making the diagnosis almost certain. The patient died soon thereafter. The National Prion Disease Pathology Surveillance Center was contacted for the purpose of performing an autopsy. Final report found tissue positive for prion proteins. Further molecular analysis confirmed the diagnosis of sCJD. The CDC stipulates four criteria for probable sCJD, our patient meeting all. Definitive diagnosis still requires these features along with neuropathologic findings. In summary, we analyzed the case of a woman presenting with rapidly progressive dementia. After thorough history and examination, CJD suspected for which a lumbar puncture was performed, showing proteins 14-3-3 and tau, making the diagnosis of CJD very probable at the time, diagnosis later confirmed by brain autopsy. This would represent the first reported case of sCJD in Puertorican family living in Puerto Rico.

R-144 Use of Dexmetomidine for Craniotomy and Clipping of Aneurysm in a 13 y/o Male with Severe Coarctation of the Aorta. *Caroll Vázquez, Víctor Cardona, César Hernández-Arroyo.* Department of Anesthesia, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Coarctation of the Aorta is a congenital heart defect in which there is narrowing of the aortic lumen, more common in males, and can present with mitral stenosis, bicuspid aortic valve, and cerebral aneurysms. This is a case of a 13 y/o male with past medical history of bronchial asthma who developed symptom of "the worst headache of his life" followed along with tonic-clonic seizures. The patient was taken to a peripheral hospital where head CT studies revealed a subarachnoid hemorrhage, and subsequently transferred to our institution for management. During neurosurgical evaluation, the patient developed mental status changes, and an emergency DSA study showed a left internal carotid artery aneurysm, along with coarctation of the aorta. Cardiology service evaluation revealed the patient had absent pulses in distal lower extremities, EKG findings of left ventricle hypertrophy and atrial enlargement, and an echocardiogram showed a severe short segment juxtaductal coarctation of the aorta with 55-60% gradient. The patient was taken to the OR for craniotomy and clipping of aneurysm. An IV access obtained, smooth IV induction and intubation performed, maintaining hemodynamic stability. An arterial line placed for constant blood pressure monitoring, and a dexmedetomidine drip (0.2-0.3 mcg/kg/hr) was started and continued until the end of the surgery. The patient tolerated the procedure well and maintained stable hemodynamic parameters. At post op, the patient was transferred to PICU and consulted to cardiothoracic surgery for possible intervention after recovery.

R-145 Ejercicio en Intervalos de Alta Intensidad y Salud Cardiovascular: Estudio de Caso. *Juan Trinidad¹, Juliana Pollock¹, Ángel Casul¹.* ¹Department of Physical Therapy, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Las enfermedades cardiovasculares (ECV) continúan siendo un problema principal de salud en el Mundo. El sobrepeso, la obesidad y la inactividad física son factores de riesgo de ECV con alta prevalencia en Puerto Rico, particularmente entre las mujeres, para quienes las ECV son la primera causa de muerte prematura. La falta de tiempo es un factor que limita la participación regular en actividades físicas. El entrenamiento de corta duración en intervalos de alta intensidad (EIAI) parece mejorar aspectos metabólicos y de salud que antes se atribuían solo a entrenamientos de moderada intensidad y larga duración. Sin embargo, la aceptabilidad y el efecto del EIAI en la capacidad funcional y riesgo de ECV en mujeres con sobrepeso y obesi-

dad no se han estudiado. Por lo tanto, en este estudio de caso se evaluó la aceptabilidad del EAI mediante el porcentaje de sesiones completadas, la capacidad funcional con la prueba de caminar 1 milla, el riesgo de ECV utilizando pruebas de glucosa y lípidos en ayuno y el índice de masa corporal (IMC) antes y después del EAI en dos mujeres, una de 40 años y obesa (IMC= 40 kg/m²) y otra de 50 años y en sobrepeso (IMC= 33.6 kg/m²). Ambas completaron el EAI: 15 minutos por sesión, 3 días en semana, por 6 semanas. Hallazgos: Ambas mujeres redujeron el tiempo para completar la milla y completaron 100% de las sesiones sin lesiones o problemas musculares. Esto sugiere que el EAI es aceptable y efectivo en mejorar la capacidad funcional en mujeres en sobrepeso u obesas, aspectos que deben confirmarse con un estudio de intervención controlado y aleatorizado.

R-146 Anti-NMDAR Encephalitis: A New Challenge in the Patient Management Admitted to the Pediatric Intensive Care Unit. *Carlos J. Ocasio-Del Valle¹, Alicia Fernández-Sein².* ¹Critical Care Medicine Section, Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Anti-NMDAR encephalitis is an autoimmune disorder with severe neurologic sequelae that was first described in 2007. Most patients develop a multistage illness that progresses from psychosis, memory deficits, seizures, and language disintegration into a state of unresponsiveness with catatonic features often associated with abnormal movements, and autonomic and breathing instability. In many studies, emphasis has been given to recognition of the clinical presentation and the therapeutic protocols for the management of this illness, including IVIG, high-dose steroid, and immunosuppressive therapy; but few aim to describe the therapeutic challenges of the most common comorbidities and complications faced in management at PICU. Our discussion will focus on the nutrition, sedation and analgesic management of two adolescent patients diagnosed with Anti-NMDAR encephalitis after admission to the PICU. Key therapeutic interventions in ICU management for patients suffering from this condition should focus on early tracheostomy placement, prompt enteral feeds through percutaneous gastrostomy, introduction of long acting benzodiazepines early in the course of illness; and intermittent use of short acting neuromuscular blockade to decrease the intensity of movement and ease patient care while avoiding critical illness myopathy. Anti-NMDAR encephalitis is a complex systemic disease process that requires management by a multidisciplinary team, and prompt acquisition of the above therapeutic interventions is necessary to decrease condition comorbidities and ICU related complications.

R-147 Mucinous Tubular and Spindle Cell Carcinoma of the Kidney: Report of Two Cases. *Alexandra Jiménez, María Marcos-Martínez.* Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Mucinous tubular and spindle cell carcinoma (MTSCC) is a rare morphologic variant of renal cell carcinoma (RCC) characterized by an epithelial-tubular proliferation admixed with spindle cell areas and a mucinous stroma. It is thought to be of the loop of Henle or distal nephron origin. It has a low malignant potential and is usually confined to the kidney. It is frequently misdiagnosed due to its microscopic appearance which often simulates a spindle cell or sarcomatoid differentiation which in an otherwise conventional renal cell carcinoma would carry a much more aggressive behavior. We report two cases of a well-defined renal mass diagnosed as mucinous tubular and spindle cell tumor. Our first case is of a 42-year-old female who presented with mild hematuria and a Computer Tomography (CT) scan revealing a left lower pole solid renal mass. The second case is of a 55-year-old female with mild flank pain and a right upper pole renal mass found on ultrasound. The pathologic examination of both masses revealed tightly packed elongated tubules separated by pale mucinous stroma. Individual cells are small and present with a cuboidal shape and low grade nuclear features. Due to this tumors overlap of morphological and immunohistochemical features with other renal cell neoplasms it is important to be mindful of this diagnosis due to its favorable prognosis when compared to other renal neoplasms. We report these cases for their rarity.

R-148 Calcinosis Cutis after Calcium Chloride Administration in a Group of Neonates. *Zayhara Reyes-Bou, Marta Valcárcel, Lourdes García-Fragoso, Inés García, Giselle Marrero-Clemente.* Neonatology Section, Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

There is a growing critical shortage of electrolytes and minerals for parenteral nutrition. During a shortage, calcium gluconate was removed from the parenteral nutrition solutions and calcium chloride was administered intravenously. Complications of intravenous calcium therapy include extravasation, calcium deposition into soft tissues and cutaneous necrosis. We report six neonates who required intravenous infusion of calcium chloride to maintain adequate calcium levels. A minimal amount of calcium chloride was administered (100mg/kg), only to patients fully dependent on parenteral nutrition. In this population, gestational ages ranged from 25 to 39 weeks, and birth weights from 659 to 2800 grams. The patients developed well-defined, firm subcutaneous lesions in the distribution of the cannulation sites, within 9 days to 4 weeks after the first calcium chloride administration. The clinical and radiological findings of these lesions were consistent with calcinosis cutis. The

infants were managed conservatively and the lesions healed spontaneously. Information about the diagnosis and management of calcium extravasation-related injuries is limited. Extravasations of calcium may result in deposition of calcium salt in subcutaneous tissue or calcinosis cutis. The calcification may also occur without extravasation. Even if calcinosis cutis is severe it is best managed conservatively. We emphasized identifying the diagnosis correctly to avoid unnecessary interventions. A history of calcium administration coupled with radiological evidence of calcification should prevent the unnecessary use of antibiotics and surgical procedures.

R-149 Primary Meningeal Sarcoma in Children: First Case Reported in Puerto Rico. *Leslie A. Soto-Vélez¹, Dennis Borrero², Nilka Barrios².*

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Primary meningeal sarcomas are very rare and aggressive tumors that represent less than 5% of all intracranial tumors in childhood. They affect children more than adults but only a few cases have been reported in literature. This is a 4 year old female patient without history of systemic illness that was well until April 2010 when a routine CBC showed anemia, later on September 2010 patient presented with daily afternoon fevers without focus of infection. Fevers responded to antibiotic therapy but relapsed when treatment was finished. Extensive work up performed to rule out autoimmune, infectious and malignant disorders. All workup was negative except for the gallium scan that showed increased uptake at mid frontal area, brain abscess was suspected. When head CT scan and MRI performed it showed a left frontal lesion crossing midline without edema. Biopsy and total resection of the mass performed. Pathology final report showed a meningeal sarcoma with myogenic differentiation. Meningeal sarcomas have less than 50% survival rate after resection at 1 year due to high rate of recurrence. Due to limited number of cases no specific protocol of therapy have been established and treatment is very dependent on histology of tumor, reason why early brain biopsy is a key point on diagnosis. This is the first case of primary meningeal sarcoma in children reported in Puerto Rico, which also had a unique presentation compared to cases previously reported on literature. This case shows the importance of an extensive work up in patients that presents with systemic symptoms without obvious focus.

R-150 Rehabilitation in Neuroacanthocytosis: A Case Report. *Kathya E. Ramos, Edward Ramos.* Rehabilitation, and Sports Medicine, Department of Physical Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Objective: To present the rehabilitation outcomes of a patient diagnosed with Neuroacanthocytosis admitted to an inpatient rehabilitation facility. **Case:** A 44 y/o puertorrican male with history of diabetes mellitus- type II, and family history of Neuroacanthocytosis (brother), that in July 2005 presented with left hemiparesis. Imaging studies, at that time, revealed right basal ganglia ischemic infarct. On September 2007 he presented with new onset seizures requiring hospitalization due to status epilepticus. Patient then developed progressive choreoathetoid movements in trunk with associated poor neck and trunk control. On September 2008 he was admitted to an inpatient rehabilitation center with the diagnosis of Neuroacanthocytosis. **Results:** Functional independence measurement (FIM) scores on admission and discharge were compared. On admission, patient was totally dependent in ADLs and was not able to ambulate or to use a wheelchair to move across areas. FIM assessment upon discharge showed progress in wheelchair mobility (FIM change =150%), Toileting (FIM change =150%), Eating (FIM change =50%), Transfers (FIM change = 33%), Grooming (FIM change =33%), Bladder control (FIM change = 33%), and Dressing (FIM change =25%). **Discussion:** Description of a specific regimen of therapies in patients with Neuroacanthocytosis has not been made. After receiving a combination of physical, occupational and speech/cognitive therapies in an inpatient setting, this patient was able to improve towards his independence in ADLs, Bladder/Bowel function, and Motor performance, and maintained a steady state in others, such as cognition.

R-151 An Unusual Case of Melanoma Metastases to the Breast. *Laura A. Ortiz¹, Ricardo Cruet², Josette Axmayer³, Carmen Cruz¹.* ¹Comprehensive Cancer Center, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Universidad Metropolitana, Cupey, Puerto Rico; ³University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico.

Metastasis of malignant melanoma to the breast is unusual. Most cases present with a complain of unilateral breast lesions. Here we present a case of an asymptomatic patient with multiple bilateral melanoma metastatic lesions to the breast. This is the case of a 74 years old Hispanic white female with a history of asthma, high blood pressure and non-insulin-dependent diabetes mellitus. On February 2004 she presented with an ulcerated left plantar pigmented lesion that was excised elsewhere in conjunction with 4 inguinal lymph nodes. Pathology reports showed a diagnosis of malignant melanoma Clark level III (2 mm) with no vascular invasion, while the four inguinal nodes were negative for metastases. The lateral deep margin of resection was less than 1 mm. On May, 2004 she underwent a re-excision of the left plantar wound, which showed no evidence of residual melanoma therefore she had an uneventful recovery. Patient was followed-up for every 3 months. On November, 2004 a bilateral mammography revealed no significant

changes. On November, 2005 she underwent a regular follow-up with no evidence of local or regional recurrence. General physical exams, including breast exams were normal however a mammography showed multiple bilateral suspicious nodules, highly suggestive of metastatic disease. Bilateral breast biopsies showed bilateral metastatic lesions to the breast and left axillary area. The patient was referred to an oncologist, but she refused treatment. She died on May, 2006. Regular breast imaging, including mammography and sonomamography, are essential for identification of breast metastasis in melanoma patients.

R-152 Can a Real Drug Cure an Imaginary Infection? A 63-Year-Old Woman with Delusions of Parasitosis and Agitation. *Héctor J. Guerra-Garófalo¹, Rafael Trinidad-Hernández², Juan J. González-Concepción², Ivonne Z. Jiménez-Velásquez².* ¹Geriatric Division, Internal Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Delusional parasitosis (DP) is characterized by the fixed belief that one is infested with small living creatures. The aim of this report is to describe (DP) as the presenting sign of antipsychotic medication withdrawal. A 63-year-old woman presented with 5 days of delusions, agitation, and generalized skin itching of marked severity in the forearms, allegedly caused by cockroaches. She has history of arterial hypertension and schizoaffective bipolar disorder. Her medications were oral enalapril 5 mg/d, aripiprazole 5 mg/d, valproic acid 500 mg bid, and clonazepam 0.5 mg qhs. Physical exam and blood chemistry were unremarkable. Psychiatric exam showed a well groomed woman with psychomotor agitation, delusions of parasitosis and persecution, tactile hallucinations, rapid and circumstantial speech, confabulation and poor insight. She didn't received aripiprazole for 5 days. Oral quetiapine 25 mg/d was started. After 3 days, aripiprazole 5 mg/d was resumed. Because of poor response, the dose was increased to 5 mg TID. Behavioral issues finally required admission to a psychiatry unit. She was discharged 2 weeks later on paliperidone 9 mg/d, with no delusions of parasitosis but with disorganized behavior and new delusions. This case shows the need to assess specific complaints presented within a broader range of psychiatric symptoms. Indeed, DP has been reported as the presenting feature of dementia. In the present case, it was the presenting symptom of antipsychotic withdrawal. Only 1 case previously reported successful use of paliperidone for the specific treatment of secondary (DP).

R-153 Using Medical Records for Surveillance of Cardiovascular Diseases in Puerto Rico. *Juan C. Zevallos¹, Jorge Yarzebski², Juan A. González¹, Hernando Mattei³, Héctor Banchs¹, Robert J. Goldberg².* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Massachusetts

Medical School, Massachusetts, United States of America; ³Department of Social Sciences, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Cardiovascular diseases (CVD) are the leading cause of death in most countries of Latin America and the Caribbean. Surprisingly, there is little information on the demographic characteristics of this population, as well as on risk factors and the medical management of these patients. Purpose: To investigate the possibility of using medical records to support the surveillance of CVD. Methods: This is a retrospective study that uses a computerized system to obtain medical information from medical records for patients hospitalized with a diagnosis of myocardial infarction, stroke or heart failure at 15 hospitals in Puerto Rico. Results: The distribution of medical records by diagnosis was as follows: 2191 for myocardial infarction, 2768 for stroke and 1110 for heart failure. In 2007 and 2009, respectively, the mean age of patients was 68 and 69 years, and the percentage of patients who were men was 47% and 46%. Risk factor prevalence in 2007 and 2009 was as follows: history of diabetes (54%, 55%), history of hypertension (81%, 81%), history of heart failure (7%, 6%), history of stroke (5%, 5%) and current smoking (15%, 14%). Secondary prevention strategies in the same years involved quitting smoking (3%, 6%) and optimal medication at discharge (45%, 48%). Conclusion: Medical records constitute an accessible source of valuable information for use in CVD surveillance in Puerto Rico. The majority of the hospitalized patients were elderly women with hypertension and diabetes. The limited use of secondary prevention could inform the education of medical personnel.

R-154 Risk Factors for Cesarean Hysterectomy in Patients with Abnormal Placentation at University District Hospital. *Mireily Rivera-Rosado, Juana I. Rivera-Viñas.* Obstetrics and Gynecology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Obstetric hemorrhage is the most important cause of maternal mortality worldwide, accounting for 30% of all maternal deaths (150,000/year). In USA, hemorrhage remains the second most common cause of pregnancy related mortality. The leading cause of postpartum hemorrhage is abnormalplacentation. The majority of the morbidities are attributable to the associated with placenta accreta and/or the need for hysterectomy. In PR, there is no statistical information available regarding abnormal placentation. Objective: The aim of this research is to study the relationship of abnormal placentation and cesarean hyste-rectomy risk factors at UDH. Method: This retrospective case study was conducted using 60 records of patients from 2001-2008. Logistic regression was used. Results: The average age was 29.3 y/o, average BMI was 29.6, hx of previous cesarean was 45% (n=27), of placenta previa was 1.7%(N=1) and of uterine curettage was 26.7% (N=16). We

found that 33.3% (N=20) had a cesarean hysterectomy and 41.7% (N=25) had post partum hemo-rrhage. Also 51.7% (N=31) received blood transfusion. For non-obese patients the hospital stay ≥ 4 day is 2.8x less frequent than in obese patients. The probability of cesarean hyst was 7.7 times higher if patient had history of previous C/S. (CI 95%= 2.8-21.6). Conclusion: The probability of cesarean hysterectomy in patients with abnormal placentation was significantly increased in patients with previous cesarean sections. By decreasing the rate of cesarean section we can decrease the incidence of cesarean hysterectomy and its comorbidities.

R-155 Synchronous Gastric Epithelioid Gastrointestinal Stromal Tumor and Mesenteric Small Lymphocytic Lymphoma: A case report and Review of Literature. *Dana Delgado-Colón¹, Román Vélez¹, Emmanuel Agosto¹, Juan Lojo².* ¹Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Gastrointestinal stromal tumors (GISTs) occurring synchronously with other malignancies is a rare occurrence that has increasingly been reported in the literature, with slightly above 30 cases in the literature. Most of these cases consist of a gastric stromal tumor occurring concurrently with a gastric or gastrointestinal adenocarcinoma, but carcinoid tumors, lymphomas and one case of chronic myelogenous leukemia have been reported. Most of the synchronous lymphomas reported have been low-grade lymphomas of the mucosa-associated lymphoid tissue (MALT) type or high-grade diffuse large B-cell lymphomas (DLBCL). We present the case of a 63 year old female with history of abdominal discomfort who was found with a submucosal gastric tumor and an incidental finding of multiple concurrent mesenteric masses suggestive of intraabdominal lymphadenopathy. The gastric tumor was completely resected and a biopsy of the mesenteric mass, suspected to be a lymphoma, was done for further management. After histopathological evaluation, the diagnosis of an epithelioid gastrointestinal stromal tumor synchronous with a small lymphocytic lymphoma (SLL) in the mesentery was made. Due to complete resection, size (3.1cm) and low index of proliferation (<5%), the GIST is considered of low risk of recurrence. Although multiple cases of synchronous GISTs and lymphomas have been reported, no previous cases of synchronous SLL and GIST were found in a review of the literature.

Second Poster Session

R-156 Clinical Profile and Mortality of Puerto Ricans Hospitalized with Acute Stroke. *Abiezer Rodríguez¹, Rafael Rodríguez-Mercado², Fernando Santiago³, Ulises Nobo¹, Juan C. Zevallos³.*

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Background: Limited information is available about contemporary mortality in Puerto Ricans hospitalized with stroke. We examined the clinical characteristics, in-hospital, and one-year mortality rates of Puerto Ricans hospitalized with an acute stroke. Design/Methods: Observational study using data from the Puerto Rico Stroke Registry. The study population consisted of patients hospitalized with an initial acute stroke in 11 medical centers of Puerto Rico in 2007. In-hospital mortality was calculated as the percentage of patients with stroke who died during the index hospitalization; one-year all-cause mortality was determined through the review of death records in the National Death Index. Results: Of 1528 consecutive Puerto Rican patients hospitalized with an acute stroke, 85% had an ischemic stroke. The mean age was 70 (+ 28) years, and 53% were women. The study population had a high prevalence of comorbidities: 86% had hypertension, 52% had diabetes, 26% had hyperlipidemia, and 9% were current smokers. The overall in-hospital mortality was 11% and the one-year all-cause mortality was 26%. As compared to men, women were older (71 years vs. 68 years), more likely to be hypertensive (89% vs. 83%, p=0.001), had similar odds of dying during hospitalization (OR=1.1 [95%CI= 0.8–1.6]), and more likely to die one year after discharge (OR=1.3 [95%CI= 1.1–1.5]). Discussion: The high in-hospital and one-year mortality after an initial acute stroke in Puerto Ricans warrants close monitoring of the clinical characteristics, death rates and associated comorbidities.

R-157 ¿Es Necesario Repetir los Valores Críticos? *Consuelo Climent-Peris¹, Jorge G. Billoch-Lima¹, Román Vélez-Rosario¹, Mercy Maldonado-Belardo².* ¹Department of Pathology and Laboratory Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Laboratorio Clínico, Administración de Servicios Médicos de Puerto Rico, San Juan, Puerto Rico.

