
Abstracts of the XXIX Annual Research and Education Forum



I. Poster Presentations

R- 001 Apoderamiento del Rol del Cuidador en Servicios de Base Comunitaria. Arnaldo Cruz

El Programa de Maestría en Ciencias en Terapia Ocupacional llevó a cabo una experiencia de práctica de aprendizaje en servicio con el propósito de que los estudiantes de primer año desarrollaran conocimientos, actitudes y destrezas de evaluación e intervención en la comunidad. Se evaluó una muestra por disponibilidad de 18 cuidadoras entre las edades de 25 a 67 años cuyos niños participaron en el verano del 2008 en un campamento ecológico. El proceso evaluativo tuvo el objetivo de obtener un perfil ocupacional del grupo que permitiera identificar las áreas de mayor necesidad en aspectos relacionados a aumentar conocimientos y adquirir destrezas en el fortalecimiento del rol de cuidador. Se utilizó la metodología de inventario de necesidades, un cuestionario de datos sociodemográficos y grupos focales. Los resultados obtenidos reflejaron necesidad de identificar alternativas para el manejo de estrés y el desarrollo de estrategias efectivas para disciplinar positivamente a sus hijos. Las estrategias de intervención con énfasis en la promoción de la salud incluyeron: educación y consultoría básica sobre el efecto del estrés en la ejecución ocupacional, la identificación de estrategias de manejo, el reconocer el estilo parental predominante y su efecto en la conducta de los hijos, así como alternativas para disciplinar positivamente. Los hallazgos y recomendaciones podrían servir para que el Proyecto continúe planificando actividades en las que se eduque y se promueva la participación activa de los cuidadores enfatizando el desarrollo de conocimientos y destrezas que sean significativas y de interés para esta población.

R- 002 TransHealth: Collaborative approaches to promote health among transgender people in Puerto Rico. Z Martínez-Martínez, J Palma-Martínez, CE Rodríguez-Díaz, J Santana

Transgenders are an invisible group among the LGBT populations. Evidence points to the limited resources for competent health care these groups have within the public health infrastructure. There is absence of health-related

data and health services for trans populations in PR. A community-academic partnership has been developed to enhance a CBO's capabilities to address the health promotion needs of the trans populations. A need assessment was developed following a mixed-method design. This presentation discusses the results from a survey designed to quantify needs and the development of a health promotion program to prevent hepatitis and herpes among transgender people. Findings from the need assessment clearly establish the needs of more comprehensive approaches to health care among trans populations. This includes addressing issues regarding STI, sexual health, legal concerns, discrimination, phobias, and sexual re-assignment procedures. The health promotion program to prevent hepatitis and herpes was based on the Social Cognitive Theory and oriented to influence on individuals' environment and their capabilities to make changes in their attitudes, behaviors, and beliefs. Participants of this program have been able to identify identity-based protective and risk behaviors associated with hepatitis and herpes. This collaborative effort has served as an example of how comprehensive approaches can be implemented to achieve an articulated public health effort.

R-003 Adverse Events in Puerto Rican Psychiatry Patients with CYP2D6 Polymorphisms: A Pilot Study. Susan Corey, Gloria González Tejera

The highly polymorphic enzyme cytochrome P450 2D6 metabolizes about 20% of all drugs, including many antidepressants and antipsychotics. Individuals with mutant CYP2D6 alleles may be at increased risk for adverse drug reactions. We genotyped the CYP2D6 locus in 45 Puerto Rican psychiatry patients who had reported intolerance of antidepressants and/or antipsychotics, and administered the UKU side effects scales for quantification of adverse events. Three quarters of the group had at least one mutant allele. Twenty-one percent of the alleles had reduced activity, and eighteen percent were inactive. Two patients could not be genotyped by the microarray assay. Among patients being treated with antipsychotics, there was a tendency for specific adverse events to be more severe in patients with only one active CYP2D6 allele, e.g., hypokinesia, rigidity and depression. These results, if substantiated in a larger study group, suggest that patients with adverse events that

are specifically associated with reduced metabolic capacity, may benefit from being changed to other drugs that do not rely on CYP2D6 for their inactivation. The work was supported in part by an RCMI Clinical Research Infrastructure Initiative award, 1P2ORR11126, from the National Center for Research Resources, NIH. Approved by the IRB.

R-004 Emergences of Xylazine as an adulterant of Heroin in Puerto Rico. Kazandra Ruiz BS, Luz A. Silva BS, Oscar Peralta BS, Flor Mattos BS, Joseph Bloom Ph D

Xylazine is a veterinary sedative, analgesic and general anesthetic that has been proven harmful to humans. To our knowledge, 27 cases of toxicity caused by xylazine consumption have been documented in humans. Xylazine was also detected and reported as the cause of death in nine (9) postmortem cases from the Puerto Rico Institute of Forensic Sciences (PRIFS). Currently, xylazine is being used as an adulterant according to the street heroin samples analyzed by the Controlled Substances Laboratory of the PRIFS. In 2007, a total of 663 street heroin samples were analyzed and some of the more common cutting agents were: caffeine (23%), procaine (3%), cocaine (5%), quinine (10%), lidocaine (3%) and the most frequently detected xylazine (36%). Due to the fact that xylazine has been found in street drugs and was related with the cause of death in nine (9) postmortem cases, an automated basic solid phase extraction method was developed to detect xylazine in postmortem blood using GC-MS SIM as the method of detection to establish a relationship between xylazine and heroin overdose cases. The purpose of this study is to demonstrate the applicability of the method for the determination and quantitation of xylazine in postmortem blood. This method demonstrated high selectivity and sensitivity, with a limit of detection of 1 ng/mL and a limit of quantitation of 10 ng/mL, and a linear range of 10 - 1000 ng/mL in whole blood matrix with a correlation coefficient of 0.9960. The automatic basic drug extraction method can be used as an alternative for the determination and quantitation of xylazine in whole blood.

R-005 Silver as Oral Antimicrobial. Emmanuel Rosado, Robert E. Marquis, Jeremiah Baldeck
Silver has had a long contentious history of use as an antimicrobial. Silver salts, especially AgNO₃, have been used for decades as disinfectants and antiseptics. It is also widely used in dentistry as a component of amalgams but silver in amalgams is in the unionized state Ag⁰ and is considered not to have antimicrobial effects. With the increasing incidence of infection with antibiotic-resistant

bacteria, there has been a renewal of interest in use of silver as an anti-infective agent. The purpose of the project was to explore the feasibility of using silver salts, specifically AgNO₃, as an agent against *S. mutans*, the major pathogen for dental caries in humans. Studies were conducted using plaque bacteria growing in suspension and biofilms. These experiments show that Silver in the form of silver nitrate at concentrations close to 0.1 mM was effective for inhibiting growth of *S. mutans* UA159 in suspension cultures or biofilms, and our limited data suggest that silver resistance does not develop readily. Glycolysis by *S. mutans* UA159 was highly sensitive to silver with inhibition of acid production at pH 5.0 by as little as 1.0 μM silver nitrate. This level of sensitivity suggests that silver could limit the cariogenicity of the bacterium. The results of these initial experiments indicate that further work on silver inhibition of cariogenic bacteria is warranted.

R-006 The Renin Angiotensin System is Up-regulated after Myocardial Cell Differentiation and Hypertrophy. C Rosa, W De Mello, E Fernández, Y Gerena

Cardiac hypertrophy has been known to result from increased biomechanical stress that can progress to heart failure. Recently, several studies suggest the importance of the Renin Angiotensin System (RAS) in the progression to hypertrophy. In this study we analyzed the expression of RAS components renin, angiotensinogen (AGT) and angiotensin II Type 1 receptor (AT1-R) during cardiomyoblasts differentiation and stimulation to hypertrophy. H9c2 cells were cultured in Iscoves Modified Dulbeccos Medium (IMDM) supplemented with 10% FBS at 37°C and 5% CO₂. The media were switched when the cells reached a subconfluence state (70%) to IMDM supplemented with 1% FBS for 5 days to promote differentiation. The cells were then exposed to isoproterenol (2 μM) for 5 days to induce hypertrophy. Cells were permeabilized using BD Cytotfix/Cytoperm™ solution and the levels of renin, AGT and AT1-R were analyzed by flow cytometry using specific primary antibodies and FITC-secondary antibodies. The renin and AT1-R levels from cardiomyocytes increased by 1.7 and 17.9 fold respectively, compared to the levels in cardiomyoblasts. However, the intracellular levels of renin and AT1-R in cardiomyocytes exposed to isoproterenol decreased by 18.9 and 3.4 fold respectively, compared to differentiated cardiomyocytes. In addition, an increase by 13.2 fold was observed in the levels of AGT from cardiomyocytes compared to cardiomyoblasts. In conclusion, these results indicate that intracellular expression of the RAS

components is regulated during differentiation to cardiomyocytes and stimulation to hypertrophy. Supported by NIH grant G12-RR-03012.

R-007 Flotillin-2 Expression Profile After Spinal Cord Injury. JM Santiago, AI Torrado, IK Salgado, WI Silva, JD Miranda

Spinal cord injury (SCI) triggers a cascade of events that generates a non-permissive environment for axonal regeneration. Some of the signals responsible of this environment after trauma are located in lipid microdomains known as membrane rafts. These rafts cluster a variety of signaling proteins associated to their scaffolding such as Flotillin-2 (Flot-2). Flot-2 has a role in the tethering of signaling receptors in specific areas of the membrane. However, no study has been done to evaluate Flot-2 expression after a SCI in adult rats. Female Sprague-Dawley rats (200-220g) were injured with the NYU impactor at T10 level. Flot-2 protein expression was monitored by Western blots analysis at 2, 4, 7, 14 and 28 days post injury (DPI) and compared with sham animals. Results showed that Flot-2 protein expression decreases at 2 and 4 DPI. However, a tendency to increase was observed from 7 to 14 DPI and reach a peak of expression level at 28 DPI ($p > 0.05$, $n = 9$). Immunohistochemical studies performed demonstrated that Flot-2 was present in motor neurons, macrophages, oligodendrocytes, axons and reactive astrocytes in injured, and in sham rats as well. These results indicate that at least part of cell communication after injury occurs through membrane rafts. Flot-2 characterization after SCI will help to elucidate novel therapies for SCI. Our special thanks to Dr. Silva's lab, the MBRS/SCORE Molecular Facilities, and the RCMC Image Center (G12RR03051). This work was supported by RISE (R25-GM061838), MBRS/SCORE (S06-GM008224), NIH/NINDS (39405), and M-RISP (532851) programs.

R-008 Pathogenesis studies of the Puerto Rico WNV isolates. Elba V. Caraballo, Elizabeth Hunsperger, Idalí Martínez

West Nile Virus (WNV) was recently isolated from chickens and mosquitoes in Puerto Rico (PR). There has been only one laboratory confirmed clinical human case since June 2007 and this might be explained by cross-reactivity with Dengue virus or attenuation of the PR WNV strains. To test the latest possibility, we conducted animal studies to determine if the PR WNV strains were pathogenic in Balb/c mice. For this purpose, 11-week old animals (30 mice/group) were inoculated with puertorrican strains PR423 and 20wh, and the parental

NY99 strain. Ten animals were monitored for 28 days to determine morbidity and mortality. The other animals were sacrificed on days 2, 4, 6, 8 and 10 to measure viral load in serum and brain. Morbidity was observed on day 5 and mortality between day 8 to 12 post-infection. The survival rates for 20wh (chicken), NY99, and PR423 (mosquito) was 90%, 40% and 10%, respectively. A significant difference in survival was observed when 20wh was compared to the other viral strains ($p < 0.02$). The survival rates between NY99 and PR423 were not significantly different ($p = 0.1925$). These results suggest that the PR423 strain is as pathogenic as the NY99 while 20wh appears to be an attenuated strain. The data also suggests that the virus source may play a role in pathogenesis, a phenomenon that we are studying in vitro. Viral load will be performed by real time RT-PCR and are in progress. This investigation was supported by the RCMC Program (G12RR03051) and the Dean'ship of Biomedical Sciences. IACUC approved protocol 2460408.

R-009 Transcriptional Characterization of Sca1+ Cells in the Mouse Salivary Gland. Martínez K, Roztocil E, Blechman C, Stahl S, Ovitt CE

Patients suffering from impaired salivary gland function as a result of radiation therapy or Sjogren's syndrome are at an increased risk for developing dental caries secondary to xerostomia. Current treatments for xerostomia are only temporary. However, prospective treatments involve the use of stem cell replacement therapy in order to restore the function of impaired glands. Previous studies have suggested the potential location of stem cells in the duct cell compartment. The aim of this study was to isolate a population of duct cells using Sca1 antibody, an antibody which in immunohistochemical studies has been proven to be specific for duct cells in the mouse salivary gland. This antibody has also been identified in progenitor cells for differentiated cell types. Isolated salivary gland cells were labeled with Sca1 antibody and sorted by FACS. PCR was later conducted in order to characterize the cell types present in the Sca1+ and Sca1- populations and to determine whether a pure duct cell population could be enriched by using Sca1 antibody. The Sca1+ cell pool was enriched for duct cell specific markers Sgn1 (Ascl3), Cp2L1 and Kallikrein RT. Sca1- cells were enriched for the acinar cell specific markers PSP and Mucin 19. Other markers such as Notch1 and Notch3 showed duct cell specific enrichment in the Sca1+ pool suggesting they are potential stem cell markers.

R-010 Identification and partial characterization of an ABCG gene in Plasmodium yoelii. Colón L, Ferrer I, González B, González G, Ruiz O, Serrano A, Ferrer I

Background and Objective: Malaria drug resistance poses a formidable challenge to public health systems worldwide. Multi-drug resistance is often mediated by membrane proteins belonging to the ATP-Binding Cassette (ABC) superfamily. One of such groups of transporters, the ABCG subfamily, plays a critical role in drug resistance in neoplastic cancer cells. Methods: We identified the Plasmodium yoelii bcrp homologue gene in PlasmoDB. To ascertain if point mutations were present in the drug resistance lines, the open reading frame of the gene was PCR amplified and sequenced in P. yoelii NS, NS/1100, and ART lines. We are performing additional experiments to measure gene copy number and expression levels. Results: Computed topology predictions using different bioinformatics tools revealed a structure typical of half transporters, consisting of an ABC and a transmembrane domain composed of six transmembrane helices (TM). The ABCG homologue gene shares 85% and 57% identity at the amino acid level with the homologue genes in P. berghei and P. falciparum, respectively. Sequence analyses revealed six amino acid substitutions in NS/1100 and two in ART, as compared to the NS parental line. Preliminary results revealed an increased expression of the gene in an artemisinin resistant line. Discussion and Conclusions: We identified and partially characterized pyberp homologue in drug sensitive and resistant lines of Plasmodium yoelii. Supported in part by the NIH-NCRR Grant No.P20 RR-016470; Approved by IACUC 2480204.

R-011 Hard to reach high risk women: Partnering with a Community Based Organization in the recruitment process for a HIV vaccine clinical trial. L Colón, L Santiago, J Pérez, G Estronza, E Rivera, J Valentín, C Zorrilla

Recruitment of high risk women in Puerto Rico represents a challenge. The behaviors of women at risk for HIV place them on the margins of society, drug use, and street sex work. The environments where these women are located are zones of high crime and other social problems. Maternal Infant Studies Center (CEMI), a university based research center with longstanding experience in clinical trials, is the site for the HIV Vaccine Unit in PR. In order to access participants with high risk for HIV CEMI partnered with a community-based organization (CBO) that provides comprehensive primary/secondary prevention and support services to people living

with HIV/AIDS. Iniciativa Comunitaria partnered with CEMI in the recruitment/retention of high risk women by means of a contractual agreement. Both groups develop a working relationship and learn about the differences between community work and academic research. The collaboration is important; without the trust of the community women cannot be recruited or retained, and without the clinical research unit there is no access to innovative and potentially life-saving interventions. Long-term retention is a difficult aspect and entails diverse and continuous strategies. Several projects have been carried out and a total of 315 women have been recruited for diverse protocols with a high retention rate. Best practices include regular meetings, clear communication, defining roles and contact individuals and recognizing each other's expertise. Challenges included high staff turnover in the CBO, lack of expertise in regulatory processes and switching priorities according to funding resources.

R-012 Mechanism of double bond formation in the biosynthesis of omega-3 fatty acids. Delise J. Oyola-Robles, Mónica Rivera, Abel Baerga-Ortiz

The enzyme complex responsible for the production of omega-3 fatty acids in deep-sea bacteria contains two distinct dehydratase (DH) domains, DH1 and DH2 responsible for the introduction of cis or trans double bonds during their biosynthesis. In order to study the mechanism by which double bonds are introduced during the biosynthesis of omega-3, as well as the substrate specificity of DH domains, both DH1 and DH2 have been cloned and expressed and will be assayed separately against synthetic surrogate substrates. A PCR-amplified DNA fragment corresponding to each DH domain, was used for cloning into an inducible expression vector. DH domains were expressed in Escherichia coli as GST fusion proteins. Future work includes assaying the recombinant domains against a battery of soluble surrogate substrates in order to elucidate the substrate specificity and to study the mechanism of cis and trans double bond formation in omega-3 fatty acids.

R-013 Synthesis of Cyclic Disulfides as Inhibitors of Redox Enzymes. Eory M. Madera, Sandraliz Espinosa, Cornelis P. Vlaar

Justification: Cancer is becoming the major cause of deaths in the United States. Whereas numerous anti-cancer therapies are available, a strong need for better and more selective drugs remains. Objective: The objective of our study is to synthesize novel small molecules that are able to interfere with the survival and proliferation of can-

cer cells, and serve as potentially novel chemotherapies. Methods: We are interested in compounds that interfere with redox-enzymes such as glutathione reductase and thioredoxin reductase. As these enzymes are important for the survival and growth of cancer cells, inhibition of these enzymes could hinder cancer cell growth. These enzymes have active-site cysteine residues and our compounds, a novel class of cyclic disulfide derivatives, are designed to interact with the sulfhydryl groups. Results: A route was developed for the synthesis of the cyclic disulfide building blocks. These building blocks were connected to a variety of core structural units. About 40 new benzodithiin derivatives were synthesized and their inhibitory activity was tested. One of our compounds inhibited glutathione reductase activity with 50% at a concentration of 25uM. Two other compounds inhibited thioredoxin reductase activity more than 80% at 10uM concentration. Conclusions: A group of molecules containing novel cyclic disulfide building blocks were synthesized and shown inhibition activity in two different redox enzymes. As these enzymes are important for cell growth, these compounds could provide leads towards the development of novel anti-cancer drugs. NIH 3-S06-GM08224-21, MBRs SCORE.