Un valor crítico es un resultado de laboratorio que refleja una condición que puede amenazar la vida del paciente. Las agencias reguladoras y acreditadoras de los laboratorios clínicos requieren que estos tengan procedimientos para informar inmediatamente estos resultados al personal de salud a cargo del paciente. Antes de notificar un valor crítico, el resultado se verifica repitiendo el análisis para asegurar su exactitud. Esto atrasa el reporte del resultado y aumenta el costo. El objetivo de este estudio es determinar si es necesario repetir los valores críticos o si podemos omitir la repetición del análisis. Para esto seleccionamos 9 pruebas que representan la mayoría de los valores críticos de la sección de química: cloruro, sodio, potasio, bicarbonato, calcio, creatinina, fósforo, magnesio y bilirrubina

total. Se analizaron 100 resultados repetidos consecutivos para cada prueba. Se calculó el valor absoluto y el por ciento de la diferencia para cada resultado. Con estos datos se determinó el promedio de la diferencia absoluta de cada prueba y se comparó con el error tolerable del laboratorio para cada prueba. El valor promedio obtenido de la diferencia absoluta y el promedio del por ciento de la diferencia estuvieron dentro del intervalo aceptable para cada prueba. Ningún resultado repetido se identificó como un error, ya que ninguno estuvo fuera de los límites aceptables. En conclusión, se puede obviar la repetición de los valores críticos, ya que, con los analizadores actuales, los resultados son exactos y mejoramos el tiempo de reporte sin afectar la calidad del resultado.

R-158 Health Literacy vs. Family History on Contraception Use Among Women Attending a Pregnancy Clinic. Yailis M. Medina¹, Juan C. Jorge², Mariangely Alemán³, Stephanie D. Rivera², Orlando M. Santiago⁴. ¹Obstetrics and Gynecology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ⁴Dr. Federico Trilla University of Puerto Rico Hospital, Carolina, Puerto Rico.

It is critical to determine the clinical and social determinants of contraception use among women attending OB/GYN clinics to create an effective health literacy program that targets them. Level of education (up to high school [HS] versus college [CE]), misconceptions on contraception use based on clinical history, and access to medical care may influence contraception use. Patients who received services in a pregnancy clinic completed a self-reported questionnaire (N=94). Data was analyzed with Pearson Correlation Test with confidence interval (CI) attained at 95%. An 85% of patients reported having access to medical care but 55% of them reported no history of contraception use. In fact, 50% of pregnancies were unplanned. CE women were more likely to use contraceptives than HS women (49% vs. 27%) without significant differences on the type of contraceptive method. Pregnant women with a history of sexual initiation during adulthood (> 19 y/o) are 1.76 times more likely to use contraception than those with sexual initiation during adolescence (< 18 y/o) (95% CI [0.59- 5.27]). Pregnant women whom mothers gave birth during adulthood are 1.6 times more likely to use contraception than those with mothers who gave birth during adolescence (95% CI [0.60- 4.30]). Our data indicates that patients have adequate clinical information on contraception use but that family history has some influence on the management of their own reproductive state. Thus, our health literacy program on contraception must target the mothers of adolescent non-pregnant females to reduce the frequency of unplanned pregnancies. Approved by IRB.

R-159 Evaluation of a Promoter Methylation Panel in Plasma Cell Free DNA to Screen for Colorectal Cancer in Hispanics. María del Mar González-Pons¹, Heriberto M. Rodríguez², Patricia Delgado³, Francisco Velázquez¹, Mercedes Y. Lacourt¹, Alberto Cardona⁴. ¹Puerto Rico Comprehensive Cancer Center, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico; ⁴School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Detection of quantitative and qualitative changes in cell-free, tumor-derived nucleic acids in cancer patients are being evaluated as potential screening, monitoring and diagnostic tools. Genetic and epigenetic changes, such as methylation, have been studied in cell-free plasma DNA (cfpDNA) as non-invasive colorectal cancer (CRC) diagnostic markers. A gene panel with the diagnostic accuracy necessary for clinical use has not been defined. We evaluated the detection of promoter hypermethylation in a gene panel previously used to define CIMP in CRC tumors, as plasma biomarkers by methylation specific PCR. Eight CIMP-specific gene promoters (CACNA1G, IGF2, NEUROG1, RUNX3, SOCS1, hMLH1, p16, CRABP1) were analyzed in 40 age- and-gender matched plasma samples (20 CRC and 20 controls; mean age 67 ± 12.2 years; 20 females). Five of the genes examined revealed a 100% unmethylation pattern. p16 was found to be more likely methylated in controls (11%) whereas NEUROG1 and CRABP1 were more likely to be methylated in CRC cases (6% and 33%, respectively). 53.3% of CRC and 48% controls had ≥1 methylated genes (OR= 1.24, 95% CI 0.34-4.46). The use of ≥1 methylated genes detected CRC with 40% sensitivity and 65% specificity. We report the first evaluation of the methylation pattern of an eight-gene panel as a CRC biomarker in Hispanics. Our preliminary findings showed that genes were mostly unmethylated in cases and controls. NEUROG1 and CRABP1 were found to be most likely methylated in CRC patients, but the diagnostic accuracy of this panel was poor as a CRC screening biomarker.

R-160 Behavioral Manifestations of HIV/AIDS Stigma among Health Professionals. Marinilda Rivera-Díaz¹, Nelson Varas-Díaz¹, Mark Padilla², Marcos Javier Reyes³, Beatriz Suro⁴, Doralis Coriano⁴. ¹Graduate School of Social Work, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Michigan, Michigan, United States of America; ³Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico; ⁴University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

With more than 29,000 cases of HIV/AIDS, Puerto Rico has been severely impacted by the epidemic. Consequently, a growing number of Puerto Ricans with HIV/AIDS will need access to quality HIV-related services. Stigmatizing attitudes among health professionals have been documented as a barrier for HIV treatment services in Puerto Rico (Varas, Serrano & Toro, 2005). However, there is lack of research on how those attitudes are behaviorally manifested in clinical encounters, and their implications for HIV/AIDS prevention and treatment. This poster reports results from a study with the following objectives: 1) identify behavioral manifestations of HIV/AIDS stigma among health professionals; 2) identify how people with HIV/AIDS (PWHAs) interpret physicians' behaviors in the medical encounter as potentially stigmatizing; and 3) develop the Inventory of Behavioral Manifestations of HIV/AIDS Stigma. Data were drawn from a sequential mixed-method project involving focus groups with PWHAs, observational analysis of standardized patient (SP) encounters, and video-recordings of SP simulations. For the purpose of this presentation, we discuss the focus group findings as part of objectives 1 and 2. Sixty PWHAs participated in focus groups distributed according with the HIV/AIDS main routes of transmission in the Island. Participants were asked to discuss behavioral manifestations of stigma in clinical encounters. We report several behavioral manifestations of stigma, including: denying medical treatment due to physician's fear for contagion and using double gloves or excessive protection for certain interventions.

R-161 Participation and Occupational Competence Strategies of Hispanic Older Men Who Live Alone. *Elsa M. Orellano¹, Marlene Rosario².* ¹Graduate Occupational Therapy, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Older men who live alone are at greater risk for restrictions in daily life activities participation than those living with others due to the presence of higher levels of disease, disabilities, and social risks. Participation in daily life activities is a significant prerequisite and goal for healthy living. However, it is unknown what factors support participation of Hispanic older men who live alone. This study's aim was to identify factors that supported daily participation of Hispanic older men who live alone. The objective was to describe the strategies used by the sample to maintain their ability to live independently and participate in life activities. Twenty Hispanic live-alone men 70 years and older were included. A concurrent nested mixed method design was used. The quantitative data entailed the administration of a tool to measure participation levels in daily life activities. The qualitative data involved in-depth interviews with a phenomenological approach to facilitate interpretation of the results. Data analysis included descriptive statistics and the Stevick-

Colaizzi-Keen Method of phenomenological analysis. Evident themes that emerged from the data included keeping active in fulfilling occupations, the use of practical social support, occupational adaptations to activities, and regarding life with humor. The emergence of these strategies from our data suggest that health promotion services targeted to older men who live alone should address culturally relevant as well as gender specific approaches to support this population health, independence, and participation in daily life activities. Approved by IRB.

R-162 Association of Troponin Levels and Complications in Puerto Ricans with Acute Myocardial Infarction. *Pedro E. Vargas¹, Rafael A. Cox², Rosella Marmorato², Juan C. Zevallos³.* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Cardiology Section, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Acute myocardial infarction (AMI) is the leading single cause of death in the US and in Puerto Rico. Serious electrical and mechanical complications of AMI include atrioventricular block, ventricular tachycardia/fibrillation, rupture of the ventricular septum, papillary muscle and ventricular wall, heart failure (HF), and cardiogenic shock. Because high troponin I (Tn I) serum levels may worsen AMI prognosis, we analyzed the association of Tn I levels and serious complications and mortality in Puerto Ricans hospitalized with AMI. Methods: The medical records of 2204 consecutive patients from the Puerto Rico Heart Attack Study who were hospitalized in 16 medical centers during 2007 and 2009 were examined. Sex differences of peak Tn I levels, and the association of high Tn I levels (10-fold increase above the normal upper limit) with serious AMI complications and hospital deaths was analyzed using logistic regression. Results: Peak Tn I levels were reported in 52% of the medical records. Males had higher peak Tn I levels (22.9 + 1.6 ng/mL) than females (11.6 + 1.2 ng/mL). We found no association of electrical complications and high Tn I levels. However, papillary muscle rupture and HF were associated with high Tn I levels ($p=0.01$). The risk of death increased in patients with high Tn I levels (OR=2.3 .95CI= 1.4-3.7) as compared to those with Tn I < 4.0 ng/mL. Conclusions: The positive association of high Tn I levels with mechanical complications and hospital deaths suggests that high Tn I is a useful tool to predict risk in Puerto Ricans hospitalized with AMI. Supported by NCCR R25RR017589; NIMHD, 5S21MD000242

R-163 Use of Secondary Prevention in Puerto Ricans Hospitalized with an Initial Acute Ischemic Stroke. *Fernando Santiago¹, Rafael Rodríguez-Mercado¹, Ulises Nobo², Juan A. González¹,*

Abiecer Rodríguez², Juan C. Zevallos¹. ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Hospital HIMA San Pablo, Caguas, Puerto Rico.

Background: Prompt initiation of evidence-based secondary prevention medicines is crucial to decrease stroke recurrence and mortality. However, the prescription rate of secondary prevention medicines is unknown in Puerto Rican patients hospitalized with an acute ischemic stroke. We studied the clinical characteristics of this population, and the relation of use of secondary prevention medicines (antiplatelets/anticoagulants, statins, and angiotensin converting enzyme (ACE) inhibitors + diuretics) with the risk of death during hospitalization. **Methods:** The medical records of 2775 consecutive patients hospitalized with a first acute stroke during 2007 and 2009 were examined. Odd ratios and 95% CIs were calculated using logistic regression models. **Results:** Around 85% of the patients had an ischemic stroke. The mean age of our study population was 71 (+ 13) years, and 54% were women. Hypertension was present in 80% of the patients, 48% had diabetes, 26% had hyperlipidemia, 7% were current smokers, and 7% had atrial fibrillation. Overall, secondary prevention medicines were used in 73% of patients. Prescription of antiplatelets/anticoagulants at admission was provided to 70% of patients and decrease the risk of death OR=0.5 (0.4-0.8)(p=0.05), as compared to those not receiving antiplatelets/anticoagulants, after adjusting for age, sex and comorbidities. The overall mortality rate was 7%. **Discussion:** These findings should encourage physicians to follow evidence-based guidelines in Puerto Rican patients hospitalized with an initial acute stroke. Supported by NCR R25RR017589; NIMHD, 5S21MD000242.

R-164 Knowledge about Healthy Nutrition in a Sample of Parents/Legal Guardians of Children 5 To 12 Year-Old Attending a Private Pediatric Practice in San Juan, Puerto Rico. *Evelyn Trinidad¹, Ivonne Angleró², María del R. González¹.* ¹Pediatrics Department, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Being overweight or obese is a common finding these days and children are not been left behind on this issue. The prevalence of childhood obesity worldwide has shown an increasing trend over the past years. There are several factors that can trigger obesity including behavioral factors like nutrition and physical activity. Parents are the first line of help to maintain an adequate weight in their children. **Objectives:** To determine the frequency of obesity and overweight in a group of children 5 to 12 year-old and to assess their parents' knowledge regarding healthy nutrition. **Methods:** This is a cross-sectional study where knowledge about healthy nutrition was assessed by an anonymous questionnaire to

volunteer parents of children 5-12 year-old attending a private pediatric practice in San Juan. Anthropometric measurements were obtained from the medical record. The study was approved by the IRB. **Results:** The study included 35 parents/guardians. The mean age of the children was 7.8 years (range 5-12). Fifty-four percent of the children were overweight/obese contrasting with the fact that only 26% of the parents considered their child to be overweight/obese. Only 54% of the parents correctly answered $\geq 70\%$ of the questions related to healthy nutrition. **Conclusion:** Overweight/obesity is prevalent in more than 50% of the children in this sample. Incorrect parental perception of their child weight status may impair preventive measures against obesity. Parents showed poor knowledge about healthy nutrition which can be a risk factor for overweight/obesity in their children.

R-165 Vancomycin Monitoring in Pediatric Patients at the University Pediatric Hospital. *Nahir M. Rivera-Robles¹, Gustavo Jiménez-Martínez¹, Daled M. Serrano-Bahrí¹, Wanda T. Maldonado-Dávila¹, Inés O. Esquillín².* ¹School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Therapeutic drug monitoring (TDM) in patients receiving vancomycin has been the subject of controversy for years, especially in the pediatric population where various recommendations have been made. Dosing recommendations for pediatric patients demonstrate a significant interpatient variability that may result in underdosing due to age and disease stage confounders. The purpose of the study is to describe and evaluate therapeutic drug monitoring practices of vancomycin at the University Pediatric Hospital. Descriptive, concurrent study at the University Pediatric Hospital. Records were evaluated for patients who initiated treatment with vancomycin between January 1st and February 28, 2011. Data was analyzed to estimate frequency of TDM concerning efficacy and safety of vancomycin. Pearson chi-square was done to evaluate association between serum vancomycin concentrations and dose adjustments. 96 patients were evaluated, completing a total of 118 vancomycin intravenous courses. 26% of these courses were not therapeutically monitored with serum vancomycin concentrations. The pediatric intensive care unit had the highest (84%) percent of monitoring. Most of the monitoring (93%) was reported as both peak and trough values. No statistically significant association was seen between serum concentrations obtained through TDM and the dose adjustments made during the study period. The results of our study revealed particularities about TDM in this population, which may benefit from simplified TDM methods, like monitoring trough concentrations only. More research is advised in order to adequately address this.

R-166 Building Bridges to Address Health Disparities in Puerto Rico: The “Salud Para Piñones” Project. *Enid J. García¹, Princess Pacheco¹, Marielis Colón¹, Mary H. Mays¹, Jeamarie Pascual¹, Maricruz Rivera².* ¹Endowed Health Services Research Center, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Piñones Community, Puerto Rico.

Health disparities are “differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exists among specific population groups.” To address those disparities, greater inclusion of the affected population in the identification of their needs, evaluation of the best ways to address those inequities, and full participation in the decision making process are needed. We present the experience of a community-academic partnership between Piñones, a low income community in Loíza, Puerto Rico, and UPR School of Medicine (SoM), developed on the principles of community-based participatory research (CBPR). We used a three-phased approach to: 1) partnership development, 2) health needs assessment, and 3) identification of community priorities and a research/service agenda. A steering committee was established that included participation of community leaders, SoM researchers, students, and volunteers. A two-phase mixed methods design for needs assessment, including a community-wide survey, in-depth interviews and focus groups, was developed. Results were discussed in depth with the community and guided the prioritization of health issues. Chronic diseases such as hypertension, diabetes in adults and asthma in children, lack of preventive services, and management of health emergencies were identified as critical concerns. As result, service and research activities have been initiated by this partnership addressing those issues. CBPR represents an opportunity to reduce health disparities through the meaningful translation of scientific knowledge based on community priorities and needs.

R-167 Internet Use Among Parents and Grandparents of Newborns Admitted to the Neonatal Intensive Care Unit. *Frances I. Nieves¹, Wilfredo Alemán², Charlotte Cordovés², Inés García³, Lourdes García-Fragoso³.* ¹Department of Biology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ³Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: For parents of sick newborns in an intensive care unit the internet can be a source of information to better understand their baby’s medical condition. However, the reliability of the information may contribute to misconceptions and difficulties in the parent-physician relation. Objective: To determine the prevalence of internet use among parents/grandparents of infants admitted to the neonatal intensive care

unit (NICU). Methods: Volunteer parents and grandparents of newborns admitted to the University Pediatric Hospital NICU from November 2010 to November 2011 answered an anonymous questionnaire. Data was analyzed using Statistix 8.0. The study was approved by the IRB. Results: Surveys were answered by 91 subjects (66 parents and 25 grandparents). The mean age of the participants was 32 y/o (range 16-63). Seventy-six percent of the subjects have access to the internet, most of them in their personal computer (60%) or the telephone (53%). The internet is mostly used to gather information about their babies’ medical condition (76%), treatment (50%), future expectations (46%), and other families with babies with the same condition (24%). Sixty-five percent found what they were looking for and 59% understood the information gathered. Only 39% shared the search findings with the physician and 93% were willing to visit a website recommended by the physician. Conclusion: Parents/grandparents use the internet to gather information about their babies’ medical condition but do not always understand what they find. Physicians need to be aware of this finding and serve as interpreters of the information they get.

R-168 Comparative Study of the Hermansky-Pudlak Syndrome Type 3 Carrier Frequency in Puerto Rican Newborns. *Maraida L. Serrant-Hernández¹, Sonia I. Ramírez^{1,2}, Elymic K. Colón², Maribel Torres-Serrant¹, Carmen Cadilla¹, Pedro J. Santiago-Borrero¹.* ¹PR Newborn Screening Program, Puerto Rico Center for Inherited Diseases, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico/University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Background: Hermansky-Pudlak Syndrome Type 3 (HPS-3) is an autosomal recessive disorder characterized by oculocutaneous albinism, bleeding, and ceroid storage in tissues. Patients with HPS-3 are not easily identified by phenotype. Hemorrhagic complications with trauma or surgery, and/or granulomatous colitis are clinical manifestations of HPS-3. Objective: To obtain evidence-based data for evaluation of genetic testing for the HPS3 gene 3,904 bp deletion should be included in the actual Newborn Screening panel (NBS). Methods: Ten percent of 2009 Puerto Rican births from municipalities with a carrier frequency of $\geq 1.1\%$ were tested to compare with a previous study of 2005 newborns. Polymerase chain reaction analysis was performed using pooled DNA from dried blood samples. Results: The HPS3 gene founder mutation was detected in 53 of 2,130 samples, one of them was found to be homozygous. The carrier frequency was found to be 2.49%. In the 2005 pilot study, the HPS3 gene deletion was detected in 55 of 2,130 samples, two of them were homozygotes, resulting in a carrier frequency of 2.58%. Conclusions: The findings in our study are comparable with the previous pilot study. Our data suggests that the relative

vely high prevalence of the HPS3 gene mutation (2.5%) justifies the inclusion of HPS3 genetic testing in the NBS panel to facilitate early diagnosis and treatment of children with HPS-3 and the provision of genetic counseling to parents and relatives. Supported by Research Funds from the Puerto Rico Center for Inherited Diseases. This study was approved by the UPR MSC IRB (2060199).

R-169 Silencing Mannosylphospho Dolichol Synthase with shRNA Reduces the Angiogenic Potential. *Jesús Santiago¹, Zhenbo Zhang¹, Aditi Banerjee¹, Krishna Baksi².* ¹Department of Biochemistry, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Universidad Central del Caribe, Bayamón, Puerto Rico.

Mannosylphospho dolichol synthase (DPMS) is down stream of N-acetylglucosaminyl 1-phosphate transferase (GPT) in the dolichol cycle of asparagine-linked (N-linked) protein glycosylation and regulates the GPT catalytic activity. When capillary endothelial cells are treated with a GPT inhibitor tunicamycin, angiogenesis is inhibited quantitatively reducing the breast tumor growth in nude mice by inducing unfolded protein response-mediated apoptosis. There was also a quantitative loss of DPMS catalytic activity. We, therefore, hypothesized that DPMS plays a significant role in breast tumor angiogenesis and our objective was to analyze the angiogenic potential of DPMS. We have isolated stable capillary endothelial cell lines after transfecting them with a DPMS overexpressing plasmid in pEGFP-N1 vector and DPMS shRNA plasmid in pSilencer 4.1-CMV neo vector, respectively. DPMS expression in each cell clone was monitored by its catalytic activity, qRT-PCR, western blotting and immunofluorescence microscopy. It was observed that the rate of cellular proliferation and migration was much higher in DPMS overexpressing clone compared to its shRNA knockdown clone. Clonogenic assay indicated 18.5% survival rate after 48 hours of tunicamycin (1 μg/ml) treatment in cells overexpressing DPMS compared to 0% in DPMS knockdown cells. We, therefore, concluded that silencing of DPMS makes cells less angiogenic but more susceptible to the anti-angiogenic therapeutic tunicamycin. Supported in part by grants from Komen for the Cure BCTR06582 (DKB) and NIH/NCRR/RCMI G12-RR03035 (KB).

R-170 Prevalence of Dysplasia in Hysterectomized HIV Infected Women: Should the Guidelines Be Revised? *Kanisha L. Sierra-Ríos¹, Helen M. Oquendo-del Toro², Sheyla Garced², Carmen D. Zorrilla³.* ¹Department of Obstetrics and Gynecology, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico/University District Hospital, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³CEMI, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Despite the overt evidence that links HIV and HPV-related manifestations, little is known about the prevalence of vaginal dysplasia in hysterectomized HIV infected women. It has been reported that, in the general population, 1.8% of women who have undergone hysterectomy for benign indications have abnormal cytology and 0.12% have confirmed vaginal dysplasia. Based on this low prevalence, the screening guidelines of ACOG and ASCCP, state that cytology is not indicated in women with hysterectomy for benign reasons. According to both entities, this also applies to women living with HIV. The objective of this study is to evaluate the prevalence of vaginal dysplasia in HIV infected women after hysterectomy for benign indications and to determine the appropriateness of these guidelines in this population. For this purpose, a retrospective analysis of 72 HIV positive women who have undergone hysterectomy for benign indications was performed at CEMI (an Obstetrics and Gynecology clinic that has served women living with HIV for over 20 years). Sixteen percent of the patients had an abnormal cytology and 8% had biopsy-confirmed vaginal dysplasia. The data was compared to historical controls obtained from a recent review which aggregated data for 6543 women. These results demonstrate the higher prevalence of vaginal dysplasia among HIV infected women after hysterectomy for benign reasons and the need for further studies in this topic which will allow tailoring of the current screening guidelines for this special population.

R-171 Tracheostomy Placement in Pediatrics: Indications, Timing and Complications. *Ricardo L. García¹, Carlos Ocasio², Anabel Puig², Ingrid Mercedes³.* ¹Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University Pediatric Hospital, San Juan, Puerto Rico.

Recent advances in pediatric critical care have led to increased survival rates in neonatal and pediatric patients. This improvement in survival has been at the expense of increased patient co-morbidities and dependency of technology. There are no recognized standardized timing intervals for tracheostomy placement in children. We made a comprehensive evaluation of the children undergoing tracheostomy placement during their stay at the Pediatric Intensive Care Unit in the University Pediatric Hospital Pediatric from 2006 to 2010. We focused on the primary diagnosis, age, indication for tracheostomy, timing of the procedure, length of stay (LOS) and mortality related to the procedure. During the study period there were a total of 69 tracheostomies performed. The most common indication identified was chronic respiratory failure, with primary diagnosis related to pulmonary diseases and neurological problems. Patients who had tracheostomy performed were usually younger (mean 1.8 years) and those with increased LOS. There was no mortality associated to the procedure. Identification of the-

se risk factors for tracheostomy placement should be identified early on patients with increased LOS (>15 days) and chronic respiratory problems or severe neurological compromise. There is very low risk of mortality associated to this procedure.

R-172 Ventilator-Associated Pneumonia in Critically Ill Children: An Assessment of Prevention Strategies. Manuel Iglesias¹, Alicia Fernández-Sein², Ricardo García-De Jesús², Áurea González³, Anabel Puig². ¹Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University Pediatric Hospital, San Juan, Puerto Rico.

Ventilator-Associated Pneumonia (VAP) is the second most common hospital-acquired infection in the Pediatric Intensive Care Unit (PICU). Observational cohort study was done on June 2010 evaluating for ten consecutive days the PICU compliance of national prevention strategies versus hospital VAP prevention strategies. Afterwards, a VAP Prevention Protocol was designed and implemented (June 2011) in our PICU addressing the identified barriers for the use of prevention strategies while tailoring the guidelines to the pediatric population. Prevention Protocol guidelines included were elevation of Head of Bed 30-45°, daily sedation holiday/readiness for extubation, peptic ulcer disease (PUD) and deep venous thrombosis (DVT) prophylaxis evaluation, oral care once per nursing shift, adequate endotracheal tube (ETT) cuff inflation and equipment availability. Initial evaluation revealed that of the hospital prevention strategies, an average of 2.1/3 (70%) of interventions were used daily per patient. When compared with the proposed interventions model, we found an average daily use of 2.7/6 (47%). Evaluation done after implementation of the VAP Prevention Protocol showed an increase to 4.6/7 (66%) of interventions daily per patient. Some bundle components were evaluated per nursing staff 8 hour shifts, revealing overall better compliance during day shifts in comparison with night shifts. Implementation of the VAP Prevention Protocol Bundle at our institution was associated with a preliminary reduction of VAP rate, which had not been achieved with earlier prevention strategies in our unit.

R-173 What do Parents Know? Adherence to Treatment for the Management of Hypospadias. Johana V. Betances-López¹, Jonathan Torres¹, Laureane Alveolo-Maldonado², Luis A. Avilés³, Wilmarie J. Bruckman⁴. ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Department of Health, San Juan, Puerto Rico; ³University of Puerto Rico Mayagüez Campus, Mayagüez, Puerto Rico; ⁴Municipal Hospital-Medical Center, San Juan, Puerto Rico.

Hypospadias is a congenital condition where the location of the male external urethral orifice is not located near the tip of the glans penis but anywhere along the ventral side of the penis up to the perineum. It is the sixth most common birth defect in Puerto Rico with prevalence at birth of 2.53 per 1,000 male live births for 2007-2008. We hypothesized that the severity of the condition at birth and parents' competence on health literacy dictates adherence to treatment. A questionnaire was sent to parents of live born hypospadias cases (2007-09) for which updated contact information were available (N=162/175). Descriptive statistics with significance attained at $p < 0.05$ were employed. Clinical management by severity showed that 58% of respondent cases had received surgical repair, from which 91% were satisfied with the procedure. Treatment options did not correlate with level of education of the respondent ($p > 0.05$). Parents/legal custodians identified problems with health insurance, lack of referrals to specialists, and comorbidities as factors that hinder treatment. Prior to our study, there was no information on severity of the condition for 68% of confirmed hypospadias cases. Based on a 36% response rate to our questionnaire, less than 10% of parents were able to provide information for cases of unknown severity. Taken together, it is troublesome that more than half of confirmed hypospadias cases remain unclassified by severity. Effort to classify hypospadias severity shortly after birth is desirable in order to promote adherence to treatment. Study received IRB approval.

R-174 Pharmacogenetic-driven Warfarin Dosing Algorithm in Puerto Ricans. Alga S. Ramos-Morales¹, Yirelia Alejandro-Cowan¹, Joan Vázquez¹, Ivette Valentín¹, Giselle Rivera². ¹School of Pharmacy, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Pharmacy Service, VA Caribbean Healthcare System, San Juan, Puerto Rico.

Warfarin is the current standard-of-care in oral anticoagulant for thromboembolic disorders. Individual's unique genetic make-up plays a fundamental role in the warfarin dose variability. CYP2C9 and VKORC1 genotypes have been shown to account for 45% of response variability in different populations, but this information currently lacks for Puerto Ricans. The objective of this study is to develop a Puerto Rican customized pharmacogenetic-driven warfarin dosing algorithm using a learning sample of patients with several thromboembolic problems from the VACHS. This was a single-center pharmacogenetic study in 163 Puerto Rican patients on stable warfarin therapy. A multiple linear regression analysis was performed using maintenance warfarin dose as the dependent variable and following a stepwise addition and backward elimination regression procedures. After considering the effect of genotypes, we also considered clinical variables and Vitamin K intake as potential regressor variables that independently explain warfarin dose variation. A novel warfarin-dosing algorithm for the VACHS Puerto Rican population was developed using a deri-

vation cohort of 163 patients and explained 68% of variability based on pharmacogenetic data. Our model resulted more precise for determining low and intermediate doses. We applied it to a validation sample of 37 patients and obtained an R2 of 58%. Moreover, we included a clinically significant admixture variable to yield a model with an R2 of 67% based on a derivation cohort 85 patients. We also compared the predictability of the developed pharmacogenetic algorithm with other established algorithms.

R-175 Prosthetic Complications on Implant-Supported Prosthesis: A Clinical Review from 1997 to Present. *Mariely Santini, María A. Loza, Yolanda Iduate, Carmen Jusino, Edwin Rodríguez, Miriel Torres.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Dental implants represent one of the primary treatment options for patients with tooth and soft-tissue loss. While implant dentistry provides the clinician with a wide variety of restorative options, it is important for clinicians to be aware of and understand the complications associated with implant procedures. The aims of this study are to determine the success rate of restorations involving implant-supported prosthesis placed in patients at the Post-Doctoral Program in Prosthodontics, School of Dental Medicine, UPR from 1997 to present, and to determine the type of prosthetic complications that are most common in such restorations. Dental records were searched for patients who had implants placed and restored, from which demographics and contact information was recorded. Patients were invited to attend for a clinical examination by trained and calibrated evaluators who recorded their observations in data collection forms. 114 patients were recalled out of 360 possible candidates. A total of 254 implant prosthesis were clinically evaluated (144 single crowns, 62 fixed partial dentures, 28 individual attachments overdentures, 16 bar overdentures and 4 fixed-detachable dentures). A total absence of prosthetic complications was observed in 43% of individual attachments overdentures, 31% of bar overdentures, 83% of single crowns, 71% of FPD's, and 100% of fixed-detachable implant dentures. In this study, the success rate of implant-supported prosthesis is 73%. The most common prosthetic complication was maintenance issues on the implant overdentures, as stated in other published literature.

R-176 Infantile Hemangioma: Clinical Assessment of the Involuting Phase and Implications for Management. *Rafael A. Couto^{1,2}, Reid A. Maclellan², Arin K. Greene².* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Children's Hospital Boston/Harvard Medical School, Massachusetts, United States of America.

Infantile hemangioma involutes during childhood; the tumor decreases in size and its color fades. Reconstructive procedures are often withheld until the lesion stops improving. The purpose of this study was to determine the age at which involution of infantile hemangioma ends, and factors that influence its regression. Consecutive patients with infantile hemangioma managed between 2007 and 2011 were retrospectively studied. The outcome variable was age when the appearance of the infantile hemangioma ceased to improve. Predictive variables were gender, lesion size, location, tumor depth, ulceration, and history of treatment (local or systemic corticosteroid). The study comprised 81 patients. Infantile hemangioma was located on the head/neck (79.0%), trunk (13.6%), or extremity (7.4%). Average tumor area was $9.3 \pm 9.7\text{cm}^2$. Twenty-six percent of the cohort was treated with corticosteroid during the proliferative phase and 87.6% underwent reconstruction for a residual deformity. Involution ceased at a median age of 36 months (IQR, 30-42 months). Gender ($p=0.47$), lesion size ($p=0.09$), location ($p=0.79$), tumor depth ($p=0.38$), ulceration ($p=0.12$) and previous local ($p=0.87$) or systemic ($p=0.62$) corticosteroid treatment did not influence regression. Most infantile hemangiomas do not improve significantly after 3.5 years of age. Reconstructive procedures should be considered at this age; the tumor has been allowed to regress and the deformity is improved prior to the development of long-term memory and psychosocial morbidity.

R-177 Fractura del Esquema Corporal Femenino que Afecta la Imagen Corporal y Causa Desajuste Psicosocial. *Ada M. Alemán-Batista.* Undergraduate Department, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Los cambios físicos que experimentan algunas pacientes de cáncer de mama pueden producir en ellas profundos desajustes psicosociales. Se estudia el caso de una mujer negra, económicamente desventajada, que fue nunca casada, con tres hijas y sin apoyo familiar. Fue diagnosticada con cáncer de mamas, recibió radio y quimioterapia, con pérdida de cabello, y mastectomía radical del seno derecho. Presentó recurrencia con metástasis, fue desahuciada, y referida a hospicio donde recibió servicios psicológicos. Se exploró cómo la pérdida del cabello y del seno fracturó el esquema corporal (EC) de la participante, lo que a su vez afectó su imagen corporal (IC) e indujo desajustes psicosociales. El objetivo es comprender cómo el cambio en el EC incidió en la IC y afectó su actividad psicosocial. Esto mediante análisis cualitativo de contenidos de entrevistas y hallazgos de pruebas proyectivas, que demostraron que ambas situaciones cambiaron su EC. Sin embargo, no contó con el tiempo suficiente para hacer los ajustes en su IC y revalorar su cuerpo en ausencia de estas estructuras, lo que provocó desajustes psicosociales: optó por la bebida, el desaliño y la violencia. Ante la recurrencia de la enfermedad se tornó triste, tuvo ideas de referencia y se aisló socialmen-

te. Se concluye que en este caso, la pérdida del cabello y del seno derecho fracturó el EC de la paciente, lo que incidió en su IC y la indujo a desajustes psicosociales. Se recomienda: (1) ofrecer intervenciones psicoterapéuticas a pacientes cuya condición o tratamiento trastocan un órgano o su función; (2) educar en salud a los familiares, sobre las implicaciones psicosociales y las alternativas de rehabilitación física y psicológica; y (3) adiestrar a los profesionales que ofrecen servicios a estas personas, sobre las implicaciones psicosociales de las mismas.

R-178 Assessment of Pediatric Health Needs Through Participatory Research. *Princess Pacheco, Enid J. García-Rivera, Marielis Colón, María González.* School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

As part of a partnership between the UPR School of Medicine and a community with significant health concerns and inadequate access to health care, a participatory research to assess health issues in the pediatric population was done. SoM and community members participated in the development and implementation of the survey. A non-probabilistic sample of 62 households with children less than 21 years was selected. An expert-validated questionnaire was administered to parents to collect socio-demographic information, health care services utilization, prevalence of health conditions, lifestyle and risk behaviors for all children living in the household (n=131). Descriptive statistics and logistic regression models were used to analyze the data. The mean age was 9 years (range: 0 to 20 years) and 51% were females. Most participants reported having a health care insurance (95%), a pediatrician as their primary care physician (98%), visited the pediatrician in the last 12 months (91%), and received all services needed (92%). However, 46% suffered from at least one health condition including allergies (45%) and asthma (38%). The lifetime prevalence of asthma was 2 times the prevalence in PR (18%) and 4 times the prevalence in the US (9%). Although overweight was reported by 20%, the prevalence using weight and height estimates available (n=46) showed 61% with BMI's above the 85% percentile. Even though no critical health care access issues were found disproportionate high prevalence of asthma and overweight were identified. Participatory research was a valuable approach to evaluate health inequities in the pediatric population.

R-179 Factors Associated to Parents' Willingness to Accept the Influenza Vaccine for their Children. *Carolina Pichardo¹, Lourdes García-Fragoso², Juanita Negrón², Wilda R. Vicente², Mariola Fernández².* ¹University Pediatric Hospital, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

It is estimated that each year 36,000 deaths and over 200,000 hospitalizations result from the annual influenza season in the US. According to the CDC, influenza vaccination is the most effective method to prevent influenza virus infection and its potentially serious complications. Objective: To determine factors associated to parents' willingness to accept the influenza vaccine for their children. Methods: An anonymous questionnaire was administered to volunteer parents/caregivers taking their children to four healthcare scenarios (community hospital, university hospital, private pediatric practice, government insurance pediatric practice) during 2011. The study was approved by the IRB. Results: Participants included 297 parents/caregivers (80% mothers, 12% fathers, 8% other). The mean age was 33 y/o (range 15-67). Most subjects had medical insurance (52% government, 44%, private, 4% no insurance). Only 40% of the parents plan to have their children vaccinated against influenza. Factors associated to parents' willingness to accept the influenza vaccine were having the vaccine the year before, thinking that the vaccine was safer this year, not knowing someone who had a side effect from the vaccine and having a family member who had influenza. Plans to get the vaccine were not associated to parents' age, education level or type of medical insurance. Conclusion: The 40% planned vaccination rate lies below the Healthy People 2020 goal (80%) and seems to be unassociated to access to healthcare services. A higher vaccination rate could be attained by establishing campaigns that reassure parents of vaccine safety.

R-180 Individual Characterization of Tumors: 18F-FMISO and 124I-IAZGP Hypoxia PET Imaging. *Marina C. Bernal-Fernández¹, Jeannine A. Ruby², John L. Humm², Sean D. Carlin², Clifton C. Ling², Heiko Schoder².* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Memorial Sloan Kettering Cancer Center, New York, United States of America.

Many solid tumors contain hypoxic regions that are believed to be more resistant to radiation, exhibit greater metastatic potential, and demonstrate a more aggressive phenotype. Radio-labeled agents for nuclear imaging with positron emission tomography (PET) have been tested to better characterize cancer lesions; however, these have been met with inconsistent clinical success. In vivo testing of 18F-Fluoro-Misonidazole (18F-FMISO) and 124I-Iodo-Azomycin Galacto-Pyranoside (124I-IAZGP) in animal models has shown promise for the selection of an optimal hypoxia PET tracer. Although 18F-FMISO has shown some success, its slow clearance kinetics from the gastrointestinal tract combined with a short half-life of 1.8 hours makes it sub-optimal for gastrointestinal tract imaging. 124I-IAZGP, in contrast, has a longer half-life of 4.3 days which we hypothesized would be better for imaging the gastrointestinal tract. The objective of this project was to compare the ability of 18F-FMISO and 124I-IAZGP PET to characterize hypoxia in

cancerous lesions. Eleven patients had 124I-IAZGP-PET scans and eighteen patients had 18F-FMISO-PET scans. All eleven 124I-IAZGP-PET scans were interpreted as negative. We did not see enough uptake in patients to suggest a clinical role. Almost half of the patients in our study showed some or definite 18F-FMISO uptake; the other half showed no uptake. Studies from other institutions have found 18F-FMISO to be a successful tracer for assessing tumor hypoxia. However, our data does not corroborate this. The variability in results suggests that more patients need to be studied.

R-181 Ceramic on Ceramic in Total Hip Arthroplasty (THA): Our Experience in Hispanic Population. *Víctor H. Hernández, Juan J. Bibiloni, Rubén Torrealba, Ariel Dávila.* Department of Orthopaedics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Introduction: Ceramic on Ceramic (CC) is used in THA, and have been used for over 30 years. The disadvantages are fracture and squeaking. None of the studies has involved Hispanic population. The purpose of this study is to describe the incidence of squeaking and fractures and find out the results of THA using CC in Hispanics. **Materials and Methods:** This is a retrospective cross-sectional study done to evaluate the use of CC THA. A cohort of 311 patients that underwent from 2004-2009 hip replacements was studied. WOMAC and Harris hip score were administered. A control group was selected to compare the outcomes. Matching criteria age (± 5), gender and BMI (± 3). **Results:** 311 patients, with an average age of 59.8 YO. 95% Contacted either by phone or clinical visits. Three patients died due to other medical problems not related to the THA. 65% women. 27(8.6%) patients complaint of squeaking, 3(1%) patients presented with ceramic fractures and 62.5% walking and stair-climbing was associated with squeaking. 31% of those with squeaking had OA posttraumatic. Follow up was an average of 4.1 years. **Discussion:** In the present study, we found a significant difference between the squeaking group and the match group with respect to their outcomes; we were able to elicit a significantly higher incidence of squeaking. Heavier –younger patients more likely to squeaking. As our study has demonstrated early failure and bad outcomes is a concern in Hispanic population and based on the result of our study we no longer use CC in our population.

R-182 The Relationship between Stroop-Type Conflict Tasks and Fear Conditioning in Anxiety Disorders. *Dor M. Arroyo-Carrero¹, Polaris González², Karen G. Martínez¹, Gregory J. Quirk¹.* ¹Department of Psychiatry, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Clinical Psychology Department, Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico.

The dorsal anterior cingulate cortex (dACC) plays a role in conditioned fear expression (Milad, et.al. 2007) and in conflict task resolution (Bush, 2006). Understanding the relationship between these processes could increase knowledge of the role of the dACC in anxiety disorders. 76 healthy and 36 anxiety subjects were conditioned to fear a colored light paired with an electric shock, and were later taught to extinguish the association. Our fear measure was skin conductance response (SCR). Subjects completed a conflict resolution task (MSIT) that activates dACC (Bush, 2003). There were no significant differences between healthy and anxiety subjects in fear conditioning or extinction phases. MSIT differential scores were significantly higher in anxiety ($\bar{x}=0.52\text{sec}$) compared with healthy subjects ($\bar{x}=0.43\text{sec}$) ($t=2.738$; $p=0.008$). This difference was driven by male subjects (anxiety males $\bar{x}=0.54\text{sec}$; healthy males $\bar{x}=0.42\text{sec}$), as there was no significant difference in females (anxiety females $\bar{x}=0.46\text{sec}$; healthy females $\bar{x}=0.43\text{sec}$). Higher MSIT scores in males correlated with increased fear during the recall of extinction, for both healthy ($r=0.502$, $p=0.017$) and anxiety subjects ($r=0.754$; $p=0.012$). MSIT was positively correlated with early extinction in anxiety males ($r=0.632$, $p=0.05$). Females had no significant correlation with MSIT. Anxiety subjects showed impaired conflict resolution and a positive correlation between MSIT scores and conditioned fear. These findings are consistent with the involvement of dACC in both fear expression and conflict resolution, pointing towards dACC function as a possible biomarker for anxiety disorders.

R-183 Extracranial Carotid Artery Stenting: The Puerto Rico Medical Center Endovascular Neurosurgery Service Experience. *Euclides Effio, Rafael Rodríguez-Mercado, Caleb E. Feliciano-Vals, Manuel Hernández-Gaitán, Amaury García.* Section of Neurological Surgery Neuroendovascular Surgery Program, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Objective: Extracranial carotid artery stenting (CAS) represents a viable alternative for high-risk surgical patients. The aim of this study was to determine the clinical features and outcome of 25 patients that underwent CAS at the Puerto Rico Medical Center. **Methods:** A retrospective review of a series of 25 high-risk surgical patients that underwent CAS from June 2005 to January 2010 was performed. Patients were followed-up at clinics with computed tomography angiography and/or digital subtraction angiography. **Results:** Patient ages ranged from 52 to 88 years. Twenty-one of the patients had severe cervical carotid stenosis (more than 80%). Those with moderate stenosis (from 50% to 80%) were treated when they were symptomatic or when stenosis recurred after carotid endarterectomy. Among the 25 patients, only 2 presented with restenosis (more than 50% luminal diameter). Both had a history of radiation-induced disease, but neither required retreatment. Five pa-

tients required post-stenting angioplasty due to a less than 50% improvement in luminal diameter. There was 1 death, and 1 patient presented delayed neurocognitive deterioration. The combined long-term morbidity and mortality in the subgroup with at least two years of follow-up was 8.3%. There were no intracerebral hemorrhages or recurrent strokes/transient ischemic attacks. Conclusion: The restriction of post-stenting angioplasty to only those cases without significant revascularization appears to help reduce restenosis rates while ensuring a gradual increase in intracranial blood flow. The latter may not apply to patients with a prior history of radiotherapy.