R-014 Effects of a Group I mGlu Receptor Agonist on mGluR1α Expression in Estrogen Treated Rats. De Jesús-Burgos MI, Pérez-Acevedo NL

Anxiety is one of the most common mental disorders, affecting twice females than males. These differences might be due to gonadal hormones. Regulation of neural excitability through group I metabotropic glutamate receptors (mGluR1α & mGluR5) have been implicated in the neural circuitry of anxiety. In the hippocampus, estrogen modulates neuronal activity through mGluR1α. We seek to study the behavioral and cellular effects of group I mGluR activation within the basolateral amygdala (BLA). We hypothesized that anxiety-related behaviors are modulated through BLA mGluR activation in an estrogen dependent manner. To test our hypothesis, ovariectomized female rats, with and without estrogen implants (OVX-EB & OVX) were centrally infused with saline or (RS)-3,5-dihydroxyphenyl-glycine (DHPG), at 1.0 and 0.1 μM. We analyzed anxiety using the elevated plus maze (EPM). Then, olfactory bulb (OB), hippocampus, BLA and periaqueductal gray matter (PAG) tissues were used to analyze mGluR1α expression. We found that DHPG decreases anxiety-related behaviors in OVX-EB but not OVX female rats regardless drug concentration (p=0.038 & p=0.018). Preliminary western blot results revealed that the expression of mGluR1α is OB > hippocampus

> BLA > PAG. In conclusion, in female rats, activation of amygdala mGluRs exerts an anxiolytic effect in an estrogen-dependent manner. Further studies will be focused to understand the mechanism of anxiety through interactions of estrogen and mGluRs as a potential target to treat anxiety-related behaviors. MBRs-RISE Program (R25-GM061838) and RCMI Program (G12RR03051).

R-015 Expression and Purification of Orf6, a Thioesterase Domain with a Predicted Hot-dog Fold. María M. Rodríguez-Guilbe, Uldaeliz Trujillo, María Malavé, Delise Oyola, Eric Allen, Eric Schreiter, Abel Baerga

The polyketide synthase (PKS) are multifunctional enzymes responsible for the biosynthesis of omega-3 fatty acids in microbes and algae. They are organized into modules, each containing a set of distinct, non-iteratively acting activities responsible for the catalysis of one cycle of elongation in the polyketide chain. The PKS genes responsible for the biosynthesis of eicosapentanoic acid (EPA) in deep-sea bacterium, *Photobacterium profundum* have been cloned and sequenced. A total of five polyunsaturated fatty acid (pfa) genes (pfaA, pfaB, pfaC, pfaD and Orf6) have shown to be enough for EPA production. These domains presumably catalyze the reiterative steps in processing the growing acyl chain. The thioesterases (TE) domain catalyzes the last step in the biosynthesis of fatty acid. Unlike most TE domains which have an α/β-hydrolase fold, orf6 has a novel hot-dog fold. We have cloned, expressed and purified the orf6 of *P. profundum* and are currently attempting to crystallize the protein with a substrate analogue in the active site. The orf6 gene was amplified by PCR, cloned into pGEX, expressed in *E. coli* and purified to homogeneity. Attempts to crystallize the protein in the presence of coenzyme A are under way. The structure of orf6 will be of great importance in the eventual engineering of TE domains of the hot-dog protein family. This type of enzymatic manipulation could be of great benefit in the design of lipid-based drugs or in the generation of biofuels.

R-016 Is decreased HIV replication in microglia associated with Cystatin B? Eillen Rodríguez-Franco, Marines Plaud-Valentín, Loyda M. Meléndez

HIV-1 penetrates the central nervous system (CNS) early during infection mainly through the trafficking of infected monocytes across the blood-brain barrier. Once in the brain HIV-1 infects resident microglia, which can lead to neuronal injury mediated by virus signaling and secretory

products, resulting in the development of HIV associated neurological diseases (HAND). Although microglia are the mayor infected macrophage cells in the CNS, studies reveal that the levels of infection are very low. Previous work done in our laboratory, associated low levels of expression of cystatin B (CSTB), with restricted HIV infection in placental macrophages compared to monocyte derived macrophages (MDM). We hypothesized that low levels of infection are associated with decreased CSTB. To test this hypothesis, we used the human microglia cell line CHME-5. First, we determined the % of expression of CD4 receptor by flow cytometry. Results showed 18% CD4 positive CHEME-5 cells. Next we compared HIV replication between CHME-5 and MDM after 3, 5 and 7 days post infection with HIVADA by p24 ELISA. CHME-5 cells showed lower levels of HIVp24 7 days after infection ($p=0.0001$). We analyzed the expression of CSTB in uninfected and infected CHME-5 cells by Western blots of cell lysates from 3 independent experiments and found almost undetectable levels of the protein in uninfected and HIV-infected CHME-5 cells when compared to MDM. Additional experiments are in progress to define the links of CSTB and HIV replication in CHME-5 cells. Supported in part by U54NS43011, R25-GM061838, Biomedical Sciences Associate Deanship and Institutional funds.

R-017 Genetic Interaction Between the *Saccharomyces cerevisiae* OGG1 and APN1 genes for the Repair of H2O2-induced Mitochondrial DNA Damage. Karina Acevedo-Torres, Sharon Fonseca-Williams, Sylvette Ayala-Torres, Carlos A. Torres-Ramos

Mitochondria play important roles in cellular energy metabolism, calcium homeostasis and apoptosis. In addition, mitochondria are the principal source of reactive oxygen species (ROS). ROS inflicts damage to macromolecules, particularly mitochondrial DNA (mtDNA), which could alter mitochondrial function. It has been suggested that defects in mitochondrial function may contribute to the development and progression of several diseases such as cancer, diabetes and certain neurodegenerative disorders. Base excision repair (BER) is the major pathway for the repair of damaged DNA bases and single strand breaks generated by ROS. Two important proteins that participate in BER, Ogg1 and Apn1 have been localized to mitochondria. We hypothesize that Ogg1 and Apn1 cooperate to protect the integrity of mtDNA. To test this hypothesis we applied a quantitative PCR (QPCR) assay that can detect a variety of DNA lesions in yeast cells treated with the oxidizing agent H2O2. Analysis by QPCR revealed a dose-dependent in-

crease in mtDNA lesions in all the strains tested. In addition, treatment with 0.3 mM H2O2 caused at least a four-fold induction in the lesion number in a strain harboring simultaneous null mutations in the OGG1 and APN1 as compared to single mutant strains or the wild type strain. These data support our hypothesis that BER enzymes interact among themselves to maintain mtDNA integrity.

R-018 Characterization of a Siderophore-iron Transporter of *Sporothrix schenckii* belonging to the Major Facilitator Superfamily (MFS). L Pérez-Sánchez, N Rodríguez-del Valle

Organisms are dependent on iron for a variety of biochemical reactions. As a means for survival, organisms have developed different strategies to acquire this element from their surroundings. Among these strategies is the synthesis of small molecules named siderophores that chelate iron from the environment. Siderophores are particularly important when iron concentrations are low. A siderophore-iron transporter homolog from *Sporothrix schenckii* was found to interact with its G protein alpha subunit, SSG-1, using the yeast two hybrid analysis. Our immediate goal was to characterize the siderophore-iron transporter homolog in *S. schenckii*. The sequence of the siderophore-iron transporter was determined through the 5' end Rapid Amplification of cDNA Ends (RACE). RACE products were cloned and sequenced. The cDNA revealed an open reading frame of 1914 bp encoding a 638 amino acid protein with a calculated molecular weight of 69.71 kDa. This transporter was shown to contain 10 transmembrane domains as shown by TMHMM analysis. The PANTHER protein and gene classification system showed a significant expectation value for the classification of this protein as a member of the MFS family of siderophore transporters with an E-value score of 2.5×10^{-77} . Siderophore transporters are implicated in the pathogenesis of fungi. In the mammalian host, levels of free iron are extremely low and iron deprivation is an important natural defense strategy against microbial pathogens. For this reason, a more detailed understanding of the role of these proteins is needed. Supported in by MBRS-NIH Grant No. SO6GM08224.

R-019 Phylogenetic analysis of the *Plasmodium berghei* multidrug resistance associated protein (pbMRP). María González-Pons, Ricardo González-Méndez, Adelfa E. Serrano

The ATP-binding cassette (ABC) superfamily is one of the largest evolutionarily conserved families of pro-

teins. ABC proteins play key roles in cellular detoxification of endobiotics, xenobiotics and are responsible for maintaining metabolic homeostasis. Overexpression of certain ABC proteins, among them multidrug resistance associated proteins (MRP), contributes to drug resistance in organisms ranging from human neoplastic cells to parasitic protozoa. *P. berghei*, a rodent malaria model, is a proven and valuable tool for studying Plasmodium biology as well as the development of antimalarial resistance which continues to be a global health problem. In the present study we have analyzed the evolutionary history of MRPs from several human parasites and Plasmodium spp. We retrieved the closest pbMRP homologues by sequence similarity searches. These MRPs were aligned and analyzed to study the conserved motifs and organization between species. Phylogenetic analysis of these proteins reveals that within Plasmodium spp. this gene is homologous to the *P. y. yoelii* and *P. knowlesi* *mrp*, and the *P. vivax* and *P. falciparum* *mrp2* genes. In addition, this study has allowed us to identify the closest MRP homologues in other human parasitic species and to infer potential roles and/or substrates for pbMRP. We have also inferred that MRP2 proteins appear to be ancestral proteins within the ABCC MRP subfamily. A comprehensive understanding of malaria transporters, such as pbMRP, provides critical information about their function, their possible role in drug resistance and potential as novel drug targets.

R-020 Hemangioblastoma: A Case Report.
B Murati, L Colón, R Vélez

Capillary hemangiomas are benign slow-growing vascular tumors frequently associated with cysts in the cerebellum or syrinx in the brain stem or spinal cord. They usually occur in adults, and are commonly associated with von Hippel-Lindau disease. We describe the case of a 43 year old female with history of asthma and possible rheumatoid arthritis, who complained of right shoulder and low back pain since one year. Three days prior to visit she complained of numbness of right post-nuchal area and right lower extremity, as well as dysphagia and chewing problems, at which time she was referred to Centro Medico for neurosurgery evaluation. Physical exam revealed asymmetric facial expression, right facial drooping, intact symmetric sensation, mild uvular deviation to the left, intact hearing. MRI revealed a 2-cm cystic mass involving the upper portion of the neural cord and brain stem with an intramural nodule, with abundant edema of the neural cord down to the level of C4. The patient was admitted for surgery. Histologically, the lesion was composed of large vacuolated stromal cells (neoplastic component),

rich in capillary network. Immunostains were performed, and CD31, CD34 and Neuron-specific enolase were positive, CD10, pankeratin, and EMA were negative, consistent with capillary hemangioblastoma. Unfortunately, the patient did not attend follow-up appointments, and so von Hippel-Lindau diagnosis was not established. Hemangioblastomas appear sporadically (66%) or associated with von Hippel-Lindau disease (25-33%). Germ-line mutations of the VHL gene is recommended for timely detection of VHL-associated hemangioblastomas.

R-021 Transcriptome analysis of the acid stress response of *Streptococcus mutans*.
Isadora Z. González, Jacqueline Abranches
Ph D, Jose Lemos Ph D

Streptococcus mutans and *Streptococcus sobrinus* have been identified as the ethiological agents of dental caries. These bacteria form biofilms on the tooth surface and possess several mechanisms to survive a variety of stress conditions encountered in the oral cavity. Previous studies have shown that *S. mutans* can acidify the environment by converting sugars into organic acids and is capable to resist this harsh environment through several mechanisms such as the proton extrusion through the F-ATPases and changes in the composition of membrane in fatty acids. The purpose of this study is to identify genes that are involved in acid stress response of *S. mutans* by using microarrays. Describe growth conditions such as 10 generations at pH7, then lower the pH to 5.5 with glucose shock and finally pH 5 for another 10 generations. The data showed that when comparing pH 7 vs. pH 5.5, several genes known to be involved in stress tolerance were up-regulated at pH 5.5 (*TrkA*, *Opu*, *ClpE*, *SpaP*, *Nox*, *SodA*, *IlvE*). When pH 7 was compared to pH 5 cultures, there was also an upregulation of known genes involved in acid stress tolerance (*TrkA*, *FoF1* ATPase subunits, *Nox*, *IlvE*). In conclusion, our data demonstrate that at when cells are shocked with glucose and the pH allowed to lower to 5.5, *S. mutans* cells undergo major changes in gene expression. Also, at pH 5 *S. mutans* has adapted to acidic conditions with some of the general stress genes being turned off, and the F-ATPase operon being upregulated. Accordingly, our study brought meaningful data for potential targets for prevention and treatment of dental caries.

R-022 Identification of *Fasciola hepatica* Saposin-Like Protein Homolog Gene in *Schistosoma mansoni*.
Bonnibel Delgado,
Francheska Rivera, Ana M. Espino Ph D

Fasciola hepatica cause fascioliasis a disease that affects primarily sheep and cattle and produce economic

losses estimated in more than 3 billion dollars per year worldwide. *F. hepatica* is also a major human pathogen, with about 17 million people infected worldwide. *Schistosoma mansoni* infect more than 200 million people in America, Asia, Africa and Caribbean islands, and causes approximately 200,000 deaths per year. *F. hepatica* and *S. mansoni* are closely related parasites that share numerous antigens. Thus, is common the observation that antigens from *F. hepatica* can be reactive with sera from patients infected with *S. mansoni* antigens and vice versa. There are no vaccines against *Fasciola* or *Schistosoma* species however; there is evidence of cross-protective immunity between both parasites. From these antecedents, the identification of *Fasciola* or *Schistosoma* antigens with potential for a vaccine against both parasites have become in the focus of attention of many researchers. Recently, our laboratory reported the biochemical characterization of a member of the *F. hepatica* saposin-like protein family that was termed FhSAP2 and demonstrated that this molecule induces significant protection (>80%) in rabbits and mice challenged with *F. hepatica*. In the current study we demonstrated that FhSAP2 is a *F. hepatica* / *S. mansoni* cross-reactive antigen and that a gene homolog to FhSAP2 exists in *S. mansoni*. Based on the prospect that cross-protection between both species is possible, the protein FhSAP2 could constitute the base for the construction of a polyvalent vaccine against fascioliasis and schistosomiasis

R-023 Wnt Signaling During Craniofacial development in Mice. Mariel Figueroa Gely, Yang Gao, Rulang Jiang

Cleft lip with or without cleft palate, the most frequent craniofacial birth defect in humans, arises from genetic or environmental factors during embryonic development. Several studies have shown that mutations in the *WNT3* and *Wnt9b* genes were found associated with cleft lip with or without cleft palate in human and mice, respectively. Moreover, it has been shown that *Wnt3* and *Wnt9b* genes are expressed in the facial primordia prior to and during lip fusion. We have used transgenic *Wnt* reporter mice BAT-GAL as a model system to investigate if signaling was present during craniofacial development, specifically during palate development. We found that BAT-gal expression was strong in the anterior region of the developing secondary palate, but not in the middle or posterior regions from E 12.5 to E 14. 5. In addition, BAT-gal expression was found to be very strong in the developing lip region and tooth bud and may be correlated with the Canonical *Wnt* Signaling Pathway, which may participate in the lip fusion and tooth development as reported.

R-024 Analysis of TOR Signaling Activity in Cytokinesis Mutant Strains of the Budding Yeast *Saccharomyces cerevisiae*. Glorivee Pagán-Mercado, José R. Rodríguez-Medina

Growth-related processes including ribosome biogenesis are regulated by the protein kinase TOR signaling pathway in response to availability of nutrients. Inactivation of the TOR pathway dissociates Sit4 phosphatase from Tap42p, resulting in down-regulation of translational initiation, and repression of ribosome biogenesis. A downregulation of ribosomal protein (RP) genes was observed for *myo1* and *chs2* cytokinesis mutant strains, which suggested that the TOR pathway might be inactivated in these strains. The activity of this pathway can be assayed by analyzing the phosphorylation state of its downstream effectors Npr1p and Tip41p. Npr1p and Tip41p are inactive when phosphorylated and become active in the dephosphorylated state. The objective of this study was to determine whether the TOR pathway was inactivated in our cytokinesis mutant strains. In order to elucidate the status of the pathway in mutant strains *myo1*, *chs2* and a control cell wall mutant *fks1*, these were transformed with plasmid pEJ23 containing N-terminally tagged HA-NPR1 (kindly provided by Dr. Estela Jacinto). Western Blot was used to determine the phosphorylation state of the tagged protein. Our preliminary results show that HA-NPR1 was phosphorylated in our mutant strains. Our preliminary conclusion is that the absence of a change in the level of phosphorylation of Npr1p in our mutants suggests that the TOR pathway maintains normal activity and the transcriptional repression of RP genes may occur through a TOR-independent pathway. NIGMS/NIAID (SC1AI081658-01) supported this work, with partial support from NCCR-RCMI (G12RR-03051).

R-025 Portrayal of the multidrug resistant associated gene (*mrp*) in *Plasmodium yoelii*. González G, González B, Ruiz O, Serrano A, Ferrer I

Malaria is a mosquito-borne disease caused by the *Plasmodium* parasite. Each year, between 350-500 million cases of malaria occur worldwide, and over one million people die. The objective of the project is to ascertain if the *P. yoelii* *mrp* homologue gene is associated with drug resistance, as reported in human neoplastic cells. We identified the *Plasmodium yoelii* *mrp* homologue gene in PlasmoDB 5.4 coverage (Contig 1581). The gene has been annotated as a 1976 amino acid full-length putative ABC transporter. Computed topology predictions revealed a structure typical of full transporters, consist-

ing of two ATP binding cassettes (ABC) and two transmembrane domains (TM). Multiple sequence alignments revealed amino acid conservation of the Walker A, glutamine loop, ABC signature, Walker B, and histidine loop motifs. The *pymrp* gene shares 61% and 59% identity at the amino acid level with the homologue genes in *P. berghei* and *P. falciparum*, respectively. Southern Blot was performed to identify gene copy number between drug sensitive and resistant lines. Expression of the gene was confirmed at the mRNA and protein levels. Preliminary results suggest that there are no differences in gene copy number among drug sensitive and resistant lines. Expression of the genes was confirmed at the mRNA by RT-PCR as well as the protein level by Western blot and Indirect Immunofluorescence. We identified and partially characterized the *pymrp* homologue in drug sensitive and resistant lines of *P. yoelii*. Supported in part by the NIH-NCRR Grant No.P20 RR-016470; Approved by IACUC 2480204.

R-026 Expression patterns of pannexins in a functionally defined group of electrically coupled motor neurons in the feeding motor network of *Aplysia californica*.
C Martínez-Rubio, S Jezzini, H Franco, MW Miller

Central pattern generators (CPGs) are networks of neurons that can generate patterned motor activity in the absence of sensory input. Most motor system models depict motor neurons as relays that transmit CPG motor patterns to peripheral effector targets. This project explored a population of motor neurons that are electrically coupled in this network. These include motor neurons responsible for movements of the pharynx (B67 and B68), neurons that produce protraction of the radula (B61/62), and other neurons that behave similarly during buccal motor programs (B48 and B66). After these cells were identified, electrical coupling between them was quantified. All electrical coupling experiments were performed in high divalent artificial seawater, blocking chemical synaptic signals. We explored the extent of this coupling, i.e. whether it occurs to a large number of cells in the ganglion, or only to a functionally defined subset. We hypothesized that coupling will not be found between this cohort of motor neurons and those that produce opposing movements, such as retraction and closure movements of the radula. For this reason, synaptic interactions between this cohort and cells that produce radula closure (B8a/8b) and retraction (B4 and B64) were also tested. Other cells like B1 and B2, which do not produce any movements of the radula were also

examined. After connections were established, RT-PCR for single cells were performed for the gap junction proteins pannexins 1, 4, and 5. A specific pattern of pannexin expression was observed in this electrically coupled network of neurons.

R-027 Exploring the role of feedback in a simple central pattern generator network. Keyla García Crescioni, Mark W. Miller

Although feedback mechanisms are thought to play important roles in the operation of central pattern generator (CPG) circuits, details of such regulation are difficult to assess in complex systems. This study examined two forms of feedback in a simple CPG-effector system, the heart of the blue crab, *Callinectes sapidus*. The neurogenic heartbeat of the crab is driven by rhythmic burst activity of a simple CPG, the cardiac ganglion (CG) that is embedded within the cardiac musculature. The influence of contraction-induced feedback to the CG was assessed by cutting dendritic projections from the ganglion that innervate the adjacent myocardium. In the semi-intact working heart preparation, this manipulation (deafferentation) produced increases in the CG burst frequency and decreases in both burst duration and the impulses per burst. When the same cuts were applied to the isolated CG, no effects were observed on any of the burst parameters. These observations indicate that the effects of deafferentation reflect removal of contraction-induced feedback rather than damage to the CG itself. A second form of feedback was examined within the CG, where the potential influence of the MNs on PMI bursting was removed with ligations of the CG trunk. This procedure produced increases in PMI burst frequency, burst duration and impulses per burst. Together, these observations indicate that negative feedback mechanisms operate in the *Callinectes* cardiac system to regulate heartbeat frequency.

R-028 Exchange transfusion for Acute Chest Syndrome due to sickle cell disease carriers a low morbidity and mortality in Children. M Villar-Prados, E. Bezares-Casiano, R García-De Jesús

Background: Sickle cell disease (SCD) is a congenital hemoglobinopathy. Patients may suffer from Acute Chest Syndrome (ACS). ACS is a new infiltrate on CXR, associated with fever, cough, chest pain, dyspnea, and/or hypoxemia. ACS may progress to ARDS. It is the second reason for hospitalization and a common cause of death in this population. This hematology emergency requires an acute reduction in the HbS to improve survival. Exchange transfusion provides an effective method for re-

ducing HbS% during these crisis. Objective: Asses the outcome of SCD patients with ACS requiring admission to PICU. Study Design: Retrospective chart review of patients with ACS admitted to PICU of tertiary University Children's Hospital from July 2003 to July 2008. Diagnosis of ACS made by new pulmonary infiltrate in CXR, worsening hypoxemia and P/F <300. All patients that improved without intervention in <24hrs were excluded. Results: Total of 36 patients with SCD crisis admitted to the PICU during the study period. ACS diagnosed in 58% (n=21) occasions. Exchange transfusions in the first 48hrs of admission performed in 62% (n=13/21). All patients received PRBC transfusions prior to exchange; 38% (n=8/21) improved with transfusion only. Two patients with ACS developed respiratory failure and ARDS (10%). Average LOS for exchange group and transfused group was 4.23 vs. 1.88 days. There were no mortalities. Conclusion: We can conclude that ACS due to SCD carries a low mortality when treated aggressively with PRBC transfusion and/or exchange transfusion. ACS still carries a relatively high incidence of morbidity associated to pulmonary complications.

R-029 Congenital Cardiac Fibroma; a Rare Cause of Cardiac Failure in a Newborn.
María Correa MD, María Almira MD, Juan Rivera MD, Amarilys Rivera MD

Primary cardiac tumors are uncommon in infants and children, and in the newborn they have rarely been reported. The autopsy incidence of these tumors range from 0.001% to 0.030%, and only three-quarters of these reported tumors are benign. Cardiac fibroma is very rare, but among the benign tumors it is the second most common in children after rhabdomyomas. We present a term newborn with prenatal diagnosis of a large echogenic mass in the central area of the heart compressing both ventricles. Soon after birth, he developed respiratory distress and cardiac failure until death ensued ten days after birth. In our case, autopsy revealed an interventricular septal fibroma as a cause of heart failure and death.

R-030 The Prevalence of Permanent Maxillary First Molar MB2 Root Canal of a Patient Population at University of Puerto Rico, School of Dental Medicine: A Pilot Study.
Cristina Martínez Roman, Carmen Santa

The main objective of endodontic therapy is the mechanical and chemical cleansing of the entire pulp cavity and its obturation with an inert filling material. In order to achieve this objective a thorough understanding of the

internal and external dental anatomy is necessary. Variations in the dental anatomy have been found for different population of different ethnic backgrounds. It has been reported that a major cause of endodontic failures in maxillary first molars is the inability to locate, debride, and fill a fourth mesiobuccal (MB2) canal. Weine and Vertucci have reported the incidence of MB2 to be of 51% to 55% in American population (USA). A sample of 11 molars was collected from Department of Surgery of School of Dental Medicine Puerto Rico. Teeth were sterilized and kept in sodium hypochlorite during 30 minutes. The crowns were sectioned at the level of the pulp chamber using diamond discs. Canal orifices were located using the endodontic explorer, files and microscope (Leica M300 Dent). The prevalence of MB2 was found to be 63%. This finding shows that it is imperative not to overlook the anatomic presence of MB2 during root canal treatment of maxillary first molar in order to assure a successful treatment.

R-031 Carcinosarcoma Arising in Eccrine Spiradenoma: A case report and review of literature. Leslie López MD, Roman Vélez MD, Adalberto Mendoza MD

Eccrine spiradenoma is a generally benign skin appendage neoplasm that recapitulates primitive eccrine dermal ductular and secretory epithelium. Malignancy developing in an eccrine spiradenoma is a rare but well documented occurrence, 23 cases have been reported to date, and in most cases is caused by carcinomatous transformation. Occasional cases of carcinosarcoma arising in eccrine spiradenoma have been described. They may arise de novo or, more commonly, develop from a pre-existent and recognizably benign sweat gland neoplasm. The latter is the usual mode of development of malignant transformation. We describe a case of an eccrine spiradenoma that arose in the skin of the left gluteus of a 49 year old man that had been present for at least 7 years. The patient suffers of mental retardation and lives in a nursing home; the tumor was discovered when it caused ulceration of the epidermis. The tumor was resected and the specimen, measuring 11 x 8 x 5 cm. showed the typical features of an eccrine spiradenoma as well as an undifferentiated carcinoma possessing both carcinomatous and sarcomatous components. Although eccrine spiradenomas are usually benign, they can, on rare occasions, undergo malignant transformation. This case report describes one such occurrence. The patient is currently under study to continue further treatment. It is difficult to predict the prognosis of carcinosarcoma developing in eccrine spiradenoma as so few cases have been reported.

R-032 27 year-old male with generalized weakness and visual loss: A POEMS syndrome case report. Desiree Casanovas MD, Jessica Rios MD, Ignacio Pita MD

POEMS syndrome is a rare disorder that classically presents with polyneuropathy, organomegaly, endocrinopathy, M protein, and skin changes. Other multiorgan involvement has been associated with this condition. Nevertheless, for diagnosis the polyneuropathy and monoclonal plasma cell proliferative disorder have to be present. This is potentially fatal disease. The patient's quality of life is markedly affected due to progressive weakness and peripheral edema, ascites, pleural effusions and thromboembolic events. The pathophysiology of the disease is not completely understood, but has been associated with increased levels of vascular endothelial growth factor (VEGF). We describe a young adult male from Puerto Rico who presented with several months of progressive extremity weakness associated to muscle atrophy, weight loss, which progressed to acute visual loss and bilateral papilledema. Swelling of the optic nerve sheaths and empty sella was observed in the brain MRI. There was increased intracranial pressure and elevated protein level in CSF. During admission, electrodiagnostic studies showed axonal polyneuropathy. Serum and urine immunofixation identified IgA lambda monoclonal gammopathy. Skeletal survey showed many sclerotic bone lesions. It is important to be aware of this neuropathy since it does not respond to conventional immunomodulatory therapies. However, it does respond to treatment for the underlying lymphoproliferative disease. At present, treatment approaches have included: radiotherapy, combination of steroids and chemotherapy, and peripheral blood stem cell transplantation.

R-033 Neonatal Intensive Care Unit - related parental stress. Kary M. Bouet MD, Norma Claudio MD, Lourdes García MD

Parents face numerous challenges following the birth of an infant with a medical condition. The physical environment is a major source of stress, as well as the loss of parental role. The barriers to parenting and reactions to the environment may negatively influence the parent-infant relationship and the long-term developmental outcome of the baby. Objective: To identify Neonatal Intensive Care Unit (NICU) related parental stress and associated factors. Methods: Parents of newborns admitted to the University Pediatric Hospital NICU completed the Parental Stressor Scale: NICU during the first week of life. Results: Eighty-four parents (43% fathers, 57% mothers) participated in the study. The mean age was 28 years (17-43). Most of the parents (46%) rated the expe-

rience of having a baby admitted in NICU to be extremely stressful. The area which they rated more stressful was the inability to establish a relationship with their baby followed by feelings of being unable to protect or help their baby. There was no correlation between the level of stress and the parents' educational or marital status. Parents who expected their baby to be born with a medical condition had higher levels of stress ($p < 0.01$). Conclusions: Having a baby admitted in NICU is very stressful to the parents. Identification of areas associated to higher levels of stress in the parents may help the NICU staff to establish strategies such as changes in the environment, education, and availability of psychological support to help the parents cope with the stress caused by being unable to start their parenting role immediately after the birth of their baby.

R-034 Auditory Brainstem Evoked Responses as a Tool for Detecting Long Term Neurodevelopmental Abnormalities in Children. G Díaz, G Reyes, H Vélez

Background: Abnormal auditory brainstem evoked responses (ABRs) have been correlated with developmental deficiencies. The purpose of this study is to determine if ABRs measured in newborns correlate with delayed or impaired motor development. Methods: Our population consists of 17 neonates discharged from the NICU who had an ABR done in the first year of life not related to hearing loss. Exclusion criteria included identifiable syndromes, hearing loss and visual problems. The 17 children were already 3-7 years old. The neurodevelopmental tool used was the PEDS:DM. Data collected included measures of fine motor, gross motor, academic and receptive development. The differences in the wave I and V was used as the index of abnormality in the ABR. Results: Four children had normal ABRs and 13 had abnormal ABRs. Most children with abnormal ABR's (92%) presented neurodevelopment delays. The neurological aspect more affected was the I/V ratio. The group with abnormal ABR's had I/V ratios that were more prolonged ($p < 0.05$). Analysis of children with abnormal I/V ratios showed neurodevelopmental delay in 75% of them. In all the developmental domains studied, the I/V ratio was affected, especially in the academic area. Conclusions: Neurological abnormal ABR's are associated with abnormal development. There is a trend that fine motor and academic development is affected which may be important in later schooling. ABR showed high specificity and low sensitivity to detect neurodevelopmental delay.

R-035 Role of outdoor aeroallergens (pollen and mold spores) levels and Saharan desert dust on the chronic allergic conjunctivitis in Puerto Rico. Karina Méndez, Raul Pérez MD, B Bolaño Ph D

We have determined the pollen and mold spore's calendar for San Juan, PR for the last 4 years. The concentration of mold spores varies during the year with clear peaks of red alert during the rainy months of September through November. To determine the role of fungal spores on conjunctivitis, data was gathered from ASEM and Intramural Ophthalmology Clinics (Medical Sciences Campus-UPR) for each month from 2006 to 2008 using diagnostic codes for acute conjunctivitis and chronic allergic conjunctivitis separately. The results were compared with the previously recorded data of levels of airborne mold spores and pollen at the San Juan Station of the American Academy of Asthma Allergy and Immunology and the concentration of the Saharan desert dust (PR-Air Quality Board) at the atmosphere of San Juan for each month. The months with higher levels of fungal spores and Saharan desert dust (PM 10), were compared to the months of higher incidence of conjunctivitis to determine if a correlation existed. The number of encounters with chronic allergic conjunctivitis peaked during the months of June to November of 2007, with an average of 8 encounters per month compared to just 3 encounters per month from January to May of 2007. Peaks in number of encounters with chronic allergic conjunctivitis correlate with peaks in spore concentration during these months and increased concentration of Saharan Desert Dust. There is a correlation with the incidence of chronic allergic conjunctivitis and both fungal spores and Saharan desert dust (PM 10). The incidence of acute conjunctivitis only shows correlation with the Saharan desert dust.

R-036 Perianal Crohn's Disease: An MRI Pictorial. Eduardo Labat MD, Gory Ballester MD, Yania López BS, Angel Gómez MD, Nancy Devesa MD, Esther A. Torres MD, FAGG; Edgar Colón MD

The purpose of this exhibit is: - To review the complex anatomy of the pelvic floor and perineum. - To describe an appropriate MRI protocol for the evaluation of the pelvic floor and perineum in patients with Crohn's using a 1.5 T magnet. - To emphasize the role of MRI for the demonstration of perineal complications of Crohn's disease. Special attention will be paid to the pathophysiology and MR imaging of perianal fistulas,

in order to establish prognosis and guide therapeutic interventions. The role of MRI to evaluate perineal disease activity in Crohn's disease has been investigated extensively, as MRI has intrinsic advantages over other techniques, including noninvasiveness, the absence of ionizing radiation, and superb contrast resolution. Non-contrast and contrast enhanced MRI evaluation of the pelvic floor and perineal region can define the localization and extent of perianal fistulas. MRI can accurately show the pelvic and perineal complications of Crohn's disease and help to establish adequate patient management. Ultimately, physicians dealing with this patient population should have a thorough knowledge of the pelvic floor anatomy and the common MRI findings in perineal Crohn's disease.

R-037 Nodular lymphocytic predominant Hodgkin Lymphoma: A Difficult Diagnosis- A Report of Two Cases. Keila Rivera MD, Roman Vélez MD, María Echevarria MD

Hodgkin lymphoma is a malignant tumor with a characteristic neoplastic cell: the Reed-Sternberg cell. The typical Reed-Sternberg cell is large, with abundant cytoplasm and binucleated/bilobulated nucleus with large nucleoli. This cell usually presents the following immunophenotype: CD15+, CD30+ and fascin+. Nodular lymphocyte-predominant Hodgkin lymphoma (NLPHL), a distinct type of Hodgkin lymphoma, is a rare disease with a generally favorable prognosis. The hallmark of NLPHL is the presence of the lymphocytic and histiocytic type Reed-Sternberg cell (called popcorn cell because of its white multilobular nucleus). It is CD20+, CD15-, CD30- and fascin negative. NLPHL tends to have an indolent natural history, a long time to disease progression, a delayed time to relapse, and a high likelihood of presenting as early-stage disease. Nodular lymphocyte-predominant Hodgkin lymphoma may be difficult to diagnose, both clinically and histologically. We present two cases in children with unusual presentation: Patient 1 is a 9 year old male who developed a right thigh node and received antibiotic therapy with good response. The adenopathy recurred and was biopsied which revealed NLPHL. Patient 2 is a 6 year old that presented with a sore throat and cervical adenopathy, who was treated with antibiotics without improvement. A neck CT scan later revealed a large retropharyngeal mass that was biopsied and was initially diagnosed as a reactive lymph node. Further review of the biopsy at our institution showed NLPHL. Complete staging disclosed a Stage II disease with B symptoms (sudoration).

R-038 Male and Female Pelvic Floor Anatomy: Correlation of MRI with Cadaveric Images. Kenneth Badillo MD, Eduardo Labat MD, Gory Ballester MD, Edgar Colón MD, Jorge Vidal MD, Nancy Devesa MD

Purpose: 1. To present a pictorial atlas of pelvic floor anatomy with 1.5 Tesla MR images and correlate it to cadaveric specimens from the Visible Human Project. 2. To study the differences in pelvic floor anatomy between males and females. 3. To review the techniques used and common pitfalls encountered when imaging the pelvic floor. **Content organization:** 1. A pictorial essay which illustrates in detail the normal pelvic floor anatomy in both males and females, valuable to both radiologists and clinicians. 2. A review of the differences in pelvic floor anatomy between males and females, important from an imaging and surgical standpoint. 3. Also discussed are the imaging techniques available and their applications. 4. Pitfalls encountered when imaging the pelvic floor are also presented. **Summary:** The pelvic floor has been an anatomical region traditionally difficult to image. In this exhibit, we want to provide an in-depth view of the normal MRI anatomy of the pelvic floor, with special attention to the differences that exist between males and females. The latter is of utmost importance for medical treatment and surgical planning of perineal disease. We additionally provide a discussion of techniques and common pitfalls in pelvic floor imaging.