R-184 Knowledge and Misconceptions about Immunizations among Nurses that Administer the Vaccines. *Joselle M. Otero-Palacios.* Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Only 26% of children in the United States receive all vaccinations at the recommended times. Reasons for undervaccination are complex and include provider (physicians and nurses) attitudes and practices. Our objective is to assess the knowledge about immunizations among nurses that administer vaccines. Methods: An anonymous survey was answered by all the nurses that administer vaccines under the Vaccine for Children Program in the San Juan Region. The study was approved by the IRB. Results: Subjects included 16 nurses, 75% of them completed a bachelor's degree, 19% an associate degree, and 6% were practical nurses. The mean age was 50 years (range 39-62) and the mean time administering vaccines was 10 years (range 2-42). Training about immunizations was received by 73% and most of them (75%) received training every 3 months. The survey included several questions to assess knowledge about immunizations. The mean score for knowledge was 64%. Participants showed poor knowledge about indications (58% correct answers) and contraindications (25% correct answers) of vaccines. Most nurses (63%) thought that vaccines were contraindicated when mild illness or mild fever is present. Nurses administering vaccines for less than 5 years had a mean score of correct answers of 68% as compared to those administering vaccines for longer periods of time who scored 61%. Conclusion: Nurses that administer vaccines do not have the expected knowledge about immunizations. Efforts towards ensuring adequate education to nurses that administer vaccines are needed to eliminate one of the barriers to adequate immunizations of all children.

R-185 Protein Nitrosylation and Carbonylation are Decreased with CSF HIV-1 DNA in Hispanic Women with HAND. *Marangeline Huertas¹, Joyce Vélez², Richard Skolasky³, Bruce Shiramizu⁴, Loyda Meléndez², Dianedis Toro².* ¹Department of Biology, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico; ²Neuro AIDS Research Program, University of Puerto Rico Me-

dical Sciences Campus, San Juan, Puerto Rico; ³Orthopaedic Surgery, Spine Outcomes Research Center Johns Hopkins University, Maryland, United States of America; ⁴John A. Burns School of Medicine, Hawaii, United States of America.

HIV-associated neurocognitive disorders (HAND) persist in spite of antiretroviral therapy. It has been suggested that high HIV-1 DNA in circulating activated monocytes, and oxidative stress are associated with HAND. These activated monocytes with HIV-1 DNA migrate to the brain and may represent CSF viral reservoirs. Protein carbonylation and nitration are known oxidative stress markers found in other neurodegenerative disorders as Parkinson, age related disorders, and Alzheimer. Therefore, to better elucidate molecular mechanisms of HAND we studied the relationship between CSF HIV-1 DNA and HAND with oxidative stress. A retrospective review was performed on prospectively collected clinical data and samples from a cohort of 33 HIV-seropositive Hispanic women, stratified by cognitive impairment into normal (n=10), asymptomatic (n=6), and symptomatic impairment (n=17). Cognitive performance was determined by neuropsychological tests. HIV-1 DNA was measured in CSF cells by real time PCR. Nitrosylated proteins (3-NT) and protein carbonyls were assessed by immunodetection on CSF samples using dot-blot analysis. Results showed that neither protein carbonylation nor nitrosylation correlated with HAND. However, both were significantly reduced with higher HIV-1 DNA levels. We conclude that increased CSF HIV-1 DNA may suggest persistence of CSF viral reservoirs. Lower CSF oxidative stress may suggest that this reservoir contains latent virus suggesting that the oxidative stress mechanism involved in HAND is through the nitric oxide system as well as protein carbonyls formation.

R-186 Impact of Hypoalbuminemia in the Clinical Course of Patients Admitted to the Pediatric Intensive Care Unit. *Liliana Morales-Pérez, Alicia Fernández-Sein.* Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Albumin is the most abundant protein in blood plasma, and it contributes about 80% of the plasma colloid osmotic pressure. The literature has documented hypoalbuminemia as a marker for disease severity, prolonged ventilator support, and extended length of stay in the intensive care unit in adults. Objectives: To determine the association between hypoalbuminemia and clinical complications in children admitted to PICU. Hypothesis: Hypoalbuminemia at admission is a marker of morbidity in critically ill children. Methods: We conducted a retrospective record review where anthropometric measures, albumin serum levels at admission, 24 hours and 48 hours after admission; Positive Blood Cultures, clinical Outcome and diagnosis were recorded. Results: Hypoalbuminemia at admission to PICU was associated with increased mortality when compared to patients with normal albumin level (p<0.05, n=103). Also, we found that

patients with persistent hypoalbuminemia at 48 hours after admission to PICU had increased length of stay ($p < 0.05$). There was no significant association between albumin levels and positive blood cultures. Conclusions: Hypoalbuminemia at admission is a marker of mortality in pediatric patients admitted to our PICU. Persistent hypoalbuminemia at 48 hours after admission may be associated with prolonged length of stay. This study helps establish hypoalbuminemia as a marker of severity in critically ill pediatric patients admitted to an intensive care unit.

R-187 Childhood Trauma is Correlated with Impaired Conflict Resolution in Stroop-Type Tasks in Adults. *Polaris González¹, Rafael González², Gregory Quirk², Karen Martínez².* ¹Clinical Psychology Department, Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Studies done in animals and humans suggest that stress experienced in childhood has an effect on brain development including regions involved in cognitive functions (Matthias 2010). This study aims to explore the association between childhood trauma and neuropsychological functioning as adults. Information of 61 subjects was gathered through the Childhood Trauma Questionnaire which measures: emotional, physical, and sexual abuse; emotional and physical neglect; and minimization/denial. CTQ scores were divided in groups: severe trauma ($n=28$) and mild trauma ($n=33$). Subjects completed three neuropsychological tests: Emotional Stroop Task (EST), Multi Source Interference Task (MSIT), and Wisconsin Card Sorting Task (WCST). Student's t tests between groups were performed and Pearson r correlations assessed associations between CTQ and neuropsychological measures. Significant differences between severe and mild trauma were found in MSIT Differential score ($0.48551s/0.37073s$ $p=.018$). Mild trauma sample showed no significant correlations between CTQ and cognitive tasks. Within severe trauma, sexual abuse significantly correlated with MSIT Differential score ($r=.518^{**}$ $p<.05$) physical neglect with WCST errors ($r=.509^{*}$ $p<.05$). Our findings support evidence that traumatic experiences during childhood affect cognitive function as assessed with WCST (Bradley 1996). Trauma correlates with performance in conflict resolution tasks (MSIT/EST) associated with anterior cingulate cortex function. This suggests that early trauma may influence how conflict will be resolved leading to deficient self-regulatory processes (Van del Kolk 2003).

R-188 Readiness Assessment of Medical Residents for an Online Residents-As-Teachers Curriculum. *Debora H. Silva¹, Kadriye O. Lewis².* ¹Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Cincinnati Children's Hospital Medical Center, Ohio, Puerto Rico.

Rationale: Medical Residents are required to teach medical students. The University of Puerto Rico, School of Medicine (SOM) needs to implement a comprehensive Residents-as-Teachers (RAT) curriculum. One option is to implement it online, but the literature has been controversial as to the technology readiness of medical residents to participate in such a curriculum. Objective: Our aim was to determine the technology readiness of the residents at the UPR SOM for the acceptance of an online RAT curriculum. Methodology: This was a descriptive, mixed method design study which used both qualitative and quantitative approaches through a combination of an online survey and a focus group interview. The survey was conducted at the 36 residency programs that are part of the Graduate Medical Education Associate Deanship at the SOM. The focus group was conducted with Pediatric Residents. Outcomes: The majority of residents which participated in the study are ready to engage in an online curriculum. More than 80% had the technical knowledge needed; 90.5% thought an online RAT course is a good alternative; and 87.5% would be willing to participate in an online curriculum. One potential barrier is that one-third of residents still prefer a traditional curriculum. Determinants of readiness to online learning in the SOM were identified and discussed. Future Directions: Prior to a widespread implementation, a pilot test should be conducted to maximize success. Funding: None. Approved by the University of Puerto Rico Medical Sciences Campus Institutional Review Board (April 27, 2009 and the Protocol# 1170109).

R-189 Addressing Professional Development: The Bioethics and Survival Skills in Research Course. *Emma Fernández-Repollet.* Department of Pharmacology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Rationale: Success in a science career requires an understanding of ethical principles, as well as a variety of skills such as the ability to communicate, to learn and teach, to manage time, and to behave responsibly. Objective: To develop a course that includes a combination of lectures, discussions, readings, written exercises, panel presentations and practical experiences with the goal of providing graduate students with a set of tools that will allow them to become responsible skilled professionals. Methodology: The course is designed for graduate students, postdoctoral fellows and junior research faculty. It is modeled following a program established by Dr. M. Zigmond and B. A. Fisher at the University of Pittsburgh. Topics include effective speaking and writing, grantspersonship, teaching, mentoring, and career options, among others. Discussion of ethical issues and resources is integrated across topics. Outcomes: Students participating in the course have been able to (1) learn and practice the skills necessary to have a successful scientific career; (2) apply project management techniques to career development planning, and (3) understand the importance of conducting ethical and responsible research. Future Directions:

Efforts will be made to promote the inclusion of this course in current graduate programs at the UPR Medical Sciences Campus. Funding: Partially supported by NIH-RCMI Grant # G12-RR03051 at UPR Medical Sciences Campus.

R-190 Experiencias de Vida de Jóvenes Puertorriqueños en la Selección de la Carrera de Medicina: Retos para la Consejería Ocupacional. *Blanca E. Amorós-Rivera.* Centro Estudiantil de Consejería y Psicología, Decanato de Estudiantes, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

La consideración de las experiencias de vida permite una aproximación centrada en la evolución de la selección ocupacional de los estudiantes. Objetivos: Explorar cómo inciden las experiencias de tres jóvenes puertorriqueños en su selección de la carrera de Medicina en el Recinto de Ciencias Médicas de la UPR. Describir las intervenciones de consejería que incidieron en la decisión de los participantes. Método: Estudio de caso colectivo de corte cualitativo. Se usó la entrevista semi estructurada, guiada por una planilla de preguntas. Participaron tres estudiantes (dos féminas y un varón) recién admitidos a la Escuela de Medicina de la Universidad de Puerto Rico, y dos consejeras profesionales. Los datos se analizaron siguiendo el modelo de Wolcott (1994). Resultados: Los elementos que incidieron en la selección de la carrera de Medicina son: satisfacción de necesidades, pasatiempos, sentido de autoeficacia y grado de agencia personal; exposición a modelos médicos en la infancia y adolescencia; exposición a eventos de enfermedad; preferencias académicas de sus padres; y la exposición a experiencias ocupacionales. Las consejeras participantes también le asignan mayor relevancia a las experiencias en la ocupación de interés como promotoras de la decisión ocupacional. Según éstas, otras estrategias que facilitan el proceso de selección de la carrera de Medicina, son: entrevista a profundidad, ejercicios de visualización, administración de inventarios de intereses vocacionales, y la búsqueda de información y oportunidades relacionadas a la ocupación de interés. De los hallazgos, surge un protocolo de intervención.

R-191 Enfoques Participativos y Metodologías Comunitarias en la Escuela: Opción para el Trabajo Social Escolar. *Doris S. Pizarro.* Escuela Graduada de Trabajo Social, Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico.

Los/as trabajadores/as sociales (TS) requieren de nuevos enfoques y metodologías para atender los problemas que afectan a nuestras escuelas. Objetivos: Determinar conocimientos y actitudes de los/as TS sobre la Carta Circular de Trabajo Social, el Programa de Trabajo Social Escolar (PSTE) y sobre los enfoques de intervención utilizados en la escuela; examinar los significados que otorgan trabajadores/as sociales a los enfoques deliberativos y participativos, y a la aplicabilidad de metodologías de trabajo social comunitario en el escenario escolar; y

conocer las recomendaciones de los trabajadores sociales escolares para mejorar y fortalecer el PTSE. Método: Investigación cualitativa con diseño de estudio de caso intrínseco. Realicé tres entrevistas a profundidad a directivas del PTSE y tres grupos focales en tres regiones educativas, con una participación de 29 trabajadoras sociales. Resultados: Existen contradicciones entre el discurso y la implantación de la Carta Circular, y no se está cumpliendo con la misión del PTSE. Apenas se trabaja con las familias, ni se promueve la participación de la comunidad en la escuela. La fragmentación entre sectores, la falta de autonomía educativa, la distribución desigual de poder, ausencia de supervisión y apoyo, afectan la calidad de la intervención profesional. El PTSE exige muchas tareas administrativas, el ambiente ocupacional es precario, lo cual crea insatisfacción por el desempeño profesional entre las TS. Los resultados sugieren que se debe readiestrar a los TS sobre metodologías grupales y comunitarias, proveer espacio físico adecuado y mejores condiciones de trabajo.

R-192 Enhancing Academia Infusing Technology: Follow up and Faculty Perspective on Institutionalization. *Anadel Castro, Luz A. Muñiz-Santiago, Rubén García, María P. Toral.* University of Puerto Rico Carolina Campus, Carolina, Puerto Rico/ Title V Cooperative II Project and University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Faculty training in design of web-based courses and tutorials, and teaching-learning strategies that respond to 21st. century students' needs was the main goal of the Faculty Development Component of this Title V Program; with a specific aim of increasing the number of faculty integrating technology into teaching-learning process, through the creation of online courses and self-instructional tutorials. Objective: Follow up on faculty perspective of impact and institutionalization of technology integration into the teaching-learning process. Methodology: Participants (N=16) were surveyed, after completing their first online course or tutorial. 100% of participants completed the survey. Results: 14% of the participants indicated they had developed 4-5 new online courses, 14% 1-3 courses and 14% stated they were at the time of the survey designing a web based course. 29% of the participants stated they had created 1-3 online tutorials, and 36% were in the process of developing one. 80% stated they had implemented these online courses from 1-3 times and 20% five or more times. When asked if they planned to continue designing and implementing online courses and tutorials, 100% stated in the affirmative. Support of an instructional design consultant was identified of key importance by 94% of the faculty; though 69% stated they felt competent, after being trained, to design online courses and tutorials without this support. Conclusion: Faculty training and individual technical support are effective strategies to enhance integration of innovative technology in academia, as well as to promote institutionalization. G# P031S050055

R-193 Management and Hygienic Maintenance of Haitian Females' Hair. *Verónica Acevedo¹, Roselyn Cintrón¹, Ada M. Alemán-Batista¹, José A. Vargas².* ¹Undegraduate Department, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Iniciativa Comunitaria, San Juan, Puerto Rico.

The earthquake that occurred on January 12, 2010 aggravated the health situation Haitian people had been trying to cope with. The women population was specially affected by the aftermath of it. Through the investigation done it was clear that a woman's hair hygiene was a grave issue since it was the cause of common and contagious illnesses. The basis of the educational project was to provide these women with practical knowledge to be able to keep up their hair sanitarly. Three areas were worked on through an educative intervention: psychomotor, cognitive, and affective. In the psychomotor aspect it was required for the participants to repeat the process of untangling the hair on a mannequin. In the cognitive aspect of the intervention images placed in chronological order of the hair wash process were used to help the women visualize it and at the same time provide direct feedback to ensure they had understood it. Lastly in the affective phase, the reasons to give importance to the hair's maintenance were discussed from which the participants chose the reason they considered was the most vital. It was assessed that the indicators of achievement and the adequacy of each aspect for this task were met. In the future, giving our findings, it is recommended that a thorough investigation should be made in Haitian soil before trying to design or implement any intervention. It's also recommended to have a series of at least three interventions following each of Bloom's taxonomy objectives. This project received no financial assistance from any particular entity outside the ones from those who believe in this intervention.

R-194 Physical Activity among Medical Residents. *Ricardo Gago-Piñero¹, Humberto M. Guiot², Yanira Z. Vázquez-Pérez², Juan R. Barrón-Aleman², Carlos M. Morales-Rodríguez².* ¹Department of Internal Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Since physical activity (PA) has proven to be beneficial, physicians in-training should be aware of the revised physical activity guidelines (PAG) in order to promote such therapy upon the largely sedentary population. Furthermore, healthcare professionals should incorporate them to their daily lives as well. Objective: To create awareness on the PA habits and to determine how much medical residents know about the PAG in efforts to enhance compliance. Methods: Residents older than 21 years from the University of Puerto Rico, Medical Sciences Campus participated in a self-administered survey. Results were analyzed

on a descriptive analysis and correlations drawn using the SPSS. Results: A total of 104 residents participated with ages ranging between 26 and 45, out of which 67% of the residents did not know that there are established PAG and only 3.8 % had discussed this topic as an educational activity. Regarding their personal PA, 58.9% did some type of activity and 41.3% didn't do any activity. There was a negative correlation between higher level of training and decreased vigorous physical activity ($p=0.03$). There was also a trend between those who knew the physical activity guidelines and do vigorous physical activity ($p=0.054$). Conclusion: Despite the increasing evidence on the benefits of PA, less than half of the residents have knowledge of the PAG and most of them do not perform any activity. Stronger efforts should be done to campaign this type of therapy that has proven to be of such beneficence. IRB approved with protocol number: Protocol A5230111 on 04/12/2011

R-195 Implantación de una Guía Informativa para Padres de Niños/as Diagnosticados con Autismo. *Anette Quiñones-Miranda, Ana M. Parrilla-Rodríguez.* Maternal and Child Health Program, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La adaptación de la familia cuando tiene un niño con autismo requiere consejería y ayuda profesional. Se ha encontrado que al recibir la noticia del diagnóstico los padres salen desorientados, confundidos y se encuentran sin saber qué hacer. Las guías informativas para padres de niños/as con autismo publicadas a través de la red cibernética han sido utilizadas en Europa, Estados Unidos y América del Sur. Objetivo: Crear una guía informativa para los padres y madres de niños recién diagnosticados con autismo para distribuirse a través del programa FILIUS. Metodología: Se revisó la literatura, se hizo un análisis de prioridades y criterios, y se desarrolló una guía informativa para autismo. Se diseñó una hoja evaluativa basada en 12 criterios. La guía fue evaluada por 37 de los participantes de la academia de autismo del Instituto FILIUS de UPR, RCM. Resultados: El 100% clasificó entre excelente y bueno el criterio de que la selección de los temas puede ser de interés a la población a la que va dirigida la guía y el criterio de que la guía logra cumplir con el propósito de orientar a los padres de niños/as diagnosticados con autismo. Entre las recomendaciones dadas se mencionó incluir alguna sección de apoyo emocional. El análisis del ambiente interno y externo determinó que la estrategia es costo efectiva y viable. Direcciones futuras: Distribuir la guía informativa para padres de niños diagnosticados con autismo a través del portal cibernético de FILIUS. Evaluar la guía por una muestra de los padres participantes del Proyecto de Autismo Infantil luego de haber sido utilizada. Fondos: Ninguno.

R-196 Implantación de un Programa de Apoyo de Lactancia Materna para Adolescentes dentro del Programa WIC. *Abneris Díaz-Morales, Ana M.*

Parrilla-Rodríguez. Maternal and Child Health Program, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

El 18% de los nacimientos en Puerto Rico ocurren en adolescentes. Varios estudios insisten en la importancia de apoyar a la madre adolescente durante la lactancia. El apoyo social es un factor importante en la iniciación y duración de la lactancia; este tipo de apoyo incluye componentes tangibles y educativos en la red social. El Programa WIC no cuenta con un programa educativo dirigido exclusivamente a las madres adolescentes. Objetivo: Implantar un programa para aumentar el apoyo social hacia la lactancia materna dirigido a las madres dentro del Programa WIC. Metodología: Se revisó la literatura, se hizo un análisis de prioridades y criterios, y se desarrolló material educativo y una actividad educativa dirigida a aumentar el apoyo social a la lactancia en madres adolescentes. Se diseñó una hoja evaluativa basada en 5 criterios. Se realizó una actividad educativa piloto en una clínica WIC del área metropolitana de San Juan. Resultados: Participaron 3 parejas de adolescentes. 100% (N=6) consideró estar completamente de acuerdo que con la información recibida podría reconocer quienes son su grupo de apoyo y 83.3% (N=5) indicó estar completamente de acuerdo la información recibida aumentó sus conocimientos sobre lactancia. El análisis del ambiente interno y externo, y los hallazgos del piloto demuestran que la estrategia es costo efectiva y viable. Direcciones futuras: El programa debe ser incluido en el Plan Estatal Anual del WIC para asegurar el asentimiento y secuencia del mismo. Se debe realizar una evaluación de proceso y resultado 6 meses después de implantada la estrategia. Fondos: Ninguno

R-197 Preparedness of Primary Care Centers in Puerto Rico to Response to Pediatric Emergencies 2010. *Milagros B. Martín¹, María E. Centeno², Wanda Arbelo².* ¹Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Primary care centers (PCC's) offer the first line of response in many pediatric emergencies in Puerto Rico. Adequate preparedness of PCC's to effectively provide emergency management of critically ill or injured infants and children is necessary and in some circumstances may represent the difference between life and death. To evaluate the degree of preparedness of PCC's in Puerto Rico to response to pediatric emergencies, a self-responded questionnaire was developed, based on the American Academy of Pediatrics recommendations for Pediatric Emergency Care Facilities to assess three key indicators: 1) certification of Pediatric Advance Life Support (PALS) by PCC's emergency employees 2) availability of equipment and medications for pediatric

emergencies, and 3) inter-facilities transfer agreements for pediatric patients. A pilot study with a convenience sample of 71 emergency room employees, participating at the UPR-Pediatric Emergency Department workshops from 22 PCC's from all six Puerto Rico Department of Health Regions was conducted. Descriptive statistics were used to analyze the data. Most participants were nurses or physicians from Ponce (32%) and Metro (21%) regions. Only 30 (43%) had the PALS certification. None of the participating PCC's had all the required equipment and medications to response for pediatric emergencies, and only ten (41%) had transfer agreements in place. The inadequate preparedness of participating PCC's to response to pediatric emergencies require the development of further evaluations and a strategic plan to improve emergency health services provided to critically ill children in Puerto Rico.