R-039 Malignant Fibrous Histiocytoma arising from Dermatofibrosarcoma Protuberans: Case Presentation and Review of the Literature. Jorge G. Billoch MD, Román Vélez MD

Dermatofibrosarcoma protuberans (DFSP) is a tumor of intermediate malignancy that affects the dermis in areas of the trunk, extremities, and head and neck regions in the middle aged. It presents as a firm, well circumscribed, plaque-like lesion of the skin with a slow but persistent growth rate. Although it is locally aggressive and has a high rate of recurrence (up to 50%), it rarely presents distal metastasis (up to 4%). Although rare, foci of Malignant Fibrous Histiocytoma have been found in these tumors. The importance of identifying this more aggressive tumor within the DFSP relies in a worse prognosis and the need for more extensive surgery or adjuvant treatment in order to prevent metastasis. We present the case of a 40 year old male who presented with a mass in the medial aspect of his right arm with associated pruritus and rubor of 18 months evolution, which grew indolently in the first 12 and more rapidly in the last 6 months. The mass measured 9 x 7 x 5 cm, was well circumscribed and

surrounded by a fine capsule. Histologically, it showed a proliferation of spindle-shaped cells along with many multinucleated cells, some of them with hyperchromatic, irregular nuclei and bubbly clear cytoplasm. The tissue demonstrated positivity for CD34, CD68, Vimentin, Factor XIII A, and the multinucleated cells showed strong positivity for S100. A diagnosis of Ancient Schwannoma was originally given, but when the case was consulted, atypical mitoses were seen, which led to the diagnosis of Malignant Fibrous Histiocytoma arising from Dermatofibrosarcoma Protuberans.

R-040 Breastfeeding plans in women with high risk pregnancies. H Díaz, C Pichardo, M Valentín, L García

The Healthy People 2010 goal is to have 50% of the mothers breastfeeding their children up to 6 months of age. In spite of a limited number of contraindications, there are still many mothers who decide not to breastfeed their infants. **Objective:** To determine plans for breastfeeding in women with high-risk pregnancies and establish the factors that affects that decision. **Methods:** Subjects included women who attended the Obstetrics high-risk clinics at the University District Hospital. The participants answered an anonymous questionnaire. The study was approved by the IRB. **Results:** Ninety-three pregnant women participated in the study. The mean maternal age was 27 years (15-47). The mean gestational age was 27 weeks (9-41). Most of them (77%) were referred to the high risk clinics due to a maternal condition, being the most prevalent: high blood pressure, diabetes, and older age. Ninety-one percent had plans to breastfeed their babies. The most common reason for not planning to breastfeed was the use of medications followed by not wanting to do it. Eighty-seven percent had received information about breastfeeding, mostly by a nurse (26%) or the media (25%). Fifteen percent thought that babies with medical conditions cannot breastfeed and twenty-one percent thought that women with chronic conditions do not produce enough milk. **Conclusions:** Women with high risk pregnancies showed high interest in breastfeeding their babies but there are misconceptions that need to be addressed so that more high risk babies can benefit from breastfeeding.

R-041 Primary Central Nervous System Diffuse Large B-cell Lymphoma With Ocular Involvement in a HIV patient: Case report. Jose R De Jesús-Meléndez, Román Vélez-Rosario

Among the vast majority of lymphomas, a small group, predominantly aggressive B-cell lymphomas, has been

associated with infection by the human immune deficiency virus (HIV). These disorders are heterogeneous, and include lymphomas usually diagnosed in immunocompetent patients, as well as those seen much more often in the setting of HIV infection. The most common HIV associated lymphomas include: Diffuse large B-cell Lymphoma (DLBCL), Burkitt lymphoma, primary effusion lymphoma, and plasmablastic lymphoma of the oral cavity. In this setting, the majority of diffuse large B-cell lymphomas involve the central nervous system and represents about 25% of HIV associated lymphomas. Morphologically, DLBCL's typically replaces the normal architecture of the tissue involved in a diffuse pattern. Although cytologically they are diverse and can be divided into morphologic variants, generally speaking, they are composed by medium to large neoplastic lymphoid cells with round to oval nuclei containing a single or multiple nucleoli. The immunophenotype of these cells shows positivity for various pan-B markers such as CD19, CD20, CD22, and CD79a, but may lack one or more of these. The clinical presentation depends on the extension of the disease and the structures involved by this. We report an unusual case of a HIV+ 45 year old man, with a primary central nervous system diffuse large B-cell lymphoma, presenting as an intraorbital mass. Also, we review the morphology, immunohistochemistry, incidence and biological behavior of this entity.

R-042 Effectiveness of the DAST Questionnaire in Cohort of HIV-Seropositive women.
L Obén, J Rivera, S Santiago, T De La Torre,
E Maldonado, L Meléndez, V Wojna

Illicit drugs of abuse are one of the main routes of infection of the Human Immunodeficiency Virus (HIV). Drug and alcohol abuse are co-morbidities and confounder factors in the evaluation of HIV-seropositive patients. Therefore, screening for drugs and alcohol abuse is imperative in the evaluation of these patients. The objective of this study is to determine the effectiveness of the Drug Abuse Screening Test (DAST-10) questionnaire in detecting drug abuse in a cohort of HIV-seropositive women. We evaluated 185 women, 140 HIV+ and 45 controls. This IRB approved protocol enrolled immunosuppressed women without history of active drug abuse. Mean (SD) age is 38.2(7.3) for the HIV+ and 35.5(5.8) for controls. Evaluations included the DAST-10, neurological and neuropsychological tests, and urine toxicology. There was no significant difference between HIV+ and controls in the DAST score. In the HIV+ group 32.1% scored no representation of abuse, 59.3% low/moderate abuse, and 8.5% severe/abuse while in the control group

26.7% scored no representation and 73.3% low/moderate abuse. Among drugs of abuse cocaine was the most frequent drug abused by the HIV+ group (7.9%, 11/139) while marijuana was in the control group (88.8%, 4/45). No correlations were observed between DAST and urine toxicology. Findings suggest that screening questionnaires such as the DAST is not a very good instrument for drug abuse in this particular population. Urine toxicology should be included in all studies involving HIV+ subjects. Supported in part by NIH S11NS46278, U54NS43011, P20RR11126.

R-043 A pilot study to evaluate the ethical conduct of Phase III Randomized Clinical Trials in cancer. F Montealegre, J Quijada

There are raising concerns from the scientific community about the quality of research and the adequacy of protections for participants in cancer trials. The objectives of the present bibliographical analysis was to evaluate the scientific value and validity, and respect for study participants. Studies were identified using Medline. The inclusion criteria were as follows: published in 2008, Phase III studies, accessibility online, single or multicenter study, randomized trial, and in any type of cancer. A search was conducted to evaluate what was documented and published on the ethical conduct of the study. A total of 61 citations were retrieved, and 60 publications were included in the present analysis. Sixty five percent of the publications did not externally review their protocols, 41% did not state their scientific hypothesis, 10% did not describe sample size determination, 5% did not describe if the study participants had signed the consent form, and 18.3% did not report that their study was presented and approved by an Institutional Review Board. In addition, 100% did not indicate how the participant's privacy and welfare were protected. Our results also indicate that 100% publications did not stated on how the researchers explained the study participant or their immediate relatives it's contribution to the advancement of science. Our results show that there are some notable deficiencies in the basic concepts of the ethical conduct of Phase III Complete Randomized Clinical Trials in cancer.

R-044 Cervical Spine Trauma: Anatomy and Radiologic Findings in patients at The San Juan Medical Center. Dr. Cesar Cortés, Dr. Gory Ballester, Dr. Jorge Vidal, Dr. Angel Gómez, Dr. Edgar Colón, Gabriel Rivera, Enrique Alvarado

Background Information/Purpose: Cervical spine injuries are common and many times result in major disabil-

ity and death in the young population. This has a large economical and social impact. The radiologist plays an important role identifying these injuries and providing information that will influence clinical management. Educational Goals/Teaching Points: The major teaching points of this exhibit are: 1. Describe the normal osseous and ligamentous cervical spine anatomy as seen in Multi-Detector Computed Tomography (MDCT) and Magnetic Resonance Imaging (MRI). 2. Review the most common patterns of cervical spine injuries at our trauma level 1 center. 3. Understand the complementary role of cervical MRI to MDCT. 4. Correlate post-traumatic findings in MDCT and MRI. Conclusion: Post-traumatic cervical spine injuries are very common and are a major cause of disability. Although MDCT is the diagnostic modality of choice for the acute trauma patient, MRI complements MDCT by revealing soft tissue and spinal cord injuries which are poorly visualized at MDCT. Detailed knowledge of the normal cervical spine anatomy and most common patterns of post-traumatic injury to the cervical spine is crucial to provide adequate patient care.

R-045 Preventing Second Hand Smoke Among Infants and Children. L Pérez, Z Corchado, M Rodríguez, L Medina, A Vicens, N Ortiz, L García, Y Pedrogo

Nearly 40% of United States children are exposed to second hand smoke. Parental smoking results in substantial annual medical expenditure and hospital admissions. In spite of the increasing evidence of passive smoking detrimental effects, more counseling and community interventions are still needed. Objective: To determine parents knowledge about passive smoking exposure effects on infants. Methods: The main target of the study was parents of infants born in the University District Hospital from October 2007 through October 2008. Parents of infants completed a survey upon recruitment. Educational sessions were offered to parents of infants admitted to the newborn unit once a week. Results: One hundred and ten caretakers participated in the study. Most of them were mothers (72%) followed by grandparents (14%). The median age was 25 years. The mean gestational age of the newborns was 37 weeks (31-41). Two percent of the mothers smoke during the pregnancy. Sixteen percent of the babies are going to homes where a family member smokes. Seventy-eight percent of the participants considered themselves knowledgeable about the effects of second hand smoking. Participants could not identify health complications and preventive measures related to passive smoking. Conclusion: This group of caretakers showed lack of knowledge about the possible

effects of passive smoking in their infants. Educational interventions are needed for more complete understanding about second hand smoking, preventive measures and complications.

R-046 Promoción de Salud planificada para viejos con condiciones cardiovasculares: modelo basado en evidencia. Gisela Burgos Cruz BHE, Wanda I. Tábora-Tirado MPHE, CHES; Josefina Díaz Hernández, BHE; Luis E. Rosario-Arroyo, MPHE, CHES

El modelo PRECEDE-PROCEDE es un modelo que integr las ciencias sociales, conductuales, epidemiológicas y administrativas con el propósito de planificar programas de Promoción y Educación en Salud (Green & Kreuter,2005). Este modelo describir la planificación del programa de Educación en Salud “Latiendo a Ritmo Saludable” para la prevención secundaria de condiciones cardiovasculares en viejos que poseen una cubierta del seguro de Medicare Advantage. Se desarrolló un plan programático y otro de Promoción de Salud mediante las prácticas clínicas del Bachillerato en Educación en Salud del Recinto de Ciencias Medicas de la Universidad de Puerto Rico en el escenario de la aseguradora Triple-S, Inc. /Triple-C, Inc. El propósito del mismo fue promover la salud en el área de condiciones cardiovasculares en 34 gerontes participantes del centro de envejecientes Santa Rosa II. Se utilizó la Comunicación en Salud, el Mercado Social y la Educación para la Salud como estrategias de intervención. La implantación del Plan Programático y de Promoción de Salud se llevó a cabo de acuerdo a lo planificado en sus inicios y a las mejores prácticas basadas en evidencia. Estas consistieron en una cuidadosa planificación basada en los hallazgos de los avalúos (evidencia), en las cuales los objetivos, las estrategias de Promoción de Salud y de intervención se adaptaron a las necesidades de la población para mantenerla saludable. El optimizar la salud de la población de gerontes con condiciones cardiovasculares es posible a través de la disponibilidad de Programas Educativos basados en las mejores prácticas.

R-047 Vulnerabilidad de riesgo de contagio del VIH en mujeres de una Clínica de Planificación Familiar. Evelyn Esquilín Esquilín, Lillie I. Troche Flores, René R. Dávila Torres

Objetivo: Identificar la vulnerabilidad de riesgo percibida de contagio con VIH en un grupo de mujeres que reciben servicios en una Clínica de Planificación Familiar. Método: 92 mujeres fueron encuestadas en el estu-

dio. Se utilizó un cuestionario basado en el Modelo de Creencias de la Salud. Estadísticas Descriptivas e Inferenciales fueron utilizadas para el análisis de los datos. Resultados: Se encontró una alta percepción de vulnerabilidad ante el riesgo de infectarse con el VIH en las participantes. De igual forma, las participantes percibieron mayor severidad de ser contagiadas con VIH, mayor percepción de barreras para prevenir el contagio con VIH y una baja percepción de beneficio ante el riesgo de infectarse con VIH. Las ferias de salud, programas de TV, prensa y radio fueron de las fuentes de información más utilizadas por las participantes. Conclusión: Entre las participantes existe una percepción alta de ser infectadas con VIH, esto sugiere la necesidad de desarrollar estrategias educativas y de apoderamiento a nivel clínico que logre que las participantes puedan prevenir un posible contagio con el VIH.

R-048 Mentoring and Tutoring for Natural Sciences Students of the University of Puerto Rico at Carolina (UPRC): Educational Strategy for Success. K González, N Laborde, R García, M Tora

The limitation of resources contribute to a low student performance and retention at UPRC's Natural Sciences Department (NSD) is the rationale for the development and establishment of the UPRC's Student Resource and Assistance Center (SRAC) to provide additional and necessary student support services Objectives: to increase student academic achievement in gatekeeper/bottleneck courses and in the natural sciences' programs; and to increase the freshman to sophomore persistence rate in UPRC's NSD. Activities: establishment of the SRAC; training of students as tutors and mentors; creation of online tutorials in science, math and personal /professional development courses; offering of workshops in different areas (study habit, test-taking and time management) and career counseling Outcomes the SRAC was established and the services has been offered; 19 students were trained as tutors; increase in 12% (225) of the students that pass the courses with more than C; 40 (most of them MSC's graduate students) were trained as mentors; 194 students received mentoring services; 35% increase in persistence rates of students in UPRC's NSD; 10 tutorials (math, science and personal/professional development) were created; 8 workshops were offered; and 100% of the students indicated satisfaction with SRAC's services and programs: Projections: The integration of e-mentoring/tutoring to offer a 24/7 mentoring/tutoring services and the enhancement of SRAC's programs and services to overcome other students' needs an limitations

to fulfill their careers in science. Support by U.S. Department of Education's Grant PO31S060003.

R-049 Low blood lead levels and intelligence in children residents of a former landfill, P.R. Encijar Hassan MS, DrPH; Cynthia M. Pérez Ph D, Erick L. Suárez Ph D, Rafael A. Rios Ph D, PE

The "Brisas del Rosario" community in Vega Baja, a former solid waste disposal site, was listed on the United States of America (USA) National Priorities List of Superfund sites in 1999. This Superfund site has a residential area with soil lead levels above the standard (400 ppm). The objective of the study was to assess the association between blood lead concentration and intellectual function in children and adolescents aged 6-16 years living in a former landfill in the "Brisas del Rosario" community in Vega Baja, Puerto Rico. The study design was cross-sectional. During the first phase of the study an interview was performed to the mother or the person in charge of the children and adolescents to obtain sociodemographic and exposure information. During the second phase, the blood lead levels were determined and on the third phase the Wechsler Intelligence Scale for Children-Revised for Puerto Rico was used to measure IQ. The mean blood lead concentration was 1.52 ± 0.89 $\mu\text{g/dl}$ (range: <0.50 – 4.90 $\mu\text{g/dl}$). The prevalence of an IQ below the average (<90) was 37.9% for the full scale, 39.4% for the verbal subscale, and 25.8 % for the performance subscale. After adjusting for confounders, marginal associations were observed between blood lead concentration above 1.4 $\mu\text{g/dl}$ and an IQ below the average in the verbal subscale ($p=0.097$) and the digit span subtest ($p=0.05$). These findings underscore the need to continue with the cleanup process in the "Brisas del Rosario" community and to revise the policy related to the prevention of environmental lead exposure in children living in or near hazardous waste sites.

R-050 Factores Asociados a la Intención de Donar Sangre en Estudiantes de Medicina de la UPR-Recinto de Ciencias Médicas, 2008. Ortíz-Vega, NM, Soto OE, Marqués JM, Colón-López V, Pattatucci A

Introducción: La creciente demanda por abastos de sangre en PR continúa excediendo la oferta de donantes. Identificar factores que influyen o impiden la decisión de donar sangre podría mejorar la efectividad de las campañas de reclutamiento. Los estudiantes de medicina en particular, podrían contribuir en el futuro al proceso de educación, promoción y reclutamiento de

donantes de sangre, mediado a través de la interacción directa con sus pacientes. **Objetivo:** Explorar factores que influyen o impiden la intención de donar sangre en estudiantes de medicina. **Métodos:** Estudio transversal, realizado a través de un muestreo no-probabilístico por disponibilidad. Los estudiantes completaron un cuestionario basado en el modelo de la Teoría del Comportamiento Planificado, para determinar la intención de donar sangre. **Resultados:** 229 estudiantes completaron el cuestionario, para una tasa de respuesta de 58.7%. El 50.9% de los participantes eran hombres entre un rango de edad de 22-25 años. Más de la mitad (52.2%) reportó no haber donado sangre en su vida. Sin embargo, la mayoría de los estudiantes (65.7%) reportaron una alta intención de donar sangre en los próximos meses. Dentro de este grupo, la mayoría son mujeres (50.3%), estudiantes de 1er año (47.7%) y aquellos que reportaron que algún familiar/amigo recibió transfusión (53.6%). **Conclusiones:** Se recomiendan intervenciones educativas dirigidas a aumentar la intención y donación de sangre en estudiantes de medicina. La implementación temprana de estas iniciativas dirigidas a futuros profesionales de la salud podría contribuir a un aumento en los abastos de sangre en la isla.