R-198 Intrathecal Polymixin B as an Adjunctive Therapy for Ventriculostomy Associated Infections Secondary to Multi-Drug Resistant Gram Negative Bacteria: A Retrospective Study of Cerebrospinal Fluid Sterilization. *Arelis Febles, Sol M. Carrillo, Humberto Guiot, Jorge Bertrán.* Infectious Diseases Department, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Ventriculostomy is used in neurosurgery for cerebrospinal fluid (CSF) drainage and it is associated to ventriculostomy-associated infection (VAI). Few studies have evaluated therapy for VAI caused by multi-drug resistant gram-negative bacteria (MDRGNB). VAI usually does not respond to conventional systemic antibiotic. The use of intrathecal therapy is frequently the only option to achieve CSF sterilization. Our objective was to evaluate the outcome of patients with MDRGNB VAI after the administration of adjunctive therapy with intrathecal polymixin B (IPB). We conducted a retrospective study from July 1, 2006 to June 30, 2009, in patients with MDRGNB VAI at the University Hospital Puerto Rico Medical Center. Data retrieved from medical records were: demographics, risk factors, length of hospital stay and mortality. MDR organisms were identified by CSF culture and susceptibility report. Over the 3-year period, 42 records were evaluated. MDRGNB VAI was identified in 14 cases: *Acinetobacter baumannii* in 8(57%), *Pseudomonas aeruginosa* in 5(36%) and *Enterobacter cloacae* in 1(0.07%). In all cases IPB was added to systemic therapy. The mean age of patient was 48.23 (\pm 30). Eight cases (57%) achieved CSF sterilization after IPB adjunctive therapy, 1(0.1%) case did not achieve CSF sterilization and in 5(35%) cases CSF sterilization could not be determined. All cause mortality was 50%. Manipulation of the system, craniotomy and intracranial hemorrhage were identified as related factors. Our study supports the adjunctive use of IPB as an effective therapy for MDRGNB VAI, with an acceptable rate of CSF sterilization.

R-199 Percepción de Administradores Educativos Respetos a la Educación a Distancia en Programas Graduados de Educación en las Universidades de Puerto Rico. *Juan A. Meléndez-Sostre.* Undergraduate Department, School of Health Professions, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La Educación a Distancia surge como una necesidad urgente en los países pobres de grandes extensiones geográficas y como respuesta a la globalización de las naciones del mundo. Es un término genérico e implica para la facultad nuevas descripciones de trabajo y nuevos tipos de proveedores de educación superior. El rol del administrador educativo es raramente objeto de estudio en comparación con la facultad que enseña. Propósito: Proveer información objetiva, útil y pertinente relacionada a la educación a distancia y su oferta académica. Metodología: Se llevó a cabo un diseño exploratorio descriptivo y se utilizó una muestra de ochenta y dos administradores educativos. Resultados(a) disposición evidente de las instituciones de educación superior por desarrollar programas bajo la modalidad de educación a distancia, (b) razones que propician el establecer esta modalidad se debe a la intención de proveer acceso a una población estudiantil mas amplia, ofrecer una oferta académica competitiva y una innovación en la educación, (c) factores que motivan la implantación de estos programas: prestigio que adquiere la facultad, mas oportunidades de desarrollo profesional, mas disponibilidad y calidad del material didáctico, (d) factores que obstaculizan el desarrollo de estos programas: las actitudes negativas de la facultad, infraestructura inadecuada y falta de personal clave tales como diseñadores instruccionales. Conclusión: Los administradores educativos perciben esta modalidad como herramienta que permite a las instituciones autoevaluar-se con el fin de encaminarse a una visión de futuro.

R-200 The Use of Standardized Patient to Train Medical Students on Hiv as the Next Generation of Service Providers. *Belinda Beauchamp¹, Nerian Ortiz².* ¹Department of Pediatrics, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Changes in health care are having an important impact on medical education making the use of standardized patients one of the most effective tool for assessing standards of doctor-patient relationship and it has acquired significant relevance in health care and medical education. Medical students represent the clinical services providers that will be responsible to offer standards of care to people infected with the HIV virus in the near future. The UPR School of Medicine has implemented the standardized patient modality following the recommendation of the Liaison Committee on Medical Education (LCME). Among several uses, it serves to test important skills that the physician involved in the medical care

of patients with chronic illnesses, such as HIV, needs to master. A Challenging Patient/Physician Interaction Curriculum was implemented as a unit of the communication skills component of the UPR Medical School Curriculum. Standardized scenarios involving the HIV/AIDS patient were developed. Medical students were exposed to standardized activities throughout the medical school years using different scenarios. The objectives of this strategy are: Expose medical students throughout the four years of medical school to standardized challenging scenarios; to offer medical students the opportunity to interact with an HIV/AIDS patient using a standardized strategy; and to offer feedback on performance. Evaluations revealed that these standardized strategies were very useful in helping students to acquire competencies in interpersonal and communication skills, which are essential to deal with an HIV patient.

R-201 Puerto Rico Abstinence Program Systematic Technical Assistance Model. *Samaris O. Vega-Torres¹, Annette Alameda-Díaz², Edna Acosta-Pérez², Monica Adams², Marizaida Sánchez-Cesáreo².* ¹Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The PR Abstinence Plan (PRAP) is an initiative between PR Department of Health, United Way and Center for Evaluation and Sociomedical Research (CIES) at RCM-UPR. The goal of PRAP is to delay initiation of sexual intercourse among adolescents in eight high-risk municipalities. An evidence-based program, Parenting Education Program, was implemented following a Systematic Technical Assistance Model (STAM) developed by CIES, which includes elements of Interactive Systems Framework for Dissemination and Implementation. This model aims to ensure pertinence, cultural competence, fidelity to curriculum and its implementation, and to strengthen the partner systems in order to ensure program sustainability. Objectives: To present STAM to implement evidence-based programs at community-based organizations in PR. Methodology: This model includes the following phases: 1) Cultural and linguistic adaptation, 2) Training/Technical Assistance, 3) Fidelity Evaluation, 4) Feedback on Results. Outcomes: For the cultural adaptation, all materials were culturally and linguistically adapted. In Training/TA phase, two trainings of 28 and 30 contact hours were provided to educators (n=31) and supervisors (n=10). Additionally, 130 hours of TA, were completed on 70 observations to the educators' sessions. In general, 63% of educators followed program content and style with high fidelity. Of all interested parents, 510(60%) attended at least one session, while 470(92%) completed all activities. Future Directions: Explore the relevance of the STAM for implementation of other prevention programs in PR. Funded by Title V State Abstinence Education Program.

R-202 Puerto Rico en Forma: Enfoque Comunitario de Promoción de la Actividad Física. Mercedes Rivera¹, David Bernier², Iliá Torres-Avillán³, Rey Soler². ¹Physical Education and Recreation, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Comité Olímpico Puerto Rico; ³Puerto Rico en Forma.

El sedentarismo es un problema de salud de gran envergadura. De acuerdo al BRFSS (2009), alrededor de 72% de la población adulta en Puerto Rico reportó que No participa de actividades físicas moderadas consistentemente. Para adelantar en la lucha contra el sedentarismo es imprescindible identificar factores que promueven la actividad física y otros que se convierten en barreras para una vida activa. En un esfuerzo para atender el sedentarismo y consecuencias como la obesidad, se creó el Programa Puerto Rico en Forma en el 2006. El Programa a cargo del Departamento de Recreación y Deportes, estuvo dirigido a promover el desarrollo de programas de ejercicios en grupo, en varias modalidades, deportes y/o recreación y fue desarrollado en 71 municipios. El propósito de la evaluación fue explorar el nivel de actividad física, los aspectos relacionados a mantenerse activos o romper con el programa, además del nivel de satisfacción con el Programa. Un total de 186 fueron encuestados. Un 47.8% indicó no haber participado en actividades física del programa. Entre las razones principales señalan no tener tiempo (40.4%) y que no le motivaron (22.5%). Un 50% reportó no estar activos antes del Programa. Factores económicos y demográficos pueden tener un fuerte impacto en la participación de los individuos. Los datos sugieren que se deben articular estrategias que consideren la accesibilidad a sesiones de ejercicio y programas variados que faciliten la participación, cuando se intenta aumentar los niveles de actividad física en la población de Puerto Rico.

R-203 Recinto Pa' la Calle: An Alternate Approach to Medical Education Through Solidarity Service-Learning. Marcos G. Salgado¹, Sahily Reyes², Claudia S. Simich², Milangel T. Concepción³, Ramón E. Flores⁴. ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³Psychiatry Residency Training Program, Georgetown University Hospital, Washington DC, United States of America; ⁴University of Texas Health and Science Center, Texas, United States of America.

Outside classrooms and hospitals, medical students from the University of Puerto Rico have come across an alternate path of education through an initiative they have entitled "Recinto Pa' La Calle". A more humane patient-doctor relationship is sought, considering social determinants of health in the Puerto Rican urban setting. Objectives: 1) Provide experiences that develop relational skills and cultural competence. 2) Stimulate awareness among healthcare professionals on the

importance of the social context of medicine. 3) Promote the education and empowerment of vulnerable populations. Methodology: Every Monday night, a group of students reach out to people living in the streets near the Medical Center Area. Participants are provided with necessity goods, basic health education and simple conversation. Volunteers receive training from Iniciativa Comunitaria, a non-profit organization with vast experience working with marginalized populations. The theoretical model used, "solidarity service-learning", establishes a way of learning through community interaction and strategic reflection. Outcomes: In this emotionally intense scenario, concepts of medical ethics have acquired new depths for students, motivating a richer understanding on what it means to practice medicine. The patient is acknowledged as a teacher and active participant in the healing process. Projection: It is our hope that this model of community service and medical education inspires change and encourages liaisons between academia and community. Funding: This effort is funded by the non-profit organization Iniciativa Comunitaria and volunteer donations.

R-204 Integration of Assessment and Information Literacy to Enhance the Teaching-Learning Process. Efraín Flores-Rivera, María P. Toral, Rubén García. University of Puerto Rico Carolina Campus, Carolina, Puerto Rico/Title V Cooperative II Project and University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The need to improve faculty skills in integrating assessment and information literacy (IL) into their teaching activities was the rationale for developing faculty training programs in the MSC-UPRC Title V Project. Objective: Follow-up on faculty perceptions regarding the impact of the use of e-portfolio as an assessment tool and the integration of IL into courses. Method: Upon completion of training, participants in e-portfolio (N=31) and IL (N=24) training programs were surveyed. Results: Of participants who completed the e-portfolio survey, 57.9% indicated that they have continued to develop their professional e-portfolios, and 47.4% have integrated this assessment tool in 1-3 new courses. The main benefits of using e-portfolios as cited by participants were: deeper learning of course contents (42.1%); development of critical thinking (CT) skills (36.8%); and more opportunities for student reflection on course learning (68.4%). Regarding participants who completed the IL survey, 83.3% indicated that they have continued to integrate the teaching of IL skills in their courses. The most cited benefits of integrating IL to courses were: deeper learning of course contents (44.4%); development of CT skills (55.6%); improved quality of research projects (44.4%); and improvement in lifelong learning skills (33.3%). Conclusion: Faculty training is an effective strategy to enhance the use of e-portfolio as an assessment tool and the integration of IL in academia. Grant #P031S060003

R-205 La Creación de una Colección de DVD para Facilitar la Implantación de Prácticas Educativas. *Isabel Ramos-Rodríguez, Carmen Pacheco-Sepúlveda, Mayra Vargas-Rodríguez.* Facultad de Educación, Universidad de Puerto Rico, Recinto de Río Piedras, San Juan, Puerto Rico.

Los docentes requieren de procesos de educación en servicio para lograr la implantación de nuevas prácticas de enseñanza que respondan a la visión, metas y objetivos de su institución educativa. El DVD es un medio idóneo para este propósito debido a su versatilidad tecnológica. Objetivo: Producir una serie de DVD instruccionales para demostrar, a futuros maestros y educadores en servicio, la implantación de diversas prácticas de enseñanza que pueden emplearse en la sala de clase. Actividades: Se realizaron fases de: pre-producción (desarrollo del concepto, recopilación de información, elaboración del guión, plan de grabación); producción o grabación de los videos; y post-producción o edición del producto final. Resultado: Se desarrollaron 9 DVD en los que se presentan las siguientes prácticas educativas: juego dramático; aprendizaje cooperativo; aprendizaje por descubrimiento; aprendizaje basado en problemas; pensamiento inductivo/formación de conceptos; capacitación para la indagación; aprendizaje a partir de simulaciones; indagación jurisprudencial; investigación grupal. Cada una de las prácticas, puede ser utilizada en diferentes niveles y asignaturas. En cada DVD se conceptúa, demuestra e invita a implantar cada práctica educativa y se ofrece un instrumento para facilitar la reflexión del docente. Además, al demostrar cada práctica se ofrecen ejemplos de cómo integrar la tecnología para facilitar el proceso de enseñanza aprendizaje. Proyecciones: Publicar y promover el uso de la colección como un recurso para el desarrollo de programas de educación en servicio en escuelas y otros escenarios educativos.

R-206 Para Vernos Mejor: Fotovoz como Metodología y Estrategia de Investigación Acción Participativa en el Estudio de los Determinantes Sociales de la Salud en la Salud Pública. *Carmen M. Vélez-Vega.* Departamento de Ciencias Sociales, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

El análisis de imágenes en el contexto de estrategias metodológicas como fotovoz, se ha reportado como una estrategia exitosa en la investigación acción participativa con comunidades y grupos cuyas voces típicamente no son escuchadas, en la evaluación cualitativa de programas y servicios, investigación histórica, comunicación y educación para la salud. En particular la estrategia ha demostrado ser efectiva en el desarrollo de pensamiento crítico y de nuevas formas de indagación en salud pública. La propuesta es una muestra del uso de FotoVoz como metodología, herramienta y enfoque en el estudio de los determinantes sociales de la salud en el contexto del curso medular de ciencias sociales para estudiantes de salud pública durante

el periodo de agosto de 2008 a noviembre de 2011. La muestra aborda el determinante social de la salud, Educación, en este caso la amenaza a las estructuras que la posibilitan. 1. Conflicto huelgario UPR 2010-2011: Desde la imposición hasta el abuso, 2. Fotovoz: La UPR en la Voz de sus Estudiantes.

R-207 Comparing Dietary Intake and Nutrients between Pre-diabetic and Normal Puerto Ricans. *Sandra M. Soltero¹, Francisco Muñoz², Cristina Palacios², José L. Vegara², Kaumudi Joshipura³.* ¹School of Dental Medicine, Center for Clinical Research and Health Promotion, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico/Harvard School of Public Health, Massachusetts, United States of America.

Individuals eating less fiber and more sugar are more likely to be pre-diabetic compared to individuals with a healthier diet. We conducted in-person interviews to comprehensively assess dietary intake using a semi-quantitative food frequency questionnaire (FFQ) within SOALS, an ongoing longitudinal study of overweight/obese individuals 40-65 years of age and free of diabetes. We compared dietary intake between pre-diabetic and normal glucose individuals among 119 participants. The mean age was 52 years and 71% of the participants were female. The total calorie intake was 2,344 kcals among pre-diabetes and 2,471 kcals among normal individuals. Total dietary fiber adjusted for calories was lower among pre-diabetes compared to normal participants (18.5g versus 20.1g). Fruit consumption was estimated at 5.7/week among individuals with pre-diabetes and 5.0/week for normal glucose participants. Whereas 100% fruit juice intake was 5.1 times/week for pre-diabetic, and 5.2/week for normal individuals. Vegetable consumption was estimated 4.9 and 5.6 per week for pre-diabetics and normal individuals. Among white bread consumers 36% are pre-diabetics, versus 31% among whole grain bread consumers. Among these overweight individuals, there is no significant difference between energy and macronutrients intake between pre-diabetic and normal individuals. Individuals with pre-diabetes had lower fiber and higher fruit intake but lower vegetable intake compared to normal individuals. Intake of whole grains was significantly higher in normal compared to pre-diabetes individuals. Additional multivariate analyses will be conducted.

R-208 Sex and Age Differences in Presenting Symptoms of Acute Myocardial Infarction: The Puerto Rico Heart Attack Study. *Gruschenka N. Mojica-Sánchez¹, Héctor L. Banchs-Pieretti^{1, 2}, Mario García-Palmieri^{1, 2}, Luis R. Pericchi³.* ¹School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²Cardiovascular Cen-

ter of Puerto Rico and the Caribbean, San Juan, Puerto Rico; ³Department of Mathematics and Biostatistics and Bioinformatics Center of the College of Natural Sciences, University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico.

Acute myocardial infarction (AMI) is the leading single cause of death in Puerto Rico. Despite scientific evidence suggesting that AMI symptoms vary according to sex and age, there is limited available information of symptoms distribution on this population. This study characterizes presenting symptoms of AMI according to sex and age in Puerto Rican patients. We examined 21 symptoms of AMI in the medical records of 1,415 men and women hospitalized with a validated AMI in 12 greater San Juan Puerto Rico area hospitals during 2007. Pearson correlations and t-test were utilized to compare symptoms by sex and age groups (<55; 55-64; 65-74; 75-84 and >85 years old). Risk ratios were calculated using logistic regression. Chest pain was the most prevalent symptom, and was lower in women (77%) than in men (85%) ($p < 0.001$), but declined with aging [OR 0.97 (.95CI=0.95-0.98)]. Women were more likely to present with abdominal pain [OR 1.8 (.95CI=1.0-3.1)] and back pain [OR 1.9 (.95CI=1.1-3.1)], while men were more likely to present with "classical" symptoms such as chest pain [OR 1.7(.95CI=1.2-2.3)], chest pressure [OR 1.5 (.95CI=1.1-2.1)] and left arm pain [OR 1.9 (.95CI=1.3-2.7)]. Older patients were more likely to present abdominal pain [OR 1.0 (.95CI=1.0-1.1)]. Findings from this study suggest significant sex and age differences in symptoms of AMI among Puerto Ricans. Women present with lower prevalence of "classical" AMI symptoms than men. Early recognition of these differences may increase awareness and reduce disparities in AMI management. Funding: UPR-SOM, EHSRC, Grants 5S21MD000242 and 5S21MD000138, from NCMHD-NIH.

R-209 Oral Human Papillomavirus Infection among Drug Users in Puerto Rico. *Juan C. Reyes¹, Ana P. Ortiz², Guillermo Tortolero², Héctor M. Colón².* ¹Department of Biostatistics and Epidemiology, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: The prevalence of human papillomavirus (HPV) in the oral cavity has not been as well studied as infection in the genital tract. The prevalence of oral HPV is uncertain, especially among drug users. In the normal oral mucosa, infection rates range from 0% to 81%. Objectives: To determine the prevalence of and risk factors for oral HPV infection among a sample of drug user in Puerto Rico (PR), population with high prevalence of HIV and drug use. Methods: Cross-sectional study were the sample was drawn from a target population of drug users aged 18-35 years, not in treatment, living in the San Juan metropolitan area. From 378 persons recruited, results of oral HPV infection at this point are available for 223 individuals, and thus

these are included in this analysis. Oral samples were collected through an oral rinse using Scope mouthwash. HPV infection status of the samples was detected through PCR. Information on covariates was obtained in a face-to-face interview. Results: Our population was predominantly male (77.1%), with mean age of 28.3 years (± 4.9 sd). The prevalence of HIV and oral HPV infection was 11.8% and 12.6%, respectively. HPV-72 was the most prevalent (1%) followed by HPV-35, 81, 82 and 84 (0.5%, respectively). HPV-16 and HPV-18 were not detected in our sample. The prevalence of oral HPV infection was higher in HIV-positive (30.0%) than HIV-negative (10.1%) drug users (OR= 4.0, 95% CI: 1.4-11.3); infection did not differ by age or gender. Conclusions: Consistent with previous studies in the genital tract, HIV infection was strongly associated to oral HPV infection.

R-210 Dental Fluorosis and Caries in a Fluoridated and non Fluoridated Community. *Margarita Muri- llo, Luis J. Orraca, Mariema García, José Vivaldi, Sona Rivas-Tumanyan, Augusto Elías.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Community fluoridation a cost effective measure for the prevention of dental caries. Costa Rica (CR) initiated a salt fluoridation program in 1987. Puerto Ricans (60%) had a water fluoridation program from 1952 until the 80s. Hypothesis: To compare the prevalence of fluorosis and dental caries in a fluoridated (CR) and a non-fluoridated community (PR). We expected to observe higher prevalence of fluorosis and lower prevalence in CR compared to PR. Objectives: To compare the Community Fluorosis index (CFI), prevalence of moderate and severe fluorosis (Dean index of 3 and 4, respectively), and DMFT index among 12yr olds in CR and PR. Methods: Population-based cross-sectional studies were conducted among 12yr olds from the 7 provinces in CR (1999) and 11 health regions in PR (2011) using a probabilistic sample. Standardized and calibrated examiners performed visual oral examination using the DFMT index and the modified Dean Fluorosis index (DFI): none (0), very mild (1), mild (2), moderate (3) and severe (4). CFI was calculated as average DFI in each population. Results: We examined 1548 schoolchildren in PR and 1260 children in CR. The prevalence of fluorosis (DFI>0) was 23.30% in PR and 31.9% in CR. Less children had moderate/severe fluorosis (DFI=3/4) in PR (0.30%) compared to CR (5.5%). The CFI was 0.47 in PR and 0.58 in CR. Children in PR had a slightly higher average DMFT (2.65) compared to Costa Ricans (2.46). Conclusion: As hypothesized, children from a fluoridated community (CR) had higher prevalence of fluorosis and lower DMFT compared to children from a non-fluoridated community (PR).