R-051 Factors Associated with Multiple Medication Use in Adults of 60-year-old or more in Puerto Rico for the Years 2002–2003. Francisco J. Díaz Cortijo MS, Vivian Colón López Ph D, Mildred Vera Ríos Ph D, Ana L. Dávila Román Ph D

By 2020 it is projected that 20% of the population in Puerto Rico will be 60 years and older, suggesting an increase in the prevalence of chronic diseases and a higher consumption of medications among this group. The use of multiple medication therapy might lead to adverse medication reactions, accidents, and other detrimental health effects associated with the use of multiple medications. Using data from the PREHCO study, we evaluated factors associated with the use of multiple medications (5+) among the Puerto Rican elderly. Multivariate weighted logistic regression analyses were used to identify predictors of five or more medications. The overall prevalence of utilization of 5 or more medications in the elderly was (35.9 %). A significant higher utilization was observed in women (42.5%) compared to men (27.6%) (p -value<0.0001). Results from logistic regression analysis indicated that women and men diagnosed with arthritis (OR=1.42), heart disease (OR=2.65), hypertension (OR=1.88), and diabetes (OR=2.31) were more likely be currently using five or more medications. For

women specifically, self-report of depression (OR=1.65) and obesity (OR=1.46) was significantly associated with multiple use of medications. Our findings suggest that a large number of older adults in Puerto Rico may be at risk for adverse medication events. It is recommended to implement health policies and programs promoting the importance of monitoring the use of medications in the elderly population in particular due to the growing burden of chronic diseases among the Puerto Rican elderly and higher number of comorbidities in this group.

R-052 Epidemiological Profile of Psychiatric Consultations at the University Pediatric Hospital. Myrangelisse Ríos Pelati MD, María del Mar Estremera MD, Karen Martínez MD, Annette Pagán MD

Rates of emotional and behavioral disorders are likely to be higher than 20% in children with chronic illnesses. Research shows that children with chronic diseases have increase likelihood of psychiatric disorders. We reviewed the 2006 University Pediatric Hospital consults generated to the Child and Adolescent Psychiatry Fellowship to create an epidemiological profile. Of the 241 consults 51% were for male patients, with a peak at 16 years old. Most consults were requested by Emergency Room. Patients with malignancies, neurological, and endocrinological conditions were more frequently consulted. The most frequent reason for consultation was mood complaints. The most frequent preliminary diagnosis was Major Depressive Disorder and Adjustment Disorder. In conclusion, the 2006 psychiatry consults in the University Pediatric Hospital consisted primarily in the request for evaluation and treatment of male or female adolescent patients, who presented mood symptoms in association with neurological, malignancy or endocrine diagnosis.

R-053 Distribution of dental caries among Puerto Rican aged 70 years and older with diabetes in Metropolitan area of San Juan, Puerto Rico. Katherine Svensson MS, Cynthia Pérez PhD, Erick Suárez PhD, Sona Tumanyan DMD, MPH; Kaumudi Joshipura BDS, MS, ScD

In Puerto Rico, the older population constitutes an 11.2% of the entire population and the prevalence of diabetes in this age group is approximately 28.7%. It has been hypothesized that diabetes could be a risk factor for caries due to increased glucose in saliva, increased glucose in gingival cervical fluid, decreased salivary flow and frequent intervals of food ingestion. This study com-

parens the caries distribution among non-institutionalized adults 70 years and older, with and without diabetes, living in the San Juan Metropolitan area. It is the first study reporting the relationship between caries and diabetes among Puerto Rican older adults. Individuals in this clinical study were selected from a large representative sample of Puerto Rican older adults participating in the Puerto Rican Elderly Health Conditions (PREHCO), which comprise data for several health outcomes including self-reported diabetes status. Our final sample consisted of 184 individuals after a few exclusion criteria. Caries examinations were part of a comprehensive oral exam, and decayed, filled and missing surfaces (DMFS) were assessed in all the present teeth excluding the third molars (up to 128 surfaces). In the bivariate analysis, diabetes was associated with more decayed surfaces (RR = 1.85), less filled surfaces (RR = 0.62) and more missing surfaces (RR = 1.16) (p-value<0.05). On the other hand, no significant differences were found after adjusting by other confounding factors (p-value>0.05), such as socio-demographic characteristics, fruit and vegetable consumption, use of mouthwash and dental floss, visit to dentist and difficulty to chew.

R-054 Distribution of dental caries among Puerto Rican aged 70 years and older in Metropolitan area of San Juan, Puerto Rico.
Yari Valle Moro, MPH, Katherine Svensson MS, Sona Tumanyan DMD, MPH; Kaumudi Joshipura BDS, MS, ScD

Dental caries is a common disease that causes pain and disability across all age groups, and is believed to be caused by acid-producing mutans streptococci and lactobacillus bacteria. A number of factors combine to place the elderly at high risk for caries, such as poor oral hygiene, and restricted access to dental services. To date, no information has been published on the oral health status of elderly population in Puerto Rico. This study reports the caries distribution among a representative sample of non-institutionalized adults 70 years and older, living in the San Juan Metropolitan area. It is the first comprehensive study reporting caries prevalence among Puerto Rican older adults. Individuals in this clinical study were selected from a large representative sample of Puerto Rican older adults participating in the Puerto Rican Elderly Health Conditions (PREHCO). Our final sample consisted of 184 individuals after a few exclusion criteria. Caries examinations were part of a comprehensive oral exam, and decayed, filled and missing surfaces (DMFS) were assessed in all the present teeth excluding the third molars (up to 128

surfaces). The average DMFS for this population was 74.5, consisting of 2.85 decayed surfaces, 15.3 filled surfaces and 56.63 missing surfaces. People with high school education or less had more decayed and missing surfaces, but less filled surfaces. Older adults with the government's insurance had significantly less filled surfaces. Filled surfaces increased by income level, while decayed surfaces increased by age.

R-055 Valores de Creatinina en Orina Puntual en Escolares del Municipio San Diego, Edo. Carabobo. Olga Agreda, María Pieters, David Seijas, Maritza Rodríguez

Los valores referenciales de creatinina sérica y urinaria existentes en la literatura, se han establecido en países con características geográficas, culturales, composición corporal y hábitos dietéticos diferentes a las nuestras, y éstos son referidos sólo para adultos, pero sin establecer valores de referencia para muestras de orina puntual en niños. Por la importancia de la creatinina en orina (Ct-O) en la corrección de indicadores en monitoreo biológico de tóxicos y fármacos en orina, se desarrolló un estudio sobre la determinación de valores basales de Ct-O puntual, relacionándolos con edad y sexo, en escolares pertenecientes al municipio San Diego, en el año 2006. El estudio fue descriptivo de corte transversal. Se determinaron los niveles de Ct-O en 123 niños entre 6-12 años de edad (63 femeninos y 60 masculinos). Los análisis de Ct-O, se realizaron por el método de Jaffé modificado. La media de Ct-O fue de $0,96 \pm 0,44$ g/L. No se encontró diferencia estadísticamente significativa ($p>0,05$) entre los valores de Ct-O al comparar por sexo y edad. El 98,4% de la población presentó concentraciones de Ct-O entre 0,3-3,0 g/L. Se encontró para el percentil 25 de la población estudiada, un valor de Ct-O de 0,67g/L, igualmente se obtuvo un valor de 0,87g/L para el percentil 50 y 1,19 g/L para el percentil 75. Con los resultados de esta investigación se dispone de valores medios de Ct-O en escolares, a fin de hacer un aporte preliminar que servirá como base para que con estudios futuros puedan establecerse rangos referenciales de Ct-O puntual en niños. P.C: Valores referenciales, creatinina, escolares, orina puntual.

R-056 Prevalence of Asthma and Breastfeeding in a Group of Children from the Caguas Region in Puerto Rico: Preliminary Results. Jessica González Montes, Lourdes García

Breast-feeding is the preferred method of infant nutrition for numerous reasons. However, there is inconclu-

sive evidence for a preventive effect of breast-feeding on asthma and other allergic diseases in childhood and whether there is an association between breast-feeding and increased risk of development of asthma and eczema. Objective: Determine whether breastfeeding or its duration protects against the development of bronchial asthma in children. Methods: A questionnaire was answered by parents of patients attending a Pediatric Clinic at Cidra, PR. The Institutional Review Board approved the study. Results: Ninety-eight mothers were included in the study. The mean age of the mothers was 28 years (16-46). The mean age of the children was 5 years (0-18). There was family history of asthma in 66% of the families. The prevalence of asthma in these children was 50%. Sixty-five percent of the mothers breastfed but only 17% did it for 6 months or longer. Children who were not breastfed had a higher prevalence of asthma, wheezing, allergies, and asthma related hospitalizations. Conclusions: This study seems to correlate with literature reports linking breastfeeding to a reduction in asthma and allergies. The study was not powered to find statistical differences reason why the study will continue to have a larger sample.

R-057 Incidence of Systemic Fungal Infections in Very Low Birth Weight Neonates. I Ancalle MD, L García MD, M Valcárcel MD

Very low birth weight (VLBW) infants (<1500g) have a high risk for developing invasive fungal infections. In an analysis of 132 neonatal intensive care units (NICU), the median rate of candidemia was 7.5% in extremely low birth weight (ELBW) infants (<1000g). Candidemia in ELBW infants is associated with significant morbidity and high mortality rates. Fluconazole prophylaxis has been implemented in several NICUs to prevent Candida infections. Objective: To determine the incidence of systemic fungal infections in VLBW infants in our NICU and identify the highest risk infants. Methods: We reviewed our NICU's data from 1999 to 2007. All VLBW infants who survived 3 days or more were included in the analysis. Results: One thousand four hundred forty eight infants met inclusion criteria; the mean birth weight (BW) was 1079g (430-1495g), and mean gestational age (GA) 29 weeks (23-38 weeks). The incidence of fungemia in VLBW infants was 8% and 12% in ELBW infants. Higher incidence of fungemia was found in infants with BW ≤ 1250g and in infants less than 30 weeks GA. In this study, fungemia was associated to lower BW (958g vs 1089g, $p<0.01$) and lower GA (27 vs 29 weeks, $p<0.01$). Conclusions: The incidence of

fungemia in ELBW infants in our NICU is higher than the incidence reported in the literature. Even infants with BW from 1001g to 1250g in our NICU have an elevated incidence of fungemia (6.5%). Given the high incidence of fungal infections in VLBW infants in our unit, fluconazole prophylaxis has been instituted to prevent fungal infections in patients with BW ≤ 1250g and/or less than 30 weeks GA.

R-058 Estudio transversal sobre la asociación entre la exposición a material particulado y las enfermedades respiratorias entre residentes del municipio de San Lorenzo, Puerto Rico, 2008. A Pascual, N Arana, W Berdecía, A Calimano MD, Jesús G. Delgado, M Díaz, F Escalr, A Freire, L Gaona, S Gaud, L Hernández, L Juarbe, A Martínez, M Marzán, J Pascual, O Portalatín, G Rodríguez, A Rodríguez, C Toro, G Ramos, L Rodríguez

Entre las fuentes de contaminación de aire en San Lorenzo, PR se encuentra la extracción de piedra caliza producida por canteras, areneras y/o graveras, las cuales liberan material particulado (PM10 y PM2.5) al ambiente. Este estudio transversal se enfocó en el PM2.5 producido por 11 de estas industrias. Se estimó la prevalencia de la exposición a PM2.5 como factor de riesgo para enfermedades respiratorias. Se usó una muestra representativa de residentes de municipios seleccionados por un diseño de muestreo multiétapico estratificado. Se administró un cuestionario mediante entrevista personal. Los datos recolectados incluían: variables sociodemográficas, hábitos de fumar, alergias, características del hogar, síntomas, diagnóstico y exposición ocupacional. Se estimó la prevalencia basada en el peso de la muestra y se usó una regresión logística para calcular los "odds ratios". La tasa de respuesta fue de 90.4%: 52% fueron hombres y 48% fueron mujeres. La prevalencia de enfermedades respiratorias fue estadísticamente significativa ($p<0.05$) en el grupo más expuesto: 25.9% rinitis, 20.3% sinusitis, 3.2% neumonía, y 2.1% COPD. Después de ajustar por edad, sexo, historial de fumar, trabajar en ambiente con aire acondicionado, alergias y características del hogar (incluye: tener gato, percepción de polvo, cortinas de tela y mantas), los "odds ratio" para alergias, enfermedades respiratorias y de la piel fueron estadísticamente significativa (2.78, 1.71 y 2.40 respectivamente; todo $p<0.05$). Los residentes con mayor exposición obtuvieron una alta prevalencia de enfermedades respiratorias comparado al grupo de menor exposición.

R-059 Liver Abscess in a Neonate. I Matias, L García, I García, J Rivera, M Valcarcel

Neonatal bacterial abscess of the liver is relatively rare. It carries a high mortality and is difficult to diagnose. Pyogenic abscess, which is most often polymicrobial, accounts for 80% of hepatic abscesses in neonates in the United States. Untreated, pyogenic liver abscess remains uniformly fatal. With timely administration of antibiotics and drainage procedures, mortality currently occurs in 5-30% of cases. The most common causes of death include septic shock, multiorgan failure, and hepatic failure. We report an unusual case of liver abscess in a preterm infant of 33 weeks of gestation with birth weight 1903 g, presenting with leukocytosis, abdominal distension and suspected gastrointestinal perforation. The patient had an umbilical vein catheter which was removed upon admission to our NICU. An abdominal sonogram and abdominal CT scan with contrast were performed and an abscess between the right and left lobes of the liver was diagnosed. Percutaneous drainage under CT guidance was performed. The aspirated bloody material was cultured and reported negative. The patient received antimicrobial therapy (imipenem, amikacin) for 24 days. Hepatic abscess should be considered in any infant with an umbilical vein catheter and persistent inflammatory findings in the liver in spite of adequate antimicrobial therapy. We postulate that malpositioning the umbilical venous catheter in the liver substantially increases the life-threatening risk of this complication, and advocate extreme care in the placement and use of these catheters.

R-060 Congenital leukemia with leukemia cutis: case report. A Frontanes MD, F Montalvo MD, M Valcárcel MD

Congenital leukemia is a rare malignancy diagnosed from birth to 4 weeks of age. We report an infant born at 37 weeks gestational age, birth weight 4771 g, who presented cyanosis and poor spontaneous activity requiring endotracheal intubation at birth. He presented hepatosplenomegaly, multiple raised skin lesions compatible with leukemia cutis, purpura and petechiae. The patient developed right pneumothorax requiring a chest tube. Laboratories showed leukocytosis, anemia, thrombocytopenia, immature predominance, hyponatremia, hyperuricemia, direct hyperbilirubinemia, and elevated LDH. A 2-volume exchange transfusion was performed. The patient died of pulmonary hemorrhage before chemotherapy was started. Chromosome analysis showed 46, XY, t (4:11) (q21;q23). FISH for 11q23 MLL gene rearrangement showed positivity in 58% of interphase

cells. This rearrangement has been associated with a poor prognosis. Flow cytometry was reported with precursor B-cell acute lymphoblastic leukemia. Most of the neonatal cases reported have acute nonlymphoblastic leukemia, in contrast to the predominance of acute lymphoblastic leukemia found in later childhood. Leukemia cutis is associated with a poor prognosis in adults, but the natural history of congenital leukemia is not altered by leukemia cutis. Chromosomal translocations and deletions such as the t (4;11) carry an unfavorable prognosis. We report this case due to its rarity with a course of rapid deterioration and death. In cases like this, a high index of suspicion is needed in order to diagnose and classify congenital leukemia promptly so that treatment strategies can be undertaken.

R-061 Recurrent Transverse Myelitis in pregnancy and postpartum Neuromyelitis Optica: A Case Report. Christian Schenk MD, Valerie Wojna MD

Transverse myelitis (TM) is a neuroinflammatory disorder of the gray and white matter of the spinal cord usually following infection, vaccination or multiple sclerosis. Multiple sclerosis relapses are known to decrease during pregnancy. We describe a rare case of TM in pregnancy in a 31 year old female with previous history of parainfectious Transverse myelitis with a recurrence during the 33rd week of pregnancy and positive serum anti-Ro autoantibodies. After treatment and rehabilitation she later developed Neuromyelitis optica (NMO) six months postpartum. The mechanism of TM is often unknown but it has been associated with a specific disease such as Systemic Lupus Erythematosus, Sjögrens syndrome and antiphospholipid antibody syndrome. As in recurrent TM, Neuromyelitis optica has been also linked to a serum autoantibody (anti-NMO). The pathology of NMO has been recently found to be different than that of Multiple sclerosis. The relationship between these neuroinflammatory diseases needs to be further studied as no clear prevention is available and current treatment efficacies are unproven.

R-062 Socio-demographic And Clinical Profile of Patients Receiving Psychotropic Therapy At the Outpatient Psychiatric Clinic- UPR Medical Sciences Campus From July 2006 to December 2007. Luz N. Colón-de Martí MD, Nereida González MD, Rossely Roldán MD

Patients with mental illnesses can present significant medical comorbidities which need to be taken in consideration in the process of their evaluation and treatment.

The aim of the study was to describe some sociodemographic and clinical characteristics, including medical comorbidities, of the patients being treated at the Outpatient Psychiatric Clinic of the Department of Psychiatry at the UPR-School of Medicine during the period of July 2006-December 2007. Only the records of those patients receiving pharmacotherapy with available laboratory data were included (n= 102). The psychiatric diagnoses were assessed using the five axis diagnostic tool which is based on the DSM-IV-TR diagnostic criteria. More than 60% (68.6%) were women and 22.5% were in the age group of 18-25 years old. These patients suffered most commonly from Mood disorders (80.40%) and showed a possible comorbidity with Hypertension and Thyroid disease. Dyslipidemia was found in 6% of the patients. Differences were found for psychiatric diagnoses and other medical conditions regarding age group and gender. These findings should be taken in consideration due to their impact on the quality of the clinical services to be provided and the need to integrate the concepts of general medical health and mental health in this clinical setting.