R-211 Incidence and Mortality of Oral Cavity and Pharynx Cancer by Socioeconomic Position in Puerto Rico. *Natalia Torres-Berrios, Erick Suárez,*

Rosa V. Rosario. Department of Biostatistics and Epidemiology, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Cancer is the 2nd leading cause of death in Puerto Rico (PR). In PR, oral cavity and pharynx cancer (OCP) is one of the most common cancers in males. According to the Puerto Rico Central Cancer Registry (PRCCC), during 1993 to 2004 a total of 3,989 cases of OCP cancer were diagnosed in PR. The OCP represents 4.6% of all cancers affecting men and 1.7% in women for the period 2000 to 2004. This study describes the mortality and incidence of OCP in PR by socioeconomic status. Data of 1,119 cases were provided by the PRCCR. Incidence and mortality were age-adjusted using the direct method of standardization with 2000 PR population as the standard. A socioeconomic position (SEP) index in PR by municipality level was used as reported by PRCCC. The median age of diagnosis was 64 ± 15.2 years. The SEP index was reported in quintiles (SEP1, ..., SEP5) where SEP1 represents the most deprived group. The overall age-standardized incidence (ASI) among men was 15.5×10^{-5} while for women was 3.7×10^{-5} . Among municipalities with SEP1, ASI was 9.4×10^{-5} ; among those municipalities with the SEP5, the ASI was 8.5×10^{-5} . The overall age-standardized mortality (ASM) was 6.6×10^{-5} in men and 1.56×10^{-5} in women. Among the municipalities with SEP1, ASM was 3.5×10^{-5} , among those municipalities with the SEP5, the ASM was 3.2×10^{-5} . Differences were observed in the incidences by sex and SEP, but in mortality the differences were observed just by sex. Further studies are warranted to assess the socioeconomic effect in the incidence and mortality of OCP at individual level.

R-212 Outcomes of Puerto Rican Girls with Central Precocious Puberty Treated with Leuprolide (Lupron) and Followed at the UPH Endocrinology Clinics. *Marina Ruiz, Francisco Nieves.* University of Puerto Rico Pediatric Hospital, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: Leuprolide is a monthly injection used in children for the treatment of central precocious puberty (CPP). It arrests pubertal development and bone fusion allowing children to achieve predicted adult height. Two main height predictors are used to establish adult height: the Bayley-Pinneau tables and mid parental height. Studies have shown differing conclusions to which method predicts adult height most accurately. Another controversy is the effect of Leuprolide on Body Mass Index (BMI) with many studies showing no effect. Objectives: Compare mid parental height with predicted adult height by Bayley-Pinneau tables in girls with CPP prior to Leuprolide treatment and how these compare with final height; and, to evaluate its effect on BMI. Methods: This is a retrospective review of medical records of Puerto

Rican females with CPP followed at the University Pediatric Hospital Endocrinology clinics. The study was approved by the IRB. Results: The study included 18 females. The mean age at presentation was 6.6 years (range 2-9) and they were treated for a mean of 2 years (range 1-4). The data showed decreased concordance of both adult height predictors, with mid parental height being the closest predictor to true adult height. BMI was lower prior to treatment (18 vs 21, $p = 0.0338$). Conclusion: Neither adult predictor is accurate but it seems as though mid parental height trends towards predicting adult height with greater accuracy than Bayley-Pinneau, a finding that could have been affected by the age range and duration of treatment. The BMI increased after treatment, a controversial aspect in other studies.

R-213 Association between the Level of Perceived Academic Stress, Social Support, and Eating Patterns on Higher Stress Moments, among Students of First and Second Year of the UPR-MSc in the Academic Period from January to May 2010-2011. *Ideliz Pagán, Carla Fabián, Josué L. Ríos, Jesmari Betancourt, Sonia Y. Cruz, Anaisa González.* Department of Human Development, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Stress is a common health problem among today's society. It is defined as a particular relationship between the individual and its surroundings. When this relationship is originated in an educational context, it is referred as academic stress (AS). Methods to manage and tolerate stress can be called coping strategies. Among these is social support (SS), which is an important variable in the adoption and maintenance of healthful eating behaviors. The eating patterns (EP) of an individual can be affected by the different coping strategies used to deal with the AS. The aim of the present study was to determine the association between AS, SS, and EP among students of first and second year of the UPR-MSc, according to their socio-demographic characteristics. The study design was epidemiological retrospective. The research sample was stratified and included 275 students from the different schools. The data of the present study was collected with an instrument composed of four sections, which were: socio-demographic characteristics, AS level, EP, and SS. Most part of the students perceived their academic load as heavy (68.2%). The majority of the participants had a moderate AS level (36.7%). Most of the students fell in the moderate level category of SS (36.0%). The 62.1% of the sample had an inadequate EP. There was a significant difference between SS and school (p -value=0.012), perceived academic load (p -value=0.016), and age (p -value=0.040). In conclusion, there was an association between SS and school, perceived academic load, and age, but there was not an association between SS, AS and EP.

R-214 Association between Dental Caries and Nutrient Intake in Twelve Year-Old Puerto Rican Children. *Cristina Palacios¹, Roxana Torres², Elvia Santos², Sona Rivas-Tumanyan³, Gerardo Torres², Augusto Elías³.* ¹Nutrition Program, Department of Human Development, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Objective: To evaluate the association between dental caries index (DMFT) and nutrient intake in 12 year-old Puerto Ricans. **Methods:** An island wide study in 1550 children was conducted in 2010-11 using a probabilistic sample. NIDCR diagnostic criteria were used for DMFT assessment. Exams were conducted by 3 calibrated examiners; 24-h diet recall interview were performed in a subset and analyzed with the Nutrition Data System for Research (NDSR). Subjects were grouped according to DMFT, number of decayed (DT) and missing teeth (MT) using the cut-off point of 1 for each index (≥1 vs. 0). Differences in nutrient intake between groups were evaluated with Wilcoxon test. **Results:** Preliminary results in 338 schoolchildren with available data on caries and nutrient intake show a median DMFT of 2.0; 65% had DMFT ≥1; 36% had DT ≥1 and 3% had MT ≥1. Children with a DMFT of ≥1 compared to those with 0 had higher median daily intake of CHO (213 vs. 197 g), sucrose (39 vs. 28 g), total sugars (104 vs. 93 g) and fruit juice (1.3 vs. 0.9 servings) ($p<0.05$). Compared with children without any decayed teeth, those with at least 1 decayed tooth had higher intake of calories (1670 vs. 1570 kcals), sugars (109 vs. 96 g), fruit juice (1.6 vs. 1 serving), and refined foods (4.5 vs. 4.2 servings) ($p<0.05$). Those with a MT score of ≥1 compared with 0 had higher intake of calories (2269 vs. 1619 kcals), CHO (312 vs. 204 g), sugars (177 vs. 98 g), and added sugars (105 vs. 68 g) ($p<0.05$). **Conclusion:** Carbohydrate quality intake was associated with DMFT in 12 year-old Puerto Rican children.

R-215 Mitigating Effects of Influenza Vaccination Given Constraints in Supply and Administration Capacity. *Erin C. McKiernan¹, Mayteé Cruz-Aponte², Marco A. Herrera-Valdez¹.* ¹University of Puerto Rico Cayey Campus, Cayey, Puerto Rico; ²Arizona State University, Arizona, United States of America.

Influenza viruses are a major cause of morbidity and mortality worldwide. Vaccination is a powerful tool for preventing or mitigating influenza outbreaks. Yet, vaccine supplies and daily administration capacities are limited, even in developed countries. Understanding how such constraints can alter the mitigating effects of vaccination is a crucial part of influenza preparedness plans. Mathematical models allow government

and medical officials to assess the impact of different vaccination strategies and plan accordingly. However, many existing models of vaccination employ questionable assumptions regarding vaccine stockpile size and administration. We present a mathematical model that explicitly takes into account vaccine supply and the number of vaccines administered per day and places data-informed limits on these parameters. We use this improved model to test several scenarios involving differences in the vaccination campaign duration, commencement of the vaccination campaign relative to the first outbreak, daily vaccine administration limit, and overall vaccination coverage level. We argue that our model provides more accurate predictions of the mitigating effects of vaccination on influenza outbreaks than previous models. Importantly, parameters such as vaccine supply and daily administration limit can be easily adjusted to simulate conditions in developed and developing nations with a wide variety of financial and medical resources. The model can thus be used by government and medical officials to create customized pandemic preparedness plans based on the supply and administration constraints of specific communities.

R-216 Clinical Profile of Puerto Ricans Hospitalized with Intercerebral Hemorrhage. *Ulises Nobo¹, Abiecer Rodríguez¹, Fernando L. Santiago², Rafael Rodríguez-Mercado³, Jorge Yarzebski³, Juan A. González³.* ¹Hospital HIMA-San Pablo, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ³University of Massachusetts, Massachusetts, United States of America.

Background: Mexican Americans have shown higher incidence of intracranial hemorrhage (ICH) as compared with non-Hispanic whites. However, there is limited information on the clinical characteristics of other Hispanic populations hospitalized with ICH. We examined the clinical characteristics and in-hospital mortality of Puerto Rican patients hospitalized with ICH during 2007 and 2009. **Methods:** Observational study using data from the Puerto Rico Stroke Surveillance Study. The study population consisted of patients hospitalized with a first ICH in 13 medical centers of Puerto Rico. In-hospital mortality was calculated as the percentage of patients with ICH who died during the index hospitalization. **Results:** Of the 2,775 consecutive patients hospitalized with an acute stroke, 425 (15%) had an ICH. The mean age was 69 (+/-15) years, and 54% were women. Patients hospitalized with an ICH had a considerable prevalence of comorbidities: 68% had hypertension, 32% had diabetes, 14% had hyperlipidemia, and 9% were current smokers. The overall in-hospital mortality rate was 19%. In comparison with men, women were older (70 years vs. 68 years), had similar prevalence of hypertension, diabetes and hyperlipidemia, were less likely to smoke (6% vs. 3%, $p=0.018$), and had similar probability of dying (OR=0.9 .95CI=0.6-1.5). **Discussion:** Our findings indicate that Puerto Ricans present with an ICH at relatively young ages and that it is more frequent

in women. Given the high in-hospital mortality, monitoring the clinical characteristics and factors associated with an increased risk of dying remains warranted.

R-217 Dental Caries Prevalence among 12 Year Olds School Attending Puerto Ricans. *Luis J. Orraca, Margarita Murillo, Rony Arencibia, Héctor Marrero, Sona Rivas-Tumanyan, Augusto Elías.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

An oral health reform was implemented in Puerto Rico between 1994 and 2000. Objectives: To estimate the prevalence of dental caries and the mean DMFS index among 12yr old Puerto Ricans in 2011 and compare the findings to 1997. Methods: A probabilistic sample of schools, stratified by region and school type in PR. Three standardized and calibrated examiners conducted examinations using NIDCR diagnostic criteria, similar to the one employed in 1997. Results: 1,550 schoolchildren were examined, 47% males and 53% females. Caries prevalence has reduced from 81% in 1997 to 71% in 2011. Mean DMFS was also lower in 2011 (4.2) compared to 1997 (6.5). This reduction was observed in private (mean DMFS=2.4 vs. 4.7 in 1997) and public schools (mean DMFS=4.3 vs. 6.5 in 1997). In 2011, the decayed component accounted for 32% of the DMFS, while filled and missing surfaces accounted for 65% and 2.7% respectively. In 1997, the corresponding components were 42%, 50% and 8% respectively. Conclusions: A 10% reduction in caries prevalence and the overall mean DMFS from 1997 to 2011 was observed. We observed a 10% reduction in the decayed component and 5.3% reduction in the missing component; the filled component increased 15%. The Oral Health Reform had possibly made a significant impact on the reduction of caries prevalence, making dental treatment and prevention more accessible. Still, dental caries prevalence is high in PR, and a health disparity between public and private school attending children persists. A population-based fluoride program may decrease the decayed component of the index and the overall caries prevalence.

R-218 Is Body Mass Index Associated with Molecular Types of Breast Cancer Cases? *Mary V. Díaz-Santana¹, Consuelo Climent², Emmanuel Agosto², Gilberto Ramos², Cruz M. Nazario².* ¹Graduate Department of Biostatistics and Epidemiology, School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Breast cancer (BC) is the leading cause of cancer death among females in Puerto Rico (PR). It is a heterogeneous disease with distinct molecular subtypes based on gene expressions patterns. We aimed to assess the association between obesity and breast cancer molecular subtypes (BCMS) and determine the

prevalence of BCMS among females with BC in PR. A case-case analysis was conducted using invasive BC cases consulted to the UPR-School of Medicine Immunoperoxidase Laboratory from 2008-2010. BCMS were characterized in 172 tumor specimens based on immunohistochemical surrogates for ER, PR and HER-2 status. The BCMS were defined as: luminal (ER+ and/or PR+), non-luminal (ER-, PR-). NHBLI categories for Body Mass Index (BMI) were used. Logistic regression was used to estimate the associations between BMI and BCMS. The luminal subtype was the most prevalent in our sample (75.0%) compared with the non-luminal (25.0%) subtype. Unadjusted association with BMI differed by tumor subtypes. Using non-luminal subtype as the reference group overweight women were 1.87 (95% CI: 0.73, 4.77) times more likely to be diagnosed with the luminal disease compared to women with normal weight. However, obese women were 4% (OR: 0.96, 95% CI: 0.40, 2.30) less likely to be diagnosed with the luminal subtype compared to women with normal weight. This pilot study suggests an important association between BMI and luminal breast cancer subtype. Future studies to further assess the association between BMI and BCMS will add to the biologic understanding of BC.

R-219 Prevalence of Attention Deficit-Hyperactivity Disorder Symptoms among 18-64 year-olds in Puerto Rico. *Lizbeth M. Del Toro-Mejías, Heidi L. Venegas-Ríos, Juan C. Reyes-Pulliza.* Department of Biostatistics and Epidemiology, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Almost 50% of subjects diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD) in childhood, still present it in adulthood. However, prevalence of ADHD is not currently available for the Puerto Rican adult population. This study aims to estimate the prevalence of ADHD symptoms among adults 18 to 64 years in Puerto Rico, and to describe this population. This is a secondary data analysis of the population-based study "Need Assessment among 15-74 years old population in Puerto Rico". Our study sample comprises 2,607 adults (18-64 years of age). Statistical analyses were conducted to describe the population and to estimate the prevalence of ADHD symptoms. The estimated prevalence of ADHD symptoms was 6.14% (95%CI: 5.25%, 7.13%). Among those who reported these symptoms, the mean age was 44.54±13.11 years. About 7% of women and 6% of men reported ADHD symptoms. Bivariate analyses showed that those without high school degree (p= 0.011), unemployed (p<0.001) and identified as divorced, separated or widowed (p=0.002) were more likely to report ADHD symptoms. In addition, those subjects with ADHD symptoms were more likely to be drug dependents (OR=3.43 (95%CI=1.57, 7.49)), depressive (OR=7.32 (95%CI=4.93, 10.87)), have anxiety (OR=7.33 (95%CI=5.25, 10.24)) or bipolar

(OR=8.34 (95%CI=5.22, 13.45)) symptoms. Understanding the extent of this symptomatology and who it affects, warrants further investigation as it might help improve their quality of life and offer better strategies for prevention, control and intervention in this population. This project was funded by ASSMCA and IRB approved.

R-220 Distribución Geográfica de la Seguridad Alimentaria en Puerto Rico, 2005-2009. *María A. Rosario-Mejías.* Department of Social Sciences-Demography, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Hasta hace poco no se reconocía la seriedad del problema de seguridad alimentaria en Puerto Rico. Al momento no se tiene información sobre el estado de seguridad alimentaria en los municipios del País, ni se han establecido indicadores sobre este asunto. De acuerdo a la literatura, se han identificado indicadores socio-demográficos y de accesibilidad a alimentos para la seguridad alimentaria. Este estudio tiene como objetivo el avalúo del estado relativo de seguridad alimentaria en los municipios de Puerto Rico a través del uso de indicadores socio-demográficos. Los datos fueron obtenidos de la Encuesta de la Comunidad de Puerto Rico, 2005-2009. Algunos de los indicadores utilizados fueron: ingreso familiar, tasa de desempleo, por ciento de dependientes (menores de 15 años y mayores de 65 años), familias monoparentales, vehículos en el hogar, entre otros. A través del análisis de cuartiles se identificaron los municipios con mayor riesgo en cada indicador. Luego se combinaron los indicadores para generar un valor que represente el estado de seguridad alimentaria de cada municipio. Los municipios con peor seguridad alimentaria fueron Orocovis y San Sebastián, mientras que los municipios con mejor seguridad alimentaria fueron Cidra y Gurabo. Aquellos municipios que forman parte del área estadística metropolitana de San Juan, según establecida por el Negociado del Censo, cuentan con mayores ingresos y educación lo que contribuye a un mejor acceso y elección de alimentos; era de esperarse que los municipios con mejor seguridad alimentaria se concentraran en esta región.

R-221 Necesidades de Vivienda de las Personas con Deficiencias en el Desarrollo y Otros Impedimentos Participantes en Organizaciones de Base Comunitaria de Puerto Rico. *Annie Alonso, Luz León, Aimar E. Cajigas.* Programa de Demografía, Instituto de Deficiencias en el Desarrollo, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Al presente se conoce muy poco sobre las necesidades de vivienda de las personas con deficiencias en el desarrollo y otros impedimentos en Puerto Rico. El propósito de este estudio es explorar la percepción de las personas con deficiencias en

el desarrollo y otros impedimentos sobre sus necesidades de vivienda. Un cuestionario relacionado a las necesidades personales y de vivienda se desarrolló. Este estaba compuesto de una parte sociodemográfica, una de necesidades de vivienda, y de servicio. La muestra por disponibilidad estaba constituida de 203 personas con DD y otros impedimentos mayores de 21 años y que buscaban servicios en organizaciones de la comunidad que prestan servicios a esta población. Los hallazgos reflejan que la mayoría de los participantes eran hombres (58%), y la media de edad fue de 37. El 58% de los participantes no trabaja, y el 44% desea trabajar. Además el 49% no recibe servicios de transportación. Los participantes indicaron que sus casas necesitaban algunos cambios como en el baño y en el acceso. Las necesidades de vivienda más importante que indicaron tener los participantes fueron: detectores de humo, barras de apoyo en el baño, poder utilizar la estufa con mayor facilidad y más espacio para moverse por su casa. Estos resultados demuestran que las personas con impedimentos tienen necesidades no solo de vivienda, sino de adaptar sus estilos de vida a sus casas.

R-222 Cambios Demográficos en la Primera Década del Siglo XXI. *Dalianna Carrero-Rivera, Yesarel Y. Pesante-Sánchez, Analuisa Dávila-Román.* Programa de Demografía Departamento de Ciencias Sociales, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

A pesar de que el Negociado Federal del Censo proyectaba que Puerto Rico tendría un aumento poblacional para el año 2010 y que la población alcanzaría los 4 millones de habitantes, los datos del censo arrojaron lo contrario. La Isla perdió población, siendo Puerto Rico uno de los dos estados que tuvieron un descenso poblacional. Este trabajo tiene como objetivos: 1) presentar los cambios demográficos observados en la primera década de este siglo 2) discutir algunas de las implicaciones de los cambios demográficos y de la incertidumbre de las estadísticas en Puerto Rico. Se utilizó como fuente de datos principal el Censo de Población y Vivienda, suministrado por el Negociado Federal del Censo. Los resultados del censo mostraron que la estructura de edad del País es cada vez más vieja, llegando la Isla a alcanzar una mediana de edad de 36.9 años para el 2010, siendo este uno de los cambios demográficos más significativos que ha experimentado la sociedad puertorriqueña en las últimas décadas. Dicho envejecimiento de la población es el resultado de un crecimiento tanto numérico como proporcional de las personas de edad mayor, acompañado de una contracción de la población de menores de 16 años. Socioeconómicamente esta reducción poblacional sumado al envejecimiento poblacional tendrá un impacto directo en gran parte de los municipios de la Isla, vulnerabilizando a muchos sectores que se benefician de programas gubernamentales sufragados con fondos que responden al tamaño de la población y que con los nuevos datos del Censo se podrían ver limitados.

R-223 Oral Hygiene Practices in the Population of San Juan Overweight Adult Longitudinal Study (SOALS). *Marlene Rivera-Sotomayor, Kaumudi Joshipura, José L. Vergara, Cynthia M. Pérez.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Oral hygiene instructions and patient education are an important component of the initial and recall visits at the dental office. Objective: describe the sociodemographic characteristics of Puerto Rican adults 40-65 years, according to their oral hygiene practices. A convenience sample of 487 obese or overweight non-diabetics adults living in the Metropolitan Area who participated in the SOALS study was selected. The visits included a dental examination and an interview. Results: 70% of participants were female with a highest educational level of ninth to eleventh grade (23%) and married (35%). Most participants were employed (39%) with a household annual income of less than 10,000 (36%). 10% of participants did not have a health insurance plan with an almost equal amount of them with private (43%) and public health insurance (40%). In the last 12 months, 63% of participants visited the dentist for: oral prophylaxis (66%), pain or discomfort (11%), routine examination (8%), cavities (2%), gum disease (0.65%) and other reasons (11%). 80% reported having oral radiographs in the last 5 years. 62% of participants reported that they brush their teeth twice a day, 30% reported that they never use dental floss, while 23% reported that they use it once a day. In conclusion, oral hygiene practices need to be improved among the Puerto Rican population. They are an important part of maintenance for periodontal disease and oral health in general. With excellent techniques of oral hygiene, the risk for gum diseases can be prevented and teeth can be maintained healthy in mouth for a prolonged period of time.

R-224 Relationship between Dental Caries and Fluorosis in School attending Puerto Ricans. *Ricardo G. Tomei, Sona Rivas-Tumanyan, Luis J. Orraca, Augusto R. Elías-Boneta.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Previous studies, including one conducted in Puerto Rico, have reported a lower risk for dental caries in individuals with very mild or mild fluorosis relative to individuals having no fluorosis Aim: To examine the relation between dental caries and fluorosis among Puerto Rican schoolchildren. Hypothesis: We expect lower caries indices among children with very mild fluorosis, similar to our 1997 findings. Methods: A cross-sectional study was conducted in 2010-2011 among 12-year-old children from public and private schools in 11 health regions of Puerto Rico, using a probabilistic sample according to type of school and gender. Three standardized and calibrated examiners conducted full mouth oral examinations. We used NIDR/Dean Fluorosis Index (DI) for fluo-

rosis assessment and DMFS for caries assessment, following NIDCR/criteria. We used ANCOVA models to obtain mean square-root DMFS values by Dean index, adjusting for gender and type of school. Results: A total of 1548 school children were examined, 53% were females and 47% were males. The prevalence of dental fluorosis was 39%. Mean root DMFS was 1.26 (95% CI: 1.13-1.39) for children with DI=0 (no fluorosis), and 1.43 (95% CI: 1.28-1.58), 1.36 (95% CI: 1.07-1.64), and 1.71 (95% CI: 1.17-2.25) for children with DI of 1 (very mild), 2 (mild) and 3 (moderate fluorosis), respectively; no significant differences were observed between the groups ($p>0.05$). Conclusions: We reported a slight decrease in DMFS among children with DI=1 in our previous (1997) study using a similar methodology; however, these results were not confirmed in 2011.

R-225 Self-Reported Tooth Loss in Puerto Rican Adults. *Frances Escalera-Maldonado, Kaumudi J. Joshipura, Cynthia M. Pérez, José L. Vergara.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: This cross sectional study is based from a prospective cohort study focuses on assessing the impact of periodontal disease on the progression of preclinical stages of diabetes. It is the first study of its kind ever done in Puerto Rico. Objective: To describe the frequency and major reasons for tooth loss among Puerto Rican adults. Methods: Self-reported sociodemographic and oral health characteristics were provided by 487 obese/overweight adults aged 40 to 65 years who voluntarily took part in the study titled San Juan Overweight Adult Longitudinal Study (SOALS) during 2011. Results: Nearly 70% of participants were females with a highest educational level of ninth to eleventh grade (23%). Nearly 40% were employed, 36% had an annual income below \$10,000, 43% were covered by a private health insurance, 40% were covered by public health insurance, and 10% did not have health insurance. Nearly 11% of participants self-reported tooth loss. More than half (61%) had lost four teeth or less. The main reasons for tooth loss were caries (68.52%), trauma (11.93%), orthodontics (8.23%), periodontal disease (11.11%), and infections (6.58%). Nearly 24.64% of participants had tooth loss over the last 2 years. Conclusion: Health promotion strategies should include maintenance of good oral health habits and prevention of risk factors for tooth loss in Puerto Rican adults.

R-226 Prevalence of MB2 Root Canal in Permanent Maxillary First Molars in a Patient Population at the School of Dental Medicine of the University of Puerto Rico. *Alexandra Garratón, Cristina Martínez, Augusto R. Elías-Boneta, Carmen Santa.* School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

A successful endodontic therapy requires mechanical and chemical cleansing of the entire pulp cavity. It has been reported that a major cause of endodontic failures in maxillary first molars is the inability to locate, debride, and fill a second canal in the mesiobuccal root (MB2). The presence of MB2 has not been studied in the Puerto Rican population. Hypothesis: In PR patients the MB2 is more prevalent than single MB1 root canal. The objective is to investigate the root canal morphology (Weine Configuration) of maxillary first molars in PR patients. Twenty-six extracted maxillary first molars were collected from 13 female and 13 male adult patients at the Oral and Maxillofacial Clinic at the UPR School of Dental Medicine from 2009-2011. They were sterilized and kept in sodium hypochlorite 5.5% solution. Teeth were sectioned at the pulp chamber level and canals located using endodontic files; further evaluation was done radiographically and with aid of a microscope (10x). The 26 molars evaluated presented 3 roots; 35% of the MB root had one canal and 65% had 2 canals. Although there was an equal prevalence of Weine Type I (35%) and Type IV (35%) configuration, Type I was present in 46% of females and Type IV in 46% of males. Conclusion: The mesiobuccal root of the evaluated PR maxillary first molars vary in canal configurations. MB2 was located in 65% of molars, Type I and IV predominated. Additional studies are recommended. Supported by UPR School of Dental Medicine. Approved by IRB.

R-227 Dietary Patterns of 1st and 2nd Year Medical Sciences Campus Students of the University of Puerto Rico (MSC-UPR) and its Association with Socio-demographic Characteristics and Perceived Academic Stress during the Second Semester of 2010-2011. *Carla Fabián González¹, Anaisa González², Ideliz Pagán², Jesmarie Betancourt², Josué Ríos², Sonia Cruz².* ¹Department of Human Development-Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

University students face responsibilities that lead to academic stress and therefore may experience changes in their dietary patterns (DP). These patterns can become dysfunctional and have a negative impact on health. Little is known about DP among college students in Puerto Rico. The purpose of this study was to describe the DP of 1st and 2nd year Medical Sciences Campus students of the University of Puerto Rico (MSC-UPR) and its association with socio-demographic characteristics and perceived academic stress during the second semester of 2010-2011. This retrospective epidemiological study investigated self-reported DP of 275 college students along with socio-demographic characteristics, body composition and perceived academic stress.

A Diet Quality Index was developed using the USDA Food Pattern 2010 to classify whether their DP were adequate or inadequate. Most of the students perceived the total stress level as mild (36.7%), had a healthy weight (56.4%) and had inadequate DP (62%). It was observed that most of the subjects were under the dietary recommendations of grains, fruits, vegetables, dairy products and meat consumption, whereas for fat were adequate. Students tended to eat snacks 27 times a week but during periods of more stress only chocolate consumption increased. We observed a significant difference between DP and schools (p -value=0.015), DP and age (p -value=0.022), and a slight tendency between DP and body composition (p -value=0.08). In conclusion, the majority of the MSC-UPR students had inadequate DP and does not follow their individual dietary recommendations.

R-228 The Prevalence of Pit and Fissure Sealants in 12 Year Olds Attending Public and Private Schools in PR: 2010-11. *Gabriela A. Gata¹, María Berrios², Luis J. Orraca², Carmen Buxó², María M. Justiniano², Roxana Hanke².* ¹Department of Biostatistics, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Dental Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The Puerto Rico Health Reform provides coverage for pit and fissure sealants to the medically indigent population. Objectives: (1) Estimate prevalence of pit and fissure sealants in twelve year olds in PR: 2010-11, and to compare results to 1997 (2) To evaluate the associations between gender, school type (public vs. private), and prevalence of pit and fissure sealants among 12yr olds. Methods: The presence of sealants was evaluated among schoolchildren in Puerto Rico using a probabilistic sample of 132 schools, stratified by health region and type of school (public and private). Trained and calibrated examiners used NIDCR criteria to perform the oral examination. Chi-square test was used to compare prevalence of sealants between gender and school type. Results: 1550 participants were evaluated in 31 private and 101 public schools; 47% of children were males and 53% were females. The overall prevalence of sealants on any tooth was 19.5%, with higher prevalence in private (32.1%) than in public schools (18.5%), $p=0.04$. Similarly, the prevalence of sealed first molars was higher in private schools (28%) compared with public schools (15.5%, p -value=0.04); with the overall prevalence of 16.4%. There was no significant difference in prevalence of sealants between males (18.4%) and females (20.5%), $p>0.05$. Overall, the prevalence of sealants increased compared to that from 1997. In 1997, 11% of children in private schools had sealed first molars, and only 3.4% of children in public schools. Conclusions: Health disparities between children attending public and private school persevere in Puerto Rico.

R-229 Association between Self-Perceived Academic Stress, Physical Activity and Eating Patterns of Students in First and Second Year of the Medical Sciences Campus (MCS) during the Academic Period from January to May 2011. *Sonia Y. Cruz, Carla Fabián, Ideliz Pagán, Josué L. Ríos, Anaisa M. González, Jesmari Betancourt.* Department of Human Development–Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Introduction: Physical activity is considered one of the stress coping strategies used by students. **Objective:** To determine the association between the self-perceived academic stress, physical activity and eating patterns of MSC 1st and 2nd year students (Jan-May 2011). **Methods:** A proportional stratified sample of 272 students completed a questionnaire with information on socioeconomic, stress, body composition, eating patterns and physical activity. Chi² was used to assess the association. **Results:** Average age was 26±6; 68% were females and 43% had low annual income. Women reported a higher level of stress ($p < 0.001$). Overweight and obesity was found in 37% of the sample and most students reported a sedentary physical activity level (45%). During periods of greater stress, most students increase the sedentary activities (68%), and about 30% reported a decrease in moderate and vigorous activities. Most students (60%) reported that physical activity was an effective copying strategy and that they will use it again. A significant association was found between physical activity and academic stress, as stress increased physical activity level decreased ($p < 0.001$). No association was found with dietary patterns or BMI classification ($p > 0.05$). **Conclusion:** Most students reported a sedentary physical activity level; physical activity was considered an effective stress copying strategy. A higher level of stress was associated with sedentary practices. **Keywords:** physical activity, academic stress, academic load, dietary pattern, BMI

R-230 Association between Self-Perceived Academic Stress, Alcohol Consumption, Smoking and Dietary Pattern Among 1st And 2nd Year Graduate from the Medical Science Campus (MSC) of the University of Puerto Rico (UPR). *Anaisa M. González, Sonia Cruz, Josué Ríos, Ideliz Pagán, Carla Fabián, Jesmarie Betancourt.* Department of Human Development–Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: College students often use various strategies to cope with stress, such as alcohol consumption and smoking. **Objective:** Examine the association between self perceived academic stress, alcohol consumption, smoking and dietary patterns among college students. **Methods:** A representative

stratified sample from each school of the MSC-UPR of 274 students from 1st and 2nd year answered a 48 items questionnaire, including, among others, sociodemographic data self perceived stress, alcohol consumption, smoking habits and dietary patterns. Chi square was used to assess the association between the level of stress, alcohol consumption, smoking habits and dietary pattern. **Results:** Only 3% smoked at least >1 cigarettes/d; from these, 75% were < 30 years old, were from the Public Health School and 63% reported no change in food intake with smoking. Dietary patterns or academic stress were not related to smoking ($p > 0.05$). About 70% were classified as alcohol user; from these, 63% were < 30 years old, most were from the School of Medicine and 71% reported no change in food intake. There was an association between alcohol used and academic load, in which 48% of drinkers reported heavy academic responsibilities ($p < 0.05$). No association was found between alcohol consumption and stress or dietary patterns ($p > 0.05$). **Conclusion:** No association was found between levels of stress, dietary pattern and alcohol consumption and smoking habits among graduate students, only between academic load and alcohol consumption. These results are not consistent with studies performed in college age students in other populations.

R-231 Underreporting of Leptospirosis in Puerto Rico: 2001-2006. *Yomayra Otero, Gilberto Ramos, Cruz M. Nazario.* Department of Biostatistics and Epidemiology, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Leptospirosis is a zoonotic disease of bacterial origin that is more prevalent in the Tropics, including Puerto Rico. This disease is frequently misdiagnosed due to similar symptoms with dengue fever, which is endemic in the island. The purpose of this research was to determine the underreporting level of Leptospirosis cases during 2001-2006 using the method of capture-recapture. We estimated the underreporting level based on cases from the following sources: the Surveillance System of the Puerto Rico Department of Health, the Demographic Registry of Puerto Rico, and a clinical laboratory. During the research period, 228 cases were recorded in the Surveillance System of the Puerto Rico Department of Health, 144 cases were identified in the clinical laboratory, and 22 deaths were identified in the Demographic Registry of Puerto Rico. The Surveillance System missed 34% of the Leptospirosis cases that were diagnosed during the 2001-2006 period. Our findings demonstrate that there is sub-report in the Puerto Rico Department of Health of the cases with diagnosis of Leptospirosis during the 2001-2006 period. The sensitivity of the Surveillance System of the Puerto Rico Department of Health was 66.7%. Another important finding was that 335 of the Leptospirosis cases had no information regarding occupation, which is one of the most important risk factors of this disease.

R-232 Association Between Caffeine Consumption, Blood Pressure and Hypertension Diagnosis.

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Background: Hypertension is one of the major causes of morbidity and mortality worldwide. Previous studies on caffeine consumption and hypertension are inconclusive. **Objective:** To evaluate the association between caffeine intake and hypertension diagnosis and high blood pressure (BP) among overweight/obese Puerto Ricans. **Hypothesis:** People consuming >200mg caffeine/day are more likely to have hypertension diagnosis and to high systolic and diastolic BP than those consuming <120 mg/day. **Methods:** San Juan Overweight Adult Pilot Study was conducted in 2009 among 93 overweight/obese Puerto Ricans aged 40-65 years, and included assessment of BP, a general health questionnaire and a food frequency questionnaire. Three indirect BP measurements were taken and later averaged; previous hypertension diagnosis by a physician was self-reported. We used multivariate logistic regression models to study the association between caffeine consumption and hypertension diagnosis, as well as high BP (systolic >140 mm Hg or diastolic >90 mm Hg), adjusting for age, gender, smoking, alcohol consumption, physical activity, body mass index, cereal, salt, fruit and vegetable intake, and family history of hypertension. **Results:** Participants consuming >200 mg caffeine/day had a non-significantly higher odds of hypertension diagnosis, compared to those consuming <120 mg: OR=3.04 (95%CI 0.74-12.45). No association was found between caffeine intake and high BP: OR>200 vs. <120mg/day = 0.31 (95%CI 0.07-1.28). **Conclusion:** In this study we found no significant association between caffeine consumption and high BP, or self-reported hypertension diagnosis.

R-233 Expectativa de Vida de las Personas Diagnosticadas con Cáncer Colo-Rectal en Puerto Rico: 2000-2004.

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El nacimiento y la muerte son hechos vitales por los que pasan todos los seres humanos. Aunque el inicio de la vida es parecido entre poblaciones, la culminación de ésta tiene grandes va-

riaciones. No todos mueren por la misma causa o de la misma forma. El cáncer colo-rectal es el segundo cáncer más común tanto en hombres como en mujeres en Puerto Rico. Además es una de las principales causas de muertes por cáncer, siendo así la tercera causa de muerte por cáncer en hombres y la segunda en mujeres. Existen discrepancias en la probabilidad de morir por cáncer colo-rectal una vez éste ha sido diagnosticado; ello depende del estadio en el que se encuentre el cáncer. Este estudio tiene como objetivo general determinar la probabilidad de sobrevivir entre las edades "x" y "x+1" que tuvieron las personas diagnosticadas con cáncer colo-rectal en sus diferentes estadios en Puerto Rico durante el periodo 2000 a 2004. Para ello se utilizó la metodología de Tablas de Vida. El estudio es de carácter longitudinal-descriptivo y su importancia radica en identificar como la expectativa de vida se ve afectada por la edad y el estadio al momento del diagnóstico de la enfermedad. La fuente de información fueron las bases de datos de incidencia y mortalidad del Registro Central de Cáncer de Puerto Rico. De 2000 a 2004 la esperanza de vida al nacer en los hombres en Puerto Rico fue 73.22 años, mientras que en las mujeres fue 80.88 años. En dicho periodo la edad mediana al diagnóstico de cáncer de colo-rectal fue de 68 años. La edad mediana a la muerte de dicho cáncer fue de 72 años.

R-234 Craniosynostosis Patients Surgically Treated at the University of Puerto Rico Pediatric Hospital.

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Craniosynostosis (CS) is a birth defect characterized by premature fusion of one or more cranial sutures. No studies have been conducted on CS and the risk factors among Puerto Ricans. **Objectives:** 1. Describe the distribution of different CS types surgically treated at the University Pediatric Hospital (UPH) in San Juan, PR during 2002-2009, 2. Evaluate the association between specific demographic or obstetric factors and types of CS (metopic, coronal, sagittal or multiple). **Methods:** We reviewed medical records of patients admitted for CS surgical treatment at UPH in 2002-2009. Information was gathered relating to CS classification, maternal age, weight, head circumference, gender, gestational age, plurality, parity, mode of delivery, birthdate, zip code. We used polytomous multiple logistic regression to estimate odds ratios relating gender, maternal age, parity, gestational age, mode of delivery, weight, altitude of residence and type of CS. **Results:** 138 patients with CS were treated at UPH in 2002-2009; 40 records were retrieved. Sagittal and coronal were the most commonly involved CS (37.5% for both types), followed by multiple (15.0%), metopic (7.5%), and lambdoid (2.5%). The median age at surgery was 7 months. Male gender (55%) and primigravity (50%) were predominant. We did not find any significant associations between risk factors and type of CS. **Conclusion:** The distribution of

the different CS types was consistent with the traditional clinical literature. Average age of surgery was slightly later than expected. Further research is warranted to assess potential risk factors with a larger study population.

R-235 Knowledge, Perception and Consumption Patterns of Energy Drinks Among College Students.

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Background: Literature reports that adolescents and college students are using and abusing commercially available energy drinks, although side effects and deaths have been attributed to the use of these products. **Purpose:** To assess college students' knowledge and perceptions about energy drinks, to evaluate their consumption patterns, and to evaluate their reasons for using these drinks. **Methods:** A cross-sectional study was performed using a convenience sample of 100 college students > 21y/o. A 23-item self-administered questionnaire assessed students' knowledge, perceptions, and consumption patterns of energy drinks. This study was IRB approved. **Results:** Twenty-three percent respondents were males, 77% females, and 7% athletes. Sixty-three percent participants reported using energy drinks. Interesting enough is the fact that 78% students consider energy drinks as unsafe, while 78% believed energy drink sales should be banned to adolescents < 18 y/o. The majority of participants were able to identify correctly caffeine and sugar as the main ingredients of energy drinks (68% and 52% respectively). No differences were observed in gender, age nor being an athlete versus energy drink consumption ($p > 0.05$). Forty-percent of the participants indicated that curiosity was their first motivation to try energy drinks for the very first time. Main reasons for actual energy drink consumption were: to stay awoken while studying (23%) and increase energy (15%). **Conclusions:** Based on our results, the use of energy drinks is a popular practice among college students despite the fact that most of them considered these products as unsafe.

R-236 La Violencia Doméstica en Puerto Rico para el Periodo 2005-2010. *Lisa L. Ayala-Mathew, Michelle Sonera-Cuevas, Ana-Luisa Dávila.* Department of Social Sciences, Demography Program, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La violencia doméstica es un problema social y de salud pública que afecta a todos los sectores de la población. Mediante la Ley Núm. 54 de 15 de agosto de 1989, según enmendada y conocida como la Ley para la Prevención e Intervención con la Violencia Doméstica en Puerto Rico se define la violencia doméstica como un patrón de conducta en el cual una persona emplea fuerza física o violencia psicológica, intimidación o persecución contra su cónyuge, ex-cónyuge, persona con quien cohabita o haya cohabitado, persona con quien sostiene o haya

sostenido una relación consensual o persona con quien haya procreado hijos(as) con el fin de causarle daño físico o emocional a la misma o a sus bienes. El objetivo de este trabajo es describir los patrones y tendencias de violencia doméstica en Puerto Rico para el periodo 2005-2010. La fuente de datos proviene la División de Estadísticas de la Policía de Puerto Rico y la Oficina de Procuradora de las Mujeres. En Puerto Rico cada año se presentan más de 13,000 incidentes de violencia doméstica. Estos suceden mayormente en el hogar. Las mujeres de 20 a 39 años son las más afectadas. Cerca de una veintena de mujeres pierde su vida en un incidente de violencia doméstica. En Puerto Rico al menos una de cada tres mujeres puede ser víctima de algún incidente de violencia doméstica lo que va en detrimento del bienestar tanto de las mujeres como el de las víctimas secundarias y los demás componentes del hogar en particular los hijos y las hijas de las mujeres maltratadas.

R-237 Finding the Causes of Preterm Births in Puerto Rico: The PROTECT Transdisciplinary Model.

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Puerto Rico has experienced a marked increase in preterm births during the 1990s and the last decade reaching nearly 20%. This has made the island, the territory with the highest rate of preterm births among all United States jurisdictions. Puerto Rico also has the highest density per square mile of toxic waste sites, and contaminants like phthalates and pesticides are present in its groundwater. Those findings led to the development of PROTECT, a transdisciplinary project that seeks to understand the environmental risk factors associated with preterm births as well as developing new technologies to address and eliminate current contamination in the island ground water. We will recruit 900 pregnant women before 20 weeks gestation and will follow their pregnancy to completion, will obtain biological samples and collect data about exposures in pregnancy. Recruitment is taking place in the karst area that spans from Toa Baja to Aguadilla. Data collected includes medical and pregnancy history, demographic variables, and self-reported environmental exposures. Biological samples include blood, urine and hair. At delivery, cord blood and placental tissue will be collected and a postpartum interview will also be conducted. Recruiting the participants has been challenging, but successful and continues. Up to November 2011, 227 women have been screened, 173 have been eligible, and 102 are active at the moment, and so far, approximately 20 have completed their pregnancy. We expect to complete recruitment by 2013 and provide valuable information concerning preterm birth in the island.