R-063 Perceptions of Primary Care Services: the Experience of Patients, Providers and Administrators. Mario H, Rodríguez-Sánchez Ph D, Ruth Ríos-Motta Ph D, Camille Vélez MS

Primary care (PC) is the gateway to secondary and tertiary care, and due to its coordinating role, experiences with primary care are expected to reflect patients' experiences with the rest of the health care system. An increasing need for accountability demands evaluation of PC services. This project aims to investigate and describe the pertinence, appropriateness and relevance of the Institute of Medicine's (IOM) definition of PC in the experience of using and providing services in PC facilities in Puerto Rico (PR) by patients, healthcare providers and administrators. Focus groups were conducted with patients, healthcare providers and administrators that use and provide PC services in PR. Five types of focus groups were conducted to discuss the pertinence, appropriateness and relevance of the IOM's definition of PC in their experience using and providing PC. A series of open-ended questions was developed to elicit participants' point of view regarding the meaning of the constructs. Patients, providers and administrators believe that the IOM definition of PC was a great ideal, but concepts such as "family centered" and "community oriented practice" are unrealistic. The three groups regard the practice as more patient-centered. Administrators and Providers consider that the implementation of managed care requirements

is an obstacle to developing a good PC practice. The implementation of the theoretical principles of PC in the community is perceived unequally by patients, providers and administrators (AHRQ Grant 5R24HS014060, IRB A3420107).

R-064 Job Satisfaction of a Group of Physicians at a Hispanic Academic Medical Center during the 2006-2007 Academic Year. Linnette Rodríguez-Figueroa Ph D, Luz N. Colón-de Martí MD

Physician's job satisfaction is important for doctors themselves, their patients and for other professionals that work closely with them. Highly-satisfied patients, coworkers and physicians make their work environment more attractive and efficient. Better understanding of physician's job satisfaction may improve performance in clinical practice and maximize quality of services provided. In this study almost all the physicians (90.0%) reported being satisfied or very satisfied with their job. Satisfaction was very high in both study groups. The younger physicians were the most satisfied with their jobs. The group with the highest percentage of job satisfaction was the group of participants who had completed their residency/fellowship in the previous 10 years. A higher proportion of participants whose spouse was not a physician reported to be satisfied with their job (92.7%), when compared to those whose spouse was a physician (87.5%). 97.1% of the physicians that were not active in their religion reported to be satisfied with their job compared to 85.7% of the ones that were active. Physician's job satisfaction can be measured using short self-administered questionnaires. The questionnaires can also be used to monitor changes in aspects related to their job satisfaction to prevent potentially damaging consequences.

R-065 Translational regulation of gene expression in a myo1Δ mutant strain of the budding yeast *Saccharomyces cerevisiae*. Marielis E. Rivera-Ruiz, José R. Rodríguez-Medina

Post-transcriptional control is critical in regulating a variety of physiological processes including development, cell differentiation, protection of cells from external damage and regulation of metabolic pathways. Cells with myosin II deficiency undergo a myosin II independent cytokinesis mechanism that involves increased chitin deposition at the cell wall by chitin synthase III (CSIII). The objective of this study is to assess how translational control contributes to cellular phenotypes in myo1Δ strain. To better

understand the range of mRNAs affected by translational regulation, total RNA from whole ribosomal pellets was extracted and cRNA hybridized to yeast oligonucleotide microarrays. Transcriptionally regulated mRNAs were excluded from this analysis. A total of 1,271 differentially regulated genes ($p < 0.018$) were identified in the myo1Δ strains. Five categories were identified in the Gene Set Enrichment Analysis these included: metabolism, protein biosynthesis, carbohydrate metabolism and genes of unknown function. A polyribosome profile analysis was performed on mRNAs of the CSIII expression pathway. Our results showed that CHS3 and CHS4 mRNAs were increased in the non-polysome fractions in myo1Δ strains, suggesting that these mRNAs are less efficiently translated in this mutant. In contrast, the mRNAs levels of CHS7 and CHS5 didn't show a significant change in the myo1Δ strain, while CHS6 mRNA was enriched in the polysome fractions, indicating more active translation of this mRNA in the myo1Δ strain. Supported by (SC1A108165801),(G12RR-03051) and (R25GM61838).

R-066 Effects of Gly-SIFamide on Aggression in a Crustacean. N Vázquez-Acevedo, NM Rivera, AM Torres-González, Y Rullan-Matheu, EA Ruiz-Rodríguez

Adult males of the freshwater prawn *M. rosenbergii* develop through three morphological types (small [SC], yellow [YC] and blue claws [BC]). Each morphotype represents a level in the dominance hierarchy of a group, BC males being the most dominant. The SIFamides are a family of arthropod peptides identified in the CNS of insects and crustaceans for which very little is known about their function. As a first step to determine the role of GYRKPFFNGSIFamide (Gly-SIFamide) in modulating aggression and dominant behavior in the prawn, we have performed behavioral observation experiments recording and quantifying the interactions between BC/YC pairs before and after injecting Gly-SIFamide into the haemolymph of the living animal. A dominance index (DI) was calculated for each individual tested in all the paired interactions. Under normal (control) conditions, the BC established itself as the dominant animal, and tended to attack the YC until an escape response was elicited in the YC or the animals were separated. When the YC was injected with Gly-SIFamide (0.001 M), it behaved very much like BCs do under control conditions. Interestingly this increase in aggression in the YC is accompanied by a significant decrease in the DI on the normally dominant BC when compared to control conditions. When the BCs were injected with Gly-SIFamide,

they further increased their aggressiveness towards YCs. Injection of vehicle solution alone did not change the DI for BCs or YCs. These results suggest that Gly-SIFamide modulates aggression in the prawn. Supported by: MBRS SCORE S06GM008224, MRISP MH48190, RCMI G12RR03051, MBRS RISE R25-GM061838.

R-067 Serotonin Modulation of Intrinsic Properties of Ascending Ipsilateral Interneurons in the Neonatal Mouse Spinal Cord.

Manuel Díaz-Rios

Ipsilateral excitatory ventral spinal interneurons (IINs), whose axonal projections do not cross the midline, are involved in the maintenance of rhythmic activity of flexor and extensor motor neurons on both sides of the body to generate the normal intralimb alternating motor pattern. The identity and contribution of this population of interneurons to mammalian locomotor behaviors is poorly understood. Serotonin (5-HT) plays an important role in the induction of fictive locomotion, but the effect of 5-HT on the IINs is also largely unexplored. I used the patch clamp technique to investigate 5-HT's effects on the basic membrane properties of the ascending ipsilateral interneurons (aIINs), which have axons that travel rostrally within the same side of the spinal cord. 5-HT significantly depolarized the aIINs' resting membrane potential, often initiating spiking. It did not change the peak spike amplitude, but did decrease the action potential after-hyperpolarization amplitude. 5-HT also significantly increased neuronal excitability by increasing the number of spikes per burst and increasing spike frequency in a significant percentage of aIINs studied. Hyperpolarizing current pulses revealed the presence of a hyperpolarization-activated sag voltage that led to spiking in some of the aIINs and small increases or no changes in input resistance. Finally, a small slow (3Hz) oscillation was seen in about 40% of aIINs which was voltage independent. Further physiological and pharmacological analysis under voltage-clamp will help to identify the ionic currents mediating the responses of aIINs to serotonin.

R-068 Retinoic acid signaling in the visual system of the frog *Rana pipiens*: changes after optic nerve injury. Alma M. Mas, Mildred Duprey, Wilmer Rivera, Daniel Vásquez, Rosa E. Blanco

Manuel Díaz-Rios

Retinoic acid (RA), an important signaling molecule and a member of the retinoid family, is a potent transcriptional activator may be involved in neuronal plasticity and regeneration in the adult brain. The purpose of this study

is to understand the role of RA during regeneration in the adult visual system of *Rana pipiens*. Immunohistochemistry was performed on cryostat sections of the retina and optic tectum of control and experimental animals whose optic nerves were severed, with polyclonal antibodies against RALDH, RAR#945, RAR#946, CRABP-I and II. In control retinas, immunoreactivity to RALDH, both RARs, and both CRABPs was present in cells of the INL and GCL. CRABP-I and II were also observed in cells of the ONL, while the IPL, OPL and some Müller-like processes showed some staining for CRABP-I and RALDH. A general increase in the immunostaining of RALDH and RARs was observed in retinas during regeneration, whereas an increase of CRABP staining was observed in cells of the GCL. Intensity measurements of RALDH and RAR immunostaining in the GCL demonstrated that axotomy increases their presence in this retinal layer and that this upregulation is sustained during regeneration. These results are consistent with the idea that adult visual system neurons may reuse developmental signaling mechanisms in response to axonal injury. This work is supported in part by NIH-SCORE SO6 GM008224, RCM1 G12 RR03051.

R-069 Biosynthesis of omega-3 fatty acids from marine organisms by a polyketide synthase. Uldaeliz Trujillo Rodríguez, Delise Oyola Robles, María Rodríguez Guilbe, Eric E. Allen, Abel Baerga-Ortiz

Omega-3 fatty acids are essential components of the human diet. They are not efficiently made by endogenous biochemical pathways in humans, rather must be obtained from food consumption. Deep-sea bacteria are a major source of long-chain polyunsaturated fatty acids (PUFAs), such as eicosapentanoic acid (20:5n; EPA) and docosahexaenoic acid (22:6n-3; DHA) which are synthesized by a polyketide synthase (PKS) which assembles the omega-3 fatty acid in its entirety de novo in a similar way as fatty acid synthesis in mammals. Recently, the PKS gene responsible for the biosynthesis of EPA in *Photobacterium profundum* have been cloned and sequenced. The PUFA-producing gene cluster consists of 5 distinct genes (pfa A, B, C, D and Orf 6), which encode biosynthetic enzymes. Our goal is to use and manipulate these enzymes in order to make novel fatty acids not widely found in nature. Our strategy consists of overexpressing and reconstituting this PKS gene cluster from *Photobacterium profundum* using *Escherichia coli* as a heterologous host. Recently we have cloned and express Orf-6, pfaB and pfaD in *E. coli*. Results show that expression levels are greatly enhanced by using strains of *E. coli*

harboring plasmids which encode rare tRNA's. Efforts to clone the larger genes pfaC and pfaA are underway using a topoisomerase (TOPO) cloning system. The results from this work will facilitate the understanding of marine biosynthetic machineries and will allow the harnessing of genes of marine origin for the production of new natural product with therapeutic potential.

R-070 Polymorphisms Determination in a Puerto Rican Population. Tanya Díaz-Ortiz, Lorna Cortés-Pérez, Cruz M. Nazario Ph D, Wilfredo Delgado-Morales Ph D, José F. Rodríguez Orengo Ph D

The glutathione S-transferase (GST) enzyme family is related with the detoxification of toxins, carcinogens and xenobiotics in mammals. These enzymes catalyze the binding of glutathione to those xenobiotics making them more soluble in water to facilitate their degradation and elimination from the body. Other role of these enzymes is to protect the cells against DNA damage and adduct formation. Several studies have shown an association for the lack of the GSTM1 and GSTT1 genes with an increased risk for many diseases and cancer development. Most of the studies done in the United States have been focused in the Caucasian and African American populations, and there is limited information regarding the Hispanic population. The main purpose of this study was to determine the distribution of GSTM1 and GSTT1 genotypes frequencies in 100 Puerto Rican individuals. Saliva samples were collected and the DNA was extracted using Oragene™ DNA Purification kit. Determination of genotypes at the GSTM1 and GSTT1 locus was done by Real Time Polymerase Chain Reaction (RT-PCR). Of the 95 individuals that entered, 57% (16 males and 38 females) studied were positive for the GSTM1 genotype, and 43% (17 males and 24 females) were GSTM1 null. Further, 61% (20 males and 38 females) were positive for the GSTT1 genotype, and 39% (13 males and 24 females) were GSTT1 null. The 19% of the 95 total individuals (8 males and 10 females) were null for both, the GSTM1 and GSTT1 polymorphisms. Finally, 37% (11 males and 24 females) of the total individuals were +/- for these polymorphisms. This work was funded by: RCM1 G12RR03051.

R-071 Detection of H2O2-induced AP sites in DNA repair deficit yeast strains. Y Arroyo Torres, S Fonseca Williams, K Acevedo Torres, CA Torres Ramos

Oxidative damage to mitochondrial DNA (mtDNA) has been associated to cancer and aging. Therefore, elucidation of repair mechanisms involved in the repair of

mtDNA damage is significant for human health. Base excision repair (BER) is the main DNA repair mechanism for oxidative damage. BER consists of a series of enzymatic reactions carried by several DNA glycosylases, abasic site endonucleases, DNA polymerases and DNA ligases. The *Saccharomyces cerevisiae* DNA glycosylase Ogg1 and the endonuclease Apg1 have been localized in the mitochondria of yeast cells. We hypothesize that a genetic interaction between these two enzymes is necessary for the successful repair of oxidative-induced mtDNA damage. To test this hypothesis, we exposed wild type and BER mutant yeast cells to the oxidizing agent H₂O₂ in order to detect the formation and repair of H₂O₂-induced DNA lesions. We isolated total DNA from the treated cells and use a DNA damage quantification assay that can directly detect the presence of apurinic/apirimidinic (AP) sites in DNA. We were able to detect an increase in AP sites in all the strains treated with H₂O₂. To determine if mtDNA is particularly infected after H₂O₂ treatment, we isolated mtDNA from these strains. PCR analysis shows that the mtDNA was not contaminated with nuclear DNA. Future experiments involve the quantification of AP sites present in the isolated mtDNA. Our hypothesis predicts that cells deficient in both the Ogg1 and Apg1 will harbor more mtDNA damage than either of the single mutant strain or the wild type strain.

R-072 Localization of Choline Acetyltransferase (ChAT)-Like Immunoreactivity in Interneurons of the Mouse Spinal Cord.
Zacha Ortiz-Correa, Jean Marie Acevedo-Rosario, Manuel E. Díaz-Ríos

The basic motor patterns driving rhythmic limb movements during locomotion are generated by neuronal networks called central pattern generators (CPGs), located within the spinal cord. Networks of interneurons control the rhythmic activity of flexor and extensor motor neurons on both sides of the body to generate locomotion. It has been suggested that ipsilateral excitatory ventral interneurons (IINs), whose axonal projections do not cross the midline, are involved in the maintenance of rhythmic activity of flexor and extensor motor neurons on both sides of the body to generate the normal intralimb alternating motor pattern. It has been recently suggested that cholinergic interneurons make synaptic contacts into motoneurons and regulate their excitability via activation of muscarinic receptors, and that this system is used during motor behavior. Additionally, previous studies have used immunohistochemical techniques to localize the presence of cholinergic neurons in the rat spinal cord. In this study

we are interested in localizing the presence of cholinergic interneurons throughout the lumbar segments of the mouse spinal cord with the use of an antibody directed toward the enzyme choline acetyltransferase (ChAT), a known marker for cholinergic neurons. Additionally, by using an axonal retrograde tracing technique we wanted to identify ipsilateral interneurons (IINs) that could be using acetylcholine as their neurotransmitter. This study will provide further information into the anatomical organization of the spinal locomotor network and its potential neuronal members.

R-073 An analysis of occupational dysphonia in the San Juan Metropolitan Area of Puerto Rico. Albert Villanueva Reyes

The aim of this study was to describe characteristics of occupational groups reported with voice disorders in the San Juan Metropolitan Area of Puerto Rico. In general, voice problems are very common, but they are more frequent among certain occupational groups. One hundred and forty-one records of cases reported with voice disorders during the period of 2000 to 2005, randomly selected at the Corporación del Fondo del Seguro del Estado located at the cities of Bayamón, Carolina and San Juan, were analyzed. The following variables were studied: sex, age, occupation, and possible hazards in job, diagnostic, and type of treatment. Findings revealed that, of all the cases of voice disorders available during the study period, 81% were females. The average age at diagnosis for different voice disorders was 42 years (± 10 years). Vocal problems were reported with a higher frequency by teachers at the elementary and high school levels (72%). The most common complaints were related with job related voice overuse (30%), and excessive dust at the workplace. The most frequent medical diagnosis related with voice disorders were rhinopharyngitis (27%), several types of laryngitis (21%), and laryngopharyngitis (10%). The most frequent treatment modality for laryngeal disease and voice problems was the prescription of medication. The most relevant factor of voice disorders in professional voice users is the vocal overload during their job. It is advisable to implement voice disorders prevention programs for teachers because of the high rate of vocal dysfunction among these professionals.

R-074 Shushi Lover's Worm - Case History.
W Kozek, P Rivera, J Barreras, G Barreras

Expanding popularity of exotic dishes represents a public health and medical concern related to zoonotic infections that can be acquired by ingestion of raw fish meat in preparations such as sushi, sashimi or ceviche. Reports

of parasitic infections acquired from eating such dishes are known in the geographical areas where these dishes are consumed, and are increasing in numbers in countries where these dishes are becoming popular. We report a case of intestinal nematodiasis in a 39-year-old resident of Guaynabo who was avid sushi fan. She has consumed shushi in various restaurants in Puerto Rico and in other places which she visited: San Diego, San Francisco, Las Vegas, New Orleans and Lafayette, Louisiana. She has experienced nausea and vague intestinal discomfort over an eighteen month period. Her condition remained undiagnosed after two medical examinations. On November 18, 2007, she was nauseous and vomited; the vomitus contained a living and motile, bright red nematode, tentatively identified as a larva of Eustrongylides, a parasite of piscivorous birds. The larva was robust and active until it was fixed about two weeks later. Her extensive travel history preclude identification of the place where she has acquired her infection. Although infections of humans by Eustrongylides spp. are rare, this case illustrates the importance of discussing dietary habits as part of the medical history of the patient and considering the possibility of zoonotic parasitoses in differential diagnosis.