R-238 Association Between Self-Perceived Academic Stress, Medication Use and Eating Patterns of Students in First and Second Year of the Medi-

cal Sciences Campus (MSC) of the University of Puerto Rico (UPR) During the Academic Period from January to May 2011. *Jesmari Betancourt, Josue Ríos, Ideliz Pagán, Carla Fabián, Sonia Cruz, Anaisa González.* Department of Human Development–Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Stress can cause deleterious effects on health and academic performance. Common stress-relieving activities among college students include the use medications. Objective: To determine the association between self-perceived academic stress, medication use (stimulants and depressants) and eating patterns of students in first and second year of the MSC-UPR during the academic period from January to May 2011. Methods: This was a retrospective study on a representative stratified sample of students who completed a self-administered questionnaire, which included socio-demographic characteristics, stress, eating patterns and use of medications Chi Square was used to assess the association between these variables. Results: Of the 275 students 31% reported the use of medications in the past six months. The use of medications was associated with school ($p=0.044$), with higher use in Pharmacy, Medicine and Dental Medicine and with higher use in men ($p=0.035$). There was a significant association between the use of medications and stress level ($p=0.001$). Also, 74% reported that the use of medications was effective as a coping strategy and 35% used them to improve academic performance. Although no significant association was found between medications use and eating patterns, among users, 57% reported a decrease in appetite. Conclusion: This is the first study that has attempted to associate self-perceived academic stress, medication use and eating patterns of college students in Puerto Rico. Medication use was higher in men, in the schools of Pharmacy, Medicine and Dental Medicine and it was significantly associated with stress.

R-239 Nacidos en Puerto Rico: Características de los que Residen en la Isla y los que Emigraron, 2005-09. *Manuel Pérez-Muñiz.* Demography Program, Department of Social Sciences, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

A causa del incremento en la emigración puertorriqueña hacia Estados Unidos en busca de mejores oportunidades se ha generado un interés sociodemográfico en la situación de Puerto Rico. El objetivo principal del estudio fue examinar de manera descriptiva las características sociodemográficas de la población nacida en P.R. que reside en la Isla y aquellos que residen en los EEUU. La población de estudio fue basada en los estados con mayor proporción de nativos de PR: Connecticut, Florida, Nueva York, Nueva Jersey y Massachusetts. La fuente de información utilizada fue el Archivo de Muestras de Microdatos para Uso Público proveniente de la Encuesta de la Comunidad Americana y la Encuesta de la Comunidad de P.R. para el perio-

do de 2005-2009. Las características sociodemográficas examinadas fueron: sexo, edad, estado marital, escolaridad, estado de pobreza, estado laboral, entre otras. Los hallazgos señalan que las características sociodemográficas de los nacidos en Puerto Rico en los EEUU difieren entre estados. Esto impacta el estado de salud de las poblaciones estudiadas. Se encontró que la mediana de edad para la población de nacidos en Puerto Rico residentes en Nueva York fue de 55 años. Esto es mucho mayor que sus contrapartes en la Florida, cuya edad mediana fue de 42 años de edad y significativamente mayor que la mediana de edad para los nacidos en P.R. en la Isla con una mediana de 34 años. El estado de la Florida tiene la proporción más alta de nacidos en Puerto Rico con nivel educativo mayor de escuela superior. El nivel de pobreza de los nacidos en Puerto Rico es mayor que sus contrapartes en cualquier estado.

R-240 Trends and Risk Factors for Preterm Births among Puerto Rican Women: An Island and Mainland Study. *Liza V. Anzalota, José F. Cordeiro.* Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The rate of preterm birth in Puerto Rico (PR) has increased during the 1990s and last decade. Risk factors for preterm birth such as lack of prenatal care, maternal education, and access to health care services have improved in the island and do not seem to explain this phenomenon. Tobacco use during pregnancy is one of the lowest in the US jurisdictions and assisted reproductive technology has not changed the rate of multiple gestations in PR. C-sections in PR increased from 30% to nearly 50%, but the rate of preterm births among vaginal and cesarean deliveries was not statistically different. Objective: Assess the trend of preterm among Puerto Rican women delivering in the US mainland and determine if that group has experienced an increase in preterm births rate as seen in PR. Methods: Used the NCHS Birth Certificate Dataset for the US and its territories (1995-2006). Results: Among Puerto Ricans delivering in the US mainland the rate of preterm births hovered around 13% from 1995 to 2006. Among white women delivering in US mainland preterm births increased from 11% in 1990 to 12.8% in 2006. Among births in PR preterm births increased from 12.3% to 19.9% during the same period. Conclusions: Puerto Rican women delivering in the US mainland did not experience an increase in preterm births during the study period as was observed among births in PR. These findings suggest that the risk factors associated with the increase in preterm births in the PR may be due to local factors. Future studies should focus on socioeconomic factors, local environmental threats, and issues of health care practice that may be specific to PR.

R-241 Características Sociodemográficas de las Jefas de Familia sin Cónyuge Presente: Puerto Rico 2005-09. *Zaira Y. Rosario-Pabón, Luz E. León-López.* Programa de Demografía, Centro

de Investigaciones Demográficas, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico.

Durante las últimas cuatro décadas en Puerto Rico ha ocurrido un aumento en el número de féminas jefas de familia. Este acrecimiento tiene consecuencias no sólo para las jefas sino que también para sus hijos, lo que levanta la interrogante de cuál es el estado sociodemográfico de dichas familias y cómo sus características podrían influenciar su estado de salud. El propósito del estudio consistió en describir las características sociodemográficas de las mujeres como jefas de familia. El estudio fue descriptivo y se estudiaron las mujeres jefas de familia sin cónyuge presente. La fuente de datos fue la Muestra de Microdatos para Uso Público (PUMS) del estimado de cinco años (2005-2009) de la Encuesta de la Comunidad de PR del Negociado Federal del Censo. Las jefas de familia representan cerca de una cuarta parte de los hogares de familia en PR. Una considerable cantidad de éstas tiene hijos menores de 18 años. Dicha población se concentra en edades jóvenes y productivas. En este grupo se distinguen las divorciadas, con proporciones muy similares a las nunca casadas. Más de la mitad de las familias estudiadas tiene dos o más hijos, un por ciento considerable de éstos está entre las edades de 6 a 17. Cerca de la mitad alcanzó escuela superior, o un grado menor y está fuera de la fuerza laboral o desempleada. En este grupo se distinguen las ocupaciones de cuello azul; además presentan ingresos bajos y altos niveles de pobreza. Estos hallazgos las colocan en posiciones vulnerables donde su estado de salud y el de sus dependientes puede verse comprometido; amainando así, sus posibilidades de llevar una vida óptima y saludable.

R-242 Perfil de los Cuidadores y las Cuidadoras de los y las Personas Mayores en Puerto Rico, PREHCO 2008. Ana-Luisa Dávila¹, Alberto García¹, María P. Aranda². ¹Proyecto PREHCO, Escuela Graduada de Salud Pública, Universidad de Puerto Rico, Recinto de Ciencias Médicas, San Juan, Puerto Rico; ²Universidad de California del Sur, California, Estados Unidos.

Un cuidador o una cuidadora de enfermos o enfermas presta atenciones, cuidados y asistencia a una persona a la que se le dificulta sus actividades diarias con normalidad. En Puerto Rico la expectativa de vida se duplicó en menos de sesenta años en la última mitad del siglo pasado. En el 2006 la expectativa de vida alcanzó a 73 años para los hombres y a 81 para las mujeres. La longevidad lleva implícita un aumento en las enfermedades crónicas y el deterioro tanto cognoscitivo como funcional. De ahí que la labor los cuidadores y las cuidadoras ha de ser cada vez más importante. El Proyecto Condiciones de Salud de los Adultos Mayores en Puerto Rico, PREHCO por sus siglas en inglés (Puerto Rican Elderly: Health Conditions), es un estudio longitudinal representativo de la población de 60 años o más llevado entre 2002 y 2008. Los datos recogidos en la se-

gunda ronda de PREHCO proveen la oportunidad de elaborar un perfil los cuidadores y las cuidadoras de las personas encamadas, en sillas de rueda o con alguna discapacidad funcional o cognitiva. La mayor parte de las personas que cuidaban a los envejecidos o las envejecidas eran mujeres. Los cuidadores o las cuidadoras se acercaban a los sesenta años, eran personas casadas y una gran proporción provenían del núcleo familiar destacándose los y las cónyuges y los hijos o las hijas. La responsabilidad de estos y estas parientes para con el cuidado de las personas mayores con alguna discapacidad puede conllevar un gran sacrificio y hasta la pérdida de un trabajo remunerado.

R-243 Diet and Physical Activity in Children from a Community with Limited Access of Health Care Services. Gabriela Algarín¹, Sharleen Ruiz¹, Melisa Rivera², Princess Pacheco². ¹Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Childhood overweight is an important health concern in many communities in Puerto Rico. We used data from a survey conducted in a rural community with significant health issues, poverty, and inadequate access to health care services; in a sample of 62 households with children and young people less than 21 years, to evaluate their dietary and physical activity behavior. The survey collected socio-demographics and health-related information, including diet and physical activity for all minors living in the selected households. Data from 131 children were analyzed using descriptive statistics. The mean age was 9 years (range: 0 to 20 years) and 51% were females. Overweight was reported in 20%; however, calculated BMI's from weight and height estimates, available in 46 children, showed 61% above the 85% percentile. Almost half (47%) reported eating in fast food restaurants at least once per week. Most children did not consume three or more portions of vegetables (92%) or fruits (78%) on a daily basis and 38% never consume vegetables at all. More than 60% use sugar-sweetened beverages three or more times per day. Only 40% reported physical activity for at least 20 minutes per day. About 2.8 (95%, CI:2.5-3.2) hours of TV and 2.7 (95%, CI:1.3-4.1) hours of videogames per day were reported. No significant differences by gender were found. We identified a high prevalence of overweight, inadequate consumption of fruits and vegetables, and limited physical activity. Interventions to increase knowledge about healthy foods (such as school gardens) and lifestyles among children and young people in this community are needed.

R-244 Interaction of Childhood Environmental Factors with NOD2 in Crohn's Disease. Francisco García¹, Roberto Vendrell¹, Jerome I. Rotter², Dermot P. McGovern², Esther Torres¹, Kent Taylor². ¹School of Medicine, University of Puerto Rico Medical

Sciences Campus, San Juan, Puerto Rico; ²Inflammatory Bowel Disease Center, Cedars-Sinai Medical Center Genetics Institute, Los Angeles, California, United States of America.

Background: NOD2 gene polymorphisms and exposure to certain childhood environmental factors have each been associated with Crohn's disease (CD). A synergistic association between these risk factors has not yet been demonstrated. **Hypothesis:** An interaction exists between genetic and environmental factors in the development of Crohn's disease. **Objective:** To test the association between CD, NOD2 gene polymorphisms, and childhood environmental factors in Puerto Ricans. **Methods:** 281 Puerto Ricans with CD and 315 controls participated. Demographic and clinical data were obtained from questionnaires and medical records. Blood samples were obtained from each subject. Genotyping was performed using the ImmunoChip. The Fisher exact test was used to test the association between CD and several childhood environmental risk factors and the Mantel-Haenszel test was used to test for synergism across the presence or absence of the rs17313265 T allele. This allele "tags" 3 known susceptibility SNPs for CD in the Puerto Rico population: snp 8, snp12, and snp13. **Results:**

	Potable Water		
		OR (95%CI)	P fisher
rs17313265 T present	244	5.4 (2.3-14)	2 E-5
rs17313265 T absent	352	3.8 (1.8-8.4)	7 E -5
Mantel-Haenszel Test		1 E -8	

Conclusion: Our study revealed synergism between the NOD2 rs17313265 T allele and of drinking water in the home. This suggests that there is increased risk for CD when both NOD2 susceptibility alleles and a "cleaner" childhood environment are present. **Funding:** NIDDK, NIH and NCHHD-NIH. **Approved by IRB**

R-245 Association between Self-Perceived Academic Stress, Stimulating Beverages Consumption, and Eating Patterns among Students of First and Second Year of the University of Puerto Rico-Medical Sciences Campus During the Academic Period from January to May 2011. *Josué L. Ríos-Román¹, Jesmari Betancourt-Betancourt², Ideliz Pagán-Díaz², Carla Fabián-González², Anaisa González-Cedrés², Sonia Cruz-Cortés².* ¹Department of Human Development–Nutrition, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Background: The consumption of stimulating beverages is popular among college students in Puerto Rico due to excessive academic stress. **Purpose:** To determine the association bet-

ween academic stress levels, stimulating beverages consumption, and eating patterns among students of first and second year of the UPR-MS. **Methods:** A retrospective study was done using a self-administered anonymous questionnaire given to a representative stratified sample of 275 students, which included socio-demographic characteristics, stress indicators, eating patterns, and stimulating beverages consumption during the academic period from January to May 2011. Chi2 was used to assess the associations between these variables. **Results:** Most of the students perceived their academic load as heavy (68%), but most had a moderate academic stress level (37%). There were 62% of students with an inadequate eating pattern. About 88% reported consuming stimulating beverages; of these, 87% consumed soft drinks, 83% consumed coffee, 56% consumed hot chocolate, 40% consumed tea, and 29% consumed energy drinks and these were used mainly to stay awake (54%). Coffee and soft drinks intake increased in higher stress periods and most reported that stimulating beverages were useful for coping with stress. Energy drinks were used more often in males, in the Schools of Medicine and Dental Medicine, and in those with higher academic load. **Conclusion:** Using stimulating beverages is a popular practice among college students, being soft drinks and coffee the most frequently used, however, no association was found with their use and academic stress or eating patterns.

R-246 Intentional and Unintentional Poisoning Trends among the Elderly in Puerto Rico. *Yerania Rodríguez-Navedo¹, Ivonne Z. Jiménez-Velázquez², Enrique López².* ¹Geriatrics Department, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Unintentional and intentional exposures are a significant cause of morbidity and mortality in the US. Deaths from unintentional poisoning in USA have been rising and are the second leading cause of accidental death. Among the elderly population complicated medication schedules, cognitive disorders and polypharmacy are risk factors for unintentional poisoning. Poison Control Center (PCC) collects valuable information that may lead to uncover trends of poisoning. **Objectives:** To identify hazardous trends in prescribed medication use, to identify the most common drugs or substances associated with intentional and unintentional poisoning reported to PCC. **Methods:** A retrospective review of calls made to PCC in Puerto Rico from 01/01/10 until 12/31/10 of subjects > 65 y/o was done. **Results:** 440 call records were reviewed with Mean age of 74 y/o. The substances associated to accidental poisoning were antihypertensives (25%), psychotropic drugs (16%), detergents (8%), neurologic drugs (6%), pesticides (5%), and pain medications (3%). The most common causes for exposure were unintentional ingestion (45%), therapeutic errors (32%), and suspected suicide (15%). Most commonly used agents in suicide attempts were benzodiazepines, sedati-

ves, and pesticides. Conclusions: Most incidents in patients > 65 y/o are accidental (77%) due to use of prescription drugs. Suicide attempts are not the most common cause of poisoning, but benzodiazepines and sedatives should be avoided in patients at risk. Supervision is needed for patients with depression, cognitive disorders or complicated medication schedules to prevent further poisoning cases.

R-247 Perfil Médico Delegación de Puerto Rico, XXI Juegos Centroamericanos y del Caribe: Mayagüez 2010. Héctor J. Rodríguez-Medina¹, Rebecca Rodríguez-Negrón², Nancy Torres-Torres², Esther A. Rivera-Gámbaro², Gabriel Díaz-Rozo². ¹Department of Family Medicine, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

La evaluación de preparticipación (EPC) deportiva busca identificar factores de riesgo a mayor morbilidad y mortalidad en el atleta durante actividad física. Nuestro objetivo era evaluar las EPC de los atletas de la delegación de Puerto Rico para los Juegos Centroamericanos y del Caribe, Mayagüez 2010 y establecer un perfil médico para futuras competencias. De 654 atletas participantes, 189 (29%) se realizaron la EPC y sólo 124 expedientes (19%) reunían los criterios de inclusión del estudio, siendo la mayoría varones (67%). La mayoría de los atletas tenían entre 17 a 21 años (39%). Los deportes con mayor representación fueron atletismo (13%), ciclismo (12%) y levantamiento de pesas (10%). Un gran número de participantes reportó historial previo de hospitalizaciones (48%) y/o cirugías (30%), la mayoría por lesiones ortopédicas y/o músculo esqueléticas (64%). Una tercera parte de los atletas reportó uso de medicamentos (34%) y suplementos/vitaminas (35%). Levantamiento de pesas fue el deporte con mayor reporte de síntomas cardiovasculares (15%) y neurológicos (16%). Patinaje (15%) y nado sincronizado (15%) reportaron más quejas del sistema respiratorio. Asma y pobre flexibilidad fueron los diagnósticos más comunes independientemente del deporte, edad o sexo. No se pudo establecer un perfil médico general de esta delegación debido a la pobre participación de los atletas en la EPC y varios expedientes médicos incompletos. Nuestros resultados reflejan la necesidad de orientar a los atletas, entrenadores y federativos de la importancia de la EPC y hacer cumplir este requisito antes de cada evento deportivo internacional.

R-248 Air Quality Educational Programs for Older Age Persons Living in Puerto Rico. Oscar Martínez-Franco, Mariluz Alvarado-López, Idalysz Morales-González, Lymari Ortiz-López, Víctor Emanuel Reyes-Ortiz. Human Development Department, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

The objective of this research was to help in the design of high quality educational program that could help to improve the health of older people based in the best documented evidence practices. Air pollution represents a big challenge for all cultures and governments worldwide as factors such as velocity, wind direction, natural sources of contamination (for instance volcanoes), and point sources contamination, among other could affect air quality (AQ). A systematic literature review was performed to assess measures that allow older age people to protect from different sources of contaminations. Online databases were used for accessing full free-text articles from peer review journal. Articles using different epidemiologic designs, based in older age population, were used for obtaining best documented practices to preserve AQ. Actions for healthy communities are described considering different interactions of the individuals with their communities, their legal system among others. The ecologic model was used for summarizing the best practices found in the 32 articles meeting the inclusion criteria.

R-249 Worldwide Trends on Reproductive Health Issues: A Systematic Review of Evidence Research Made from 2001 to 2011. Viviana Fontáñez-Pereira¹, Edith López-Toro², Víctor E. Reyes-Ortiz², Ivelisse M. García-Meléndez². ¹Department of Social Sciences, Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico; ²University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Reproductive health (RH) is a global public health topic affecting everyone at some level. RH implies everyone's right to a responsible reproductive life based on ones' decisions including sexual life. This study presents a systematic review of the advances in the RH research worldwide as documented in peer review journals. Also it explores how socio-demographic variables influence RH. Relevant full text articles from 2001-2011 were identified by searching the several online databases. An inclusion criterion for this review was to be an RH article published in a peer review journal within the last 10 years independently of the study designs or sampling technique. Approximately 806 articles were obtained by using any combinations of the following keywords: RH, international health, sexual health, worldwide, health policies, policy and public policy among others. However, only 20 articles complied with the inclusion criteria. No significant changes in international reproductive health issues during the last 10 years were found. The distribution of the articles reviewed was 30% Africa, 25% Asia and 20% North America. Only 8 articles reported that socio-demographic variables have a significant influence on RH issues of the population. Articles of RH issues from Europe, Australia, South and Central America were scarce. In conclusion, RH is still a public health issue; however it seems poor advances in the topic and some continents do better documenting efforts than others. In addition,

independently of the RH phenomena, social-demographic factors influence the population wellbeing.

R-250 Uterine Curettage in Post Partum Patients With Severe Trophoblastic Hypertension Known as Preeclampsia: A Meta-Analysis. *Alma C. Pon-tón-Nigaglioni, Susana Schwarz.* Department of Obstetrics and Gynecology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Objectives:To investigate the ability of postpartum uterine curettage to accelerate maternal recovery from severe preeclampsia, or eclampsia and determine whether this procedure should be included in protocols of Obstetric services that manage patients with this condition. **Methods:** A systematic review of the literature using Medline and Cochrane searches revealed 4 articles on uterine curettage performed at or after delivery in severe preeclamptic or eclamptic patients. **Results:** Among 135 patients that underwent post partum uterine curettage it was observed a significant decrease in mean arterial pressure, increase of urine output, and increase in platelets. **Conclusion:** Uterine curettage performed after delivery, accelerates the recovery process of patients with severe preeclampsia, or eclampsia without adverse effects. This technique should be included in protocols of Obstetric services for the treatment of critically ill patients with severe preeclampsia, or eclampsia for more rapid resolution of their disease.

R-251 Identification of Major Components of Fasciola Hepatica Tegument Those are Highly Reactive with Sera from Humans with Chronic Infection. *Adelaida Morales, Ana Margarita Espino.* Department of Microbiology and Medical Zoology, School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Fascioliasis, caused by the common liver fluke *Fasciola hepatica* affects primarily sheep and cattle. Recently, it has also been considered as an emerging human pathogen, with about 17 million people infected. The outer membrane of the parasite, the tegument, is a complex antigenic structure that plays a key role in the host-parasite relationship. The tegument plays an essential role in the stimulation of immune responses against parasite, but its potential for immunodiagnosis remain unexplored. We demonstrated that a soluble tegument extract of *F. hepatica* adult fluke (FhTg) is an excellent antigen for serodiagnosis of human chronic fascioliasis using enzyme-linked immuno assay (ELISA). In the current study we demonstrated using Western blot that the reactivity of FhTg with the human fascioliasis sera is attributed to components of 52, 38, 24 and 12KDa, which were further separated by gel filtration using a 10/300 GL Superose-12 column in an FPLC system. The antibody isotypes more frequently stimulated by these antigens are IgG1 and IgG4. The identification of these major components of the *F. hepatica* tegument was accomplished by mass spectrometry.

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