R-075 Striatal cells expressing mutant huntingtin are highly vulnerable to oxidative stress. S Rivera-Sánchez, CA Torres-Ramos, S Ayala-Torres

Huntington's disease (HD) is a fatal neurodegenerative disorder caused by an expansion of CAG repeats in the huntingtin gene. Oxidative stress and mitochondrial dysfunction have been suggested to be involved in HD neurodegeneration, however, the mechanisms by which mutant huntingtin is causing mitochondrial dysfunction are not known. We have recently demonstrated that levels of mitochondrial DNA (mtDNA) damage increase in two in vivo models of HD. We hypothesize that mutant huntingtin causes mitochondrial dysfunction by increasing the levels of oxidative mtDNA damage. To test our hypothesis we used wild-type (WT) Q7 and mutant Q111 striatal neuronal cells. We determined basal levels of mtDNA damage using quantitative PCR and show that mutant Q111 cells exhibit increased levels of mtDNA damage as compared to wild-type Q7 cells. To determine the cell sensitivity to oxidative stress, we performed dose and time course studies using 3-nitropropionic acid (3-NPA) and hydrogen peroxide (H₂O₂). Our results indicate that 5 mM 3-NPA induces a time-dependent decrease in the percent of viable cells in both cell clones with Q111 cells showing a higher sensitivity to 3-NPA than Q7 after 24 h of treatment (52% vs 77% of cell survival). In addition, Q111 cells were

more sensitive than Q7 to 200 μM H₂O₂ after 24 h (20% vs 87% of cell survival). These data suggest that cells expressing mutant huntingtin exhibit higher basal levels of mtDNA damage and are more sensitive to oxidative insults than WT cells. We conclude that mutant huntingtin may increase cell vulnerability to oxidative stress in HD. Supported by U54-NS039408, R25-GM061838.

R-076 Role of Dengue Virus Protease NS2B/NS3 in Toll-like Receptor 3 Signaling Pathway. YI Angleró, P Pantoja, G Gracia, T. Arana, CA Sariol

The mechanisms of immune response against dengue virus (DENV) are not completely understood. Toll-like receptors (TLR) are important in mediating inflammation and immune responses by recognizing pathogen specific ligands. TLR3 recognizes double-stranded RNA (dsRNA) activating the interferon (IFN) signaling pathway, a potent defense mechanism against viruses. However, viruses have developed strategies to avoid this response and DENV infected cells showed resistance to the antiviral action of IFN. The viral products that mediated this resistance are under study. After cytoplasmic nucleocapsid release, DENV RNA translates to a polyprotein that with the activity of host and virus peptidase results in the cleavage of three structural (C, E, prM) and seven nonstructural (NS1, NS2A, NS2B, NS3, NS4A, NS4B, and NS5) proteins. NS4B is involved in the inhibition of alpha/beta INF signaling. The NS3/4A of Hepatitis C virus, also a flavivirus, has been described to cause a protease-mediated cleavage of the TRIF (Toll-IL-1 receptor domain-containing adaptor inducing IFN-γ), the adaptor protein linking TLR3. A sequence alignment of TRIF protein showed possible cleavage sites for DENV protease (NS2B/NS3). Microarrays analysis during DENV infection showed down-regulation of IRF3 (interferon regulatory transcription factor 3), which is stimulated in TLR3 signaling. All these events support our hypothesis that NS2B/NS3 DENV interrupts the TLR3 signaling pathway. This phenomenon could constitute an important mechanism of immune evasion in DENV.

R-077 In vitro expression of envelope protein from DNA vaccine against Dengue virus serotype 1. Yisel M. Cantres, Idalí Martínez

Dengue (DEN), an enveloped RNA virus from the Flavivirus genus, has four serotypes. As they are equally dangerous, an infection with one of the four serotypes may lead to one of two syndromes: dengue fever, or dengue hemorrhagic fever, which can progress into a shock

syndrome with potentially lethal complications. Actually, there is no licensed vaccine available to prevent these illnesses; therefore a tetravalent vaccine is needed. In this study, we worked developing a DNA vaccine for DEN-1. To construct the DEN-1 vaccine candidate, we obtained cDNA of the prM-env genes by RT-PCR. These viral sequences were cloned in pcDNA3.1/V5-His-TOPO plasmid. Using recombinant techniques, we digested this vector and sub-cloned DEN-1 prM-env genes into the VR1020 plasmid, which is a eukaryotic expression vector. The sequence insertion was verified by Colony PCR and restriction analysis. We performed a transient transfection of 293T cells and the expression of the envelope protein was detected in cell lysates by Western Blot. Immunogenicity studies in mice are in progress to test if this vector is capable of eliciting immune responses against DEN-1 virus. The DEN-1 vaccine candidate will be included in a tetravalent vaccine formula that will be tested in mice in the near future. This study was partly funded by the RCMi Program and the MBRS-RISE Program from the UPR Medical Sciences Campus and Rio Piedras Campus. IACUC approved protocol no. 2460208. Supported by the grants: RCMi Program G12RR003051, MBRS RISE R25-GM61838 and NIH 5R25GM061151.

R-078 Activation of alpha-2 receptors in the Ventral Tegmental Area blocks the development and expression of cocaine sensitization. Sharon González, María Vélez, Rafael Vázquez, José Nieves, Berman Santos, Carlos A. Jiménez-Rivera

Cocaine sensitization is characterized by an increase in locomotor activity that results from the repeated administration of cocaine. We investigate whether alpha-2 adrenergic receptors modulate this sensitization acting directly at the Ventral Tegmental Area (VTA). Microinjections of the alpha-2 receptor agonist clonidine into the VTA were performed before a cocaine sensitization scheme. Rats were stereotaxically implanted with bilateral cannulas into the VTA and allowed to recover for 7 days. Animals received a bilateral microinjection 5 µl/side of clonidine 20 nM 30 min. before cocaine 15 mg/kg ip administration and locomotor activity was recorded during 1h. This procedure was repeated for a period of 5 days. On day 6, all animals received a cocaine challenge, and locomotion was tested. After a 7 day withdrawal period, all animals received a second cocaine challenge, and locomotor activity was recorded again. One day after the second challenge, rats were reinstated to the initial protocol for one day. Results demonstrate that clonidine inhibits the development of cocaine sensitization, since animals microinjected with

clonidine did not showed a significant increase in locomotor behavior during the first 5 days of the experiment. Both groups were sensitized after the first challenge and remained sensitized during withdrawal. During reinstatement clonidine administration was able to reduce significantly the expression of sensitization. These results suggest that the alpha-2 receptors, directly located at the VTA, modulate the development and expression of cocaine sensitization. Supported by GM-08224 to C.A.J.R.

R-079 Identification of Ras homologue in Fasciola hepatica using a Schistosoma mansoni cDNA probe. Olgary Figueroa Santiago, Bonnibel Delgado, Ana M. Espino Ph D

Fasciola hepatica is the causative agent of fascioliasis in mammals including man. The complex process of *F. hepatica* development within the mammalian host includes defined stages such as excystment of ingested metacercariae, penetration of the intestinal wall, migration through the abdominal cavity toward the liver, migration through the liver parenchyma, and finally, lodgment within the bile ducts as a mature egg-laying parasite. The complexity in the development and maturation of this parasite suggest existence of highly regulated processes. However, little is known about the molecular biology of *F. hepatica* during these developmental stages and even less is known regarding the gene expression surrounding these events. To study the regulation of gene expression our laboratory have sought to define proteins that are sequentially expressed at early stages of the parasite and that are involved in the change of metacercariae to juvenile fluke. It was recently demonstrated that Ras, a small GTP-binding protein, plays an essential role in growth and development in a variety of eukaryotes including *S. mansoni*, a closely related parasite to *F. hepatica*. Ras has been shown to function in signaling pathways that control mitosis, meiosis, tissue development, and differentiation. By a proteomic approach in which protein extracts of *F. hepatica* and *S. mansoni* adult worms were compared, Ras was 1 of the 19-common proteins identified. We also provide evidences that a gen homolog *S. mansoni* Ras exist in *F. hepatica*. This finding opens the door to further studies on Ras signaling pathways of *F. hepatica*.

R-080 Comparative Proteomic Analysis to Identify Shared Proteins between Fasciola hepatica and Schistosoma mansoni. Ana M. Espino Ph D, Nawal Boukli Ph D, Bonnibel Delgado

Fascioliasis is a disease caused by *Fasciola hepatica*, a trematode parasite of ruminants and humans. *F. hepatica*

causes over \$3 billion in losses to the animal husbandry industry each year. Schistosomiasis is caused by *Schistosoma mansoni*. This disease affects over 200 million people mainly in developing countries, causing severe morbidity and mortality. Both diseases lack effective treatments or vaccines. *F. hepatica* and *S. mansoni* are closely related parasites that share many antigens, and thus cross-protection between the two is possible. A comparative proteomic study between *F. hepatica* and *S. mansoni* has not been described previously. In the present study, protein patterns common to both species were identified, first by ELISA and immunoblotting and then by proteomic analysis. This procedure ensured consistently clean parasite samples suitable for reproducible, high-resolution two-dimensional electrophoresis. Significantly, the study identified a large number of proteins reactive with sera from animals with fascioliasis or schistosomiasis. Specifically, 19 proteins were identified through Image Master 2-D software as being common to *F. hepatica* and *S. mansoni*. These included RasGEF, cathepsin-L, thioredoxin, glutathione-S-transferase, lipoprotein receptor, 14.3.3 protein, fatty acid-binding protein, calcium binding-protein, and heat shock protein. These proteins could provide new targets for the development of drugs or vaccines.

R-081 Clinicopathologic characteristics of Loss of Imprinting of Insulin-like Growth Factor II Gene in Patients with Colorectal Adenocarcinoma. Marcia Cruz-Correa, Ronghua Zhao, Raúl D. Bernabe, Alejandro Villar-Prados, Christian Cruz-Pérez

Introduction: Loss of genomic imprinting (LOI) of IGF-II is an independent risk factor for colorectal cancer (CRC), however the LOI CRC phenotype has not been well characterized. **Aim:** This study evaluated the clinicopathological characteristics of LOI CRC patients compared to the retained of the imprinting (ROI) CRC cases. **Methods:** PCR on gDNA and RT-PCR on PBLs of prospectively recruited CRC patients, followed by Apa I digestion was performed. Demographic, clinical and pathological characteristics were evaluated. **Results:** Of 268 CRC patients, 75 were Apa I informative, 24 (32%) were LOI. LOI patients had younger age at diagnosis (median: 63) compared to ROI patients (median: 69) ($p=0.038$). Among patients with rectal cancer, LOI tumors were more frequently T1/T2 stage compared to ROI patients (77.8% vs. 37.5%, $p=0.057$). Four of 6 LOI rectal tumors exhibited >90% tumor size reduction after chemoradiation compared to 2 of 12 ROI tumors (66.7% vs. 16.7%, $p=0.05$). **Conclusion:** LOI patient presents at

a younger age compared to ROI patients. LOI rectal cancer patients presented with early tumor stage and exhibited better response to neoadjuvant chemoradiation compared to ROI patients. LOI CRC patients appear to have distinct genotype-phenotype characteristics, and these differences varied according to site. These findings suggest a distinct carcinogenic pathway, which may have implications in risk assessment and treatment.

R-082 Mismatch Repair Protein Expression in Hispanics with Colorectal Cancer. Wilfredo De Jesús Monge, Maira Castañeda, Raquel Castañeda, Raúl D. Bernabe, Mercedes Lacourt

Background & Aims: Colorectal cancer (CRC) is a leading cause of morbidity, mortality and ethnic variations. Germline mutations in the mismatch repair genes (MMR) are responsible for \pm 5-10% of all CRC. Mutations in the MLH1 and MSH2 genes account >95% of cases with abnormal MMR expression. The aims of this study were: (1) to determine the frequency of MMR (-) protein expression in Hispanics with CRC; (2) to evaluate the association of MMR protein status with clinical and pathological characteristics **Methods:** We performed a retrospective observational study CRC cases at the PR Medical Center from 2000-06. IHC assay for MLH1, MSH2 and MSH6 was performed. Association of MMR protein status with clinical and pathological characteristics was analyzed using Odds Ratios and 95% CI. **Results:** 164 CRC patients were evaluated (70 males), mean age 62.7, One of 164 (0.61%) patients showed MLH1(-) protein expression, 6 of 163 (3.7%) patients showed MSH2 (-) protein expression, for an overall MMR (-) expression of 4.3%. MMR (-) expression was associated to proximal Colón location ($p = 0.024$) and to high tumor differentiation ($p = 0.001$). **Conclusions:** The frequency of MMR (-) expression in Hispanic patients with CRC was lower than other reported populations. Patients with MMR (-) expression had proximally located tumors, with high degree of differentiation. These differences may result from ethnic and/or genetic heterogeneity in Hispanic and may be relevant in the evaluation and management of Hispanic patients with CRC.

R-083 Absence of cocaine sensitization in OVX female rats is not due to cocaine dosage. Yvonne M. Torres-Díaz, Yaría Arroyo, Annabell C. Segarra

Female rats show higher locomotor activity in response to cocaine than males. Estradiol is partly responsible for this enhanced cocaine-induced hyperactivity. The present study was designed to determine the dose and/

or length of exposure to cocaine necessary to induce behavioral sensitization in ovariectomized female rats. Rats were ovariectomized, half received a Silastic implant filled with estradiol benzoate (OVX-EB); the other half received an empty implant (OVX). For 5 consecutive days rats received a daily cocaine injection (10, 15 or 30 mg/kg). On days 1, 5, and 13 animals were tested for their locomotor response to cocaine. Another group of animals received a repeated cocaine exposure of 10 days. Their locomotor response to cocaine was recorded on days 1, 5, 10, and 18. Manipulations of dose and length of exposure to cocaine did not induce behavioral sensitization in OVX rats. These results show that estradiol is necessary for female rats to develop behavioral sensitization to cocaine. Support contributed by: NIH grants: U54NS39405 (SNRP); SO6-GM08224 (MBRS/SCORE); and R25GM061838 (MBRS/RISE).

R-084 Differential Expression of Prawn Brain Proteins in the Context of Dominance Hierarchies. Nietzell Vázquez-Acevedo, Juliana Pérez, Loyda Meléndez, Fenghai Duan, Nilsa Rivera

The freshwater prawn *M. rosenbergii* is a tropical crustacean similar to the lobster and crayfish. Adult males develop through three morphological types (small [SC], yellow [YC], and blue claws [BC]). Each morphotype represents a level in the dominance hierarchy of a group, BC males being the most dominant. We are interested in understanding the role played by peptides in the mechanisms underlying aggressive behavior and the establishment of dominance hierarchies in this type of prawn. One possibility is that neuropeptides that may act as modulators of these mechanisms are differentially expressed in the three male morphotypes. We performed SELDI-TOF MS experiments to identify proteins that are differentially expressed in the CNS of BC, YC and SC prawns. Preliminary comparison analysis between morphotypes identified 13 differentially expressed protein peaks from brain tissue. Nine of them were significantly different between BCs and YCs, six between YCs and SCs, and three between BCs and SCs. Data also revealed five peaks that were significantly different across all three morphotypes. These results suggest that there is a differential expression of proteins in the brain of the three male morphotypes of the prawn, which may correlate with their characteristic differences in behavior. Current experiments using 2D-DIGE concurrently with tandem mass spectrometry are being performed to identify those differentially expressed proteins, to then determine whether they play a role in modulating aggressive behavior. Supported by: MBRS SCORE S06GM008224,

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R-085 Synovial Sarcoma of the Piriform Sinus - A Case Report. Vicmari Arce MD, Ramon Vélez MD

Synovial sarcoma is a rare soft tissue malignancy that most often occurs in the extremities of young adults. Approximately 3 % of these mesenchymal malignant tumors occur in the head and neck, with the majority in the parapharyngeal region. The classical form of synovial sarcoma is that of a biphasic tumor composed of sharply segregated epithelial and sarcomatous components. We report a case of a 23-year-old pregnant female with 20 lbs weight loss during her pregnancy attributed to difficulty in swallowing. A direct laryngoscopy with biopsy of a lesion in the left piriform sinus was performed. The H&E histology and immunostains were diagnostic of synovial sarcoma, biphasic. Patient is doing well after left partial pharyngectomy. She is now receiving chemotherapy and radiotherapy.

R-086 High Glucose and Dexamethasone Regulates the Secretion of the Soluble Insulin Receptor- β from Cultured T Lymphocytes. N Miscalichi, E Fernández-Repollet, Y Gerena

The insulin receptor (IR) ectodomain has been found to be present in the plasma of patients with diabetes. Studies have demonstrated that the IR alpha and beta subunit were found to be secreted by various cultured cells. There is no evidence of the effect of high glucose and dexamethasone (Dex) on the secretion of the soluble IR forms by T cells. In this study, we analyzed the effect of glucose concentrations and Dex on the secretion of the soluble IR alpha-beta and IR alpha from cultured Molt-4 T cells. T cells were cultured in RPMI medium supplemented with 10%FBS and incubated with different glucose concentrations (low: 5.5 mM; medium: 10.4 mM; high: 25 mM) or Dex (1 μ M) for 24 hours at 37 $^{\circ}$ C and 5%CO₂. The levels of secreted soluble IR forms were determined using a fluorescence-ELISA technique developed in our laboratory. The supernatants of treated cells were incubated in microplates containing the IR alpha or IR beta capture antibodies. The levels of secreted IR alpha-beta and IR alpha were detected using a specific IR alpha primary antibody and FITC-secondary antibody. Samples were analyzed by cytofluor technique. Our data demonstrated that high glucose and Dex increased significantly (p<0.05) the levels of secreted soluble IR alpha. However, no significant differences were observed on the

secretion of IR alpha-beta from these cells. In addition no significant differences were observed on the levels of secreted IR-full length and IR-alpha from cells exposed to low glucose levels. In conclusion, high glucose and Dex regulates the secretion of IR alpha from cultured T cells. Supported by NIH-RCMI G12-RR-03051.

R-087 Development of Dengue-3 DNA vaccine expressing the pre membrane and envelope proteins. Sue H. Álvarez Gutiérrez, Idalf Martínez Ph D

Dengue virus (DENV) causes the most common arthropod disease in humans. There are four serotypes that provide lifetime immunity against homologous infection, but not against heterologous infection. Instead, pre-existing non-neutralizing antibodies against heterologous DENV may increase severity leading to dengue hemorrhagic fever. Therefore, an effective tetravalent vaccine is required to provide protection against all DENV serotypes simultaneously. Our vaccine candidates express the pre membrane (prM) and envelope (E) structural proteins because these antigens can elicit neutralizing antibody responses, which are effective mediators of protection against DENV infection. In this study, we constructed a DNA vaccine candidate against DENV-3. The prM/env genes were amplified from viral RNA by RT-PCR and cloned in the intermediate vector pcDNA3.1/V5-His©TOPO®. The viral sequences were then subcloned in the eukaryotic expression vector VR1020. In vitro expression of the DENV-3 vector was measured by western blot and the envelope protein was detected in transiently transfected 293T cells. Animal studies to test the immunogenicity of the DENV-3 DNA vaccine candidate in Balb/c mice are in progress. The DENV-3 vaccine candidate will be incorporated in a tetravalent vaccine formula together with expression vectors against the other 3 DENV serotypes. This investigation was supported by the following grants: MBRS-SCORE (S06GM008224), RCMI Program (G12RR03051). The animal studies are being conducted under protocol 2460208, which is IACUC approved.

R-088 Management and Outcome of Transient Ischemic Attacks in Ponce, Puerto Rico. Juan José González-Concepción MD, Kenneth Geil MD, Ivonne Z. Jiménez-Velázquez MD, FACP

Approximately 240,000 transient ischemic attacks (TIA's) are diagnosed every year in USA. Recent studies have shown that 4-20% will have a stroke within 90 days after a TIA, half in 2 days. Objectives: To determine morbidity and assess outcome at 72 hours of pa-

tients with TIA's arriving at the Emergency Room (ER) of San Lucas Hospital, Ponce, PR. Methodology: Medical records of all patients evaluated at ER in 2006 with neurological symptoms for < 24 hours, and outcome for next 72 hrs were reviewed. Anticoagulation given and timeframe between initial symptoms and diagnostic neurologic work-up was also recorded. Results: 53/182 records reviewed met inclusion criteria. 45% males, 55% females, median age of 62 years (Range 53-90). All received antithrombotic drugs at ER. Head-CT performed upon arrival in 100%, only 57% of Echocardiograms and Carotid-Doppler done in 24 hrs. Conclusion: No patients developed stroke or death related to TIA in 72 hours.

R-089 Ethical information included in Phase III Randomized Clinical Trials in diabetes articles published in 2008. JC Orengo, F Lozano, JG Quijada

A study need to be original, necessary, relevant, interesting and ethical. Seven ethical requirements have been developed to assess the ethical concept: social or scientific value, scientific validity, fair subject selection, favorable risk-benefit, independent review, informed consent, respect for potential and enrolled subjects. The main objective of this study is to assess both the scientific validity and the respect for enrolled participants in published literature in clinical trials in diabetes throughout the year 2008. We used PubMed to identify the studies. Sixty five (65%) original articles were included in our study (65 out of 100). A 35.4% of articles described the sample size; 42% presented the study flow chart; 89% informed about de consent form; 6% did not informed both consent form and the approval from an IRB; 22% (14 out of 65) used only the word participant; 43% (28 out of 65) used several words such as participants, patients and subjects; 35% used principally the word patient over subject. With the limitations of an exploratory study, our team found a deficiency in the report of ethical aspects of the Phase III Randomized Clinical Trials in diabetes, for that reason is necessary to bring to the researchers the importance to include in all the process of research the ethical requirements.

R-090 The Prevalence of Peripheral Arterial Disease and Associated Risk Factors among Patients 50 Years of Age or Older in a Community Health Center in Loiza, Puerto Rico, 2007. Sánchez M, MD; Torres E, MD; Cancel M, MD; Torres J, MD; Gentini R, MD

Peripheral Arterial Disease (PAD) is frequently asymptomatic, underdiagnosed and undertreated. Individu-

als with the disease should be identified in order to offer therapeutic interventions known to diminish risk of myocardial infarction and stroke. Studies have included Hispanic subjects, but no data is available on Puerto Ricans in whom associated risk factors are frequent. The objectives of this study were: to determine the prevalence of PAD in patients 50 years or older in a Puerto Rican Community Health Center, to establish the relationship of prevalence to age group and gender, and the association of prevalence to risk factors like diabetes mellitus, hypertension, hypercholesterolemia and smoking. The population of this study consisted of 183 subjects age 50 and older with active medical records at Concilio de Salud Integral de Loíza, Puerto Rico. The disease was diagnosed in individuals with an ankle-brachial index (ABI) of 0.90 or less. There were 22 cases of PAD with a prevalence of 12%, which is consistent with that found in studies involving mainland Hispanics, but lower than expected in our population. Results showed that PAD prevalence increased sharply with age with the highest percent (54.5%) in the group 70 years of age or older ($p < 0.05$). Despite the fact that women were overrepresented, there was no statistically significant difference of PAD prevalence between gender (15.2% males, 10.9% females). No significant relationship was established between PAD and the risk factors studied.

R-091 Non-motor Symptoms in Patients with Parkinson Disease. Serrano C, MD; Pita I MD; San Miguel L, PsyD; Cardona O, MD
Parkinson Disease (PD) is characterized by motor symptoms like rigidity, slowness, tremor and gait difficulties. However, many patients experience non-motor symptoms such as sleep problems, pain, behavioral disturbances, autonomic dysfunction and fatigue. The purpose of this descriptive study is to assess the frequency of non-motor symptoms in a group of Puerto Rican subjects with PD. Following IRB approval and obtaining informed consent fifteen subjects diagnosed with idiopathic PD are recruited from the Movement Disorders Clinic. Exclusion criteria include parkinsonism or secondary PD, MMS < 23, stroke, and neuroleptic use. An age matched control group is used for comparison. The following instruments are used for the evaluation of non-motor symptoms: Parkinson disease Quality of Life scale, Fatigue Symptom Scale, Pittsburgh Sleep Quality Index, Non-motor Symptoms scale, and Pain scale. Results demonstrate that there is a trend for PD patients to have an increased frequency of pain, sleep difficulties, fatigue, feelings of sadness, urinary symptoms and worry about the future when compared to control subjects.

In conclusion, PD subjects present multiple non-motor symptoms that can interfere with the activities of daily living, affect the quality of life and cause increased morbidity. It is therefore important to properly identify and manage these symptoms when evaluating PD patients.

R-092 Familial Colorectal Cancer Registry in Hispanics: A Feasibility Study. Yaritza Díaz-Algorri MS, Nayda R. Figueroa-Vallés MD, Reynold López-Enríquez MD, Raúl D. Berna

Background: In Puerto Rico, colorectal cancer (CRC) represents the second most common cause of cancer in men and women. Incidence and mortality of CRC are increasing in Puerto Rican Hispanics, especially among young individuals. Objectives: (1) To prospectively identify and recruit 30 probands with a family history of CRC and 15 family-history negative (2) To prospectively identify and recruit selected relatives from the 45 probands. (3) To estimate from this pilot relevant parameters that will help us plan the larger population-based study. Methods: Eligible cases are Hispanic patients with incident diagnosis of CRC, ≥ 21 years old. We identified the probands and their selected family members using the PR Central Cancer Registry from July 1, 2007 to the present. Preliminary Data and Recruitment: Four hundred and seventy-seven (first and second) letters were sent to the physicians, two hundred and five letters were responded (205/477=43.0%). Two hundred and ninety-six (first and second) letters were sent to the patients, seventy-four letters were responded (75/296=25.3%) and four refused. Seventy-three participants (probands and relatives) were enrolled. Forty-seven probands (mean age 62.6 ± 10.5 yrs., 59.6% male); 13 with and 34 without family history of CRC. Implications: Data obtained from this pilot study will serve as the foundation for our island-wide, population-based, genetic-epidemiologic study of familial CRC in PR and evaluate cancer disparities in Hispanic patients with CRC.

R-093 Familial Clustering of Cancer Among Hispanics with Colorectal : A Case-Series Analysis. Raisa I. Balbuena-Merle BS, Yaritza Díaz-Algorri MS, Nayda R. Figueroa-Vallés MD, Reynold López-Enríquez MD, Mariela C. Rodríguez-Suárez BS

Background: In Puerto Rico, colorectal cancer (CRC) represents the second most common cause of cancer. We evaluated the prevalence of cancer among relatives of CRC probands enrolled in the Puerto Rico Famil-

iar Colorectal Cancer Registry (PURIFICAR). Methods: Probands were identified prospectively from the PR Central Cancer Registry from July 1, 2007 until November 1, 2008. PURIFICAR was established as a population-based CRC registry where both probands and their first- and second-degree relatives are prospectively recruited. Eligible cases were Hispanic patients with incident diagnosis of CRC and 21 years old. Results: 47 CRC probands (mean age 62.6 ±10.5 yrs., 59.6% male), including 13 with family history of CRC (cases) and 34 without family history of CRC (controls) were prospectively recruited. The most common cancers among cases relatives were stomach (9.8%), breast (7.8%), endometrial (4%), and thyroid (4%). The most common cancers among the control relatives were prostate (17.2%), breast (15.5%), and skin (10.3%). Controls had statistically significant more relatives with prostate ($p = 0.027$) and skin ($p=0.045$) cancer compared to cases. Conclusions: Results from this population-based CRC registry demonstrated different patterns of cancers among relatives of Hispanic CRC patients. Probands with family history of CRC had relatives with syndromic-like cancer. In contrast, probands without family history of CRC had relatives with cancers similar to those reported in the general population of Puerto Rico. These findings suggest phenotypic and possible carcinogenic differences among individuals with CRC.

R-094 Classical Hodgkin Lymphoma Type Post Transplant Lymphoproliferative Disorder of the Central Nervous System: A case report and review of the literature.
Ramiro Pérez MD, Roman Vélez MD, María I. Almira MD

The incidence of lymphoma is increased in recipients of all types of organ transplants as a direct or indirect result of the induced immunosuppression. In renal transplant recipients, this incidence is in the order of 4% to 6%. The majority of post transplant lymphoproliferative disorders (PTLD) are associated with Epstein-Barr virus (EBV) infection. Calcineurin inhibitors as cyclosporine or tacrolimus immunosuppressive regimens have been associated with PTLD that tend to involve lymph nodes, gastrointestinal tract and less frequently the central nervous system (CNS). Classical Hodgkin Lymphoma Type PTLT is the least common major form of PTLT. Secondary involvement of the brain or meninges is an uncommon but well-known complication of Systemic Hodgkin Lymphoma occurring in 0.2 to 0.5% of all cases in advanced stages, but Primary Hodgkin Lymphoma

limited to the CNS is exceedingly rare. We report a case of a 41 year old Hispanic male with past medical history of Diabetes Mellitus Type I, Hypertension, End Stage Renal Disease Status Post Kidney Transplant 4 years ago on immunosuppression therapy. The patient developed multiple neoplastic brain lesions that were consistent with Primary Classical Hodgkin Lymphoma Type PTLT.

R-095 Endotoxins in Saharan Dust: Do they play a role in the exacerbation of asthma in Puerto Rico? M Ortiz, B Jiménez

Asthma is a chronic inflammatory disease of the airways whose prevalence in the US has increased 75% since 1980, particularly in children. Some of the environmental factors associated with increased asthma are exposures to indoor allergens, viral infections, endotoxins (ENX), and air pollutants such as particulate matter (PM). Endotoxins have been associated with PM toxicological and biological activities, but the seasonal dynamics of endotoxins in airborne particulate matter and its possible contribution to the exacerbation of asthma in Puerto Rico has not been previously described. The objective of this study is to evaluate the role of endotoxin in airborne PM10 and its toxicological contribution in an urban (Guaynabo) and a rural (Fajardo) site in Puerto Rico. Monthly increments of PM10 during 2004 were determined and major increases observed during the months of March, June and August. The ASES (Health Insurance Administration of PR) database on Pediatric asthma for 2004 during Saharan Dust Event (SDE) and non-SDE days was evaluated for the urban and rural municipalities, revealing high numbers of reported cases during SDE in March 2004. Aqueous and organic extracts were obtained from PM10 quartz filters from Guaynabo and Fajardo sites. Extract cytotoxicity was determined using a human bronchial epithelial cell line (BEAS-2B) employing the Neutral Red Bioassay. The SDE aqueous composite extract was found to be cytotoxic at a concentration of 50%. The cytotoxicity was related to ENX. This was confirmed by the use of specific ENX inhibitors: Polymyxin B and Endotoxin Neutralizing Protein (ENP). Supported by MBRS-RISE.

R-096 Peripartum Cardiomyopathy: A Rare Life-threatening Heart Disease Associated to Pregnancy. Report of Two Autopsy Cases.
María J. Marcos MD, María I. Almira MD

Peripartum Cardiomyopathy (PPCM) is a rare potentially life-threatening heart disease associated to pregnancy in previously healthy women. It is a poorly characterized form of cardiomyopathy with similar clinical

presentation to other forms of congestive heart failure. The causes and pathogenesis are poorly understood. Diagnosis is confined to a narrow period of time, requiring echocardiographic evidence of left ventricular systolic dysfunction. Early diagnosis and initiation of treatment are essential to optimize pregnancy outcome. Management of PPCM is essentially supportive. Prognosis is poor, with mortality as high as 25 to 50%, although cardiac transplant is expected to improve prognosis. We present two fatal cases of PPCM: 31 years old and a 22 years old female patient. The first patient was diagnosed with PPCM three days after delivery by cesarean section. Outcome was fatal despite receiving one month of intensive medical management. The second patient was diagnosed with PPCM in 2005, receiving a cardiac transplant that same year. She died three years after transplant due to severe acute transplant rejection.

R-097 Contribution of C Reactive Protein to the Diagnosis and Treatment of Newborns at a Community Hospital in Bayamón. Tirsa Avilés, Maribel Campos MD, MSc, MBA

Introduction: Although there have been studies that have demonstrated the benefit of using C reactive protein (CRP) as a marker of neonatal sepsis, diagnostic protocols that use this marker are not followed on all neonatal intensive care units. Due to the controversy in the medical community about the usefulness of CRP as an early indicator of neonatal sepsis, the aim of this study was to determine if the use of serial measurements of serum CRP was effective, as an early indicator of neonatal sepsis. As a secondary aim we wanted to determine if there was an association between the serum CRP levels and the final results of the blood culture. Methods: We performed record review of infants admitted to the Neonatal Intensive Care Unit of a community Hospital during the year 2007. Criteria for inclusion were that the patient was admitted due to clinical sepsis and that the record had at least 2 measurements of CRP reported in mg/dL. Results: A total of 100 records were reviewed. The average gestational age was 36 weeks with an average birth weight of 2569 grams. The average post conceptual age at the time of discharge was 38 weeks. Only 8% presented positive blood cultures, while 75% of the patients received 7 days or more of antibiotic therapy with an average length of 8 days. In both measurements of CRP performed at 24 hours or > than 24 hours only one patient presented a clinically significant value. Conclusion: Our results demonstrate that the use of CRP has not resulted in a reduction of the use of antibiotic therapy for clinical sepsis in patients with negative blood cultures.

R-098 Breastfeeding working mothers and their knowledge of breastfeeding laws in Puerto Rico. M Medina MD, K Nieves, C Sánchez, J Rios, N Ortiz MD, L García MD

Working outside the home is related to lower rates of breastfeeding initiation and duration. Laws have been established to promote and support breastfeeding in the workplace. However, working mothers have poor knowledge about these laws. Objective: To determine working mothers' knowledge about the laws that protect their right to breastfeed once they return to work. Methods: Anonymous questionnaires were distributed among working mothers. The Institutional Review Board approved the study. Results: The study subjects were 102 mothers with a mean age of 32 years (20-45). Twenty-two percent worked for a private company and 77% for the Puerto Rico government. The current age of their younger child was 2 years (0-12) and 97% breastfed. Thirteen percent were pregnant and 23% were breastfeeding at the moment. Fifty-six percent continued breastfeeding after returning to work. Only 30% knew the Puerto Rico laws to protect breastfeeding working mothers. Thirty-four percent thought that there is no obligation for employers to provide time for breastmilk extraction. Thirty-three percent reported that a designated area was available for the extraction of breastmilk in their workplace. In 30% of the cases the employer did not provide time for extraction. Conclusions: Most women have heard that laws exist to protect breastfeeding in Puerto Rico, but don't know the details. Most workplaces don't have a designated place for extracting milk/breastfeeding. There is a need for more education to working mothers about their rights to continue breastfeeding after returning to work.

R-099 Glycemic Control and the Outcomes of Diabetic Patients Admitted to Community Hospital in Puerto Rico. Torres-Torres, Nancy; Rodríguez-Maldonado, Miguel; Pérez-López, Shirley; García, Astrid; Sierra-Martínez, Kassandra

Diabetes is a very prevalent chronic disease that complicates many hospital admissions. Poor glucose control, present in 40% of diabetic admissions, has been associated with prolonged length of stay, higher rates of wound infections, reinfarction and poorer general outcomes in critically ill and surgical patients. However, general ward studies have not been consistent in showing benefits of strict glucose control, and have very poor Hispanic representation. This study evaluated the effects of glycemic control in the outcomes of Hispanic patients with diabetes that are admitted to a general ward, and whether medical

staff is making interventions to improve glycemic control. All admissions of adult patients with diabetes in a period of six months were reviewed (N = 1051). A total of 875 admissions were analyzed. Uncontrolled blood glucose was present in 59.1% of all admissions; of which 43.2% did not have diabetes treatment optimization. After correcting for significant covariates, uncontrolled glucose patients were more likely to develop ACS (OR = 12.20, 95% CI 1.584 - 93.987, p = 0.016) as a complication and less likely to develop hypoglycemia (OR = 0.54, 95% CI 0.351 - 0.833, p = 0.005). Although not significant, a tendency to increased risk of readmission (OR = 1.75, 95% CI 0.6735 - 4.5624, p = 0.13) and worsening of admission diagnosis (OR = 1.28, 95% CI 0.8362 - 1.9451, p = 0.13) was also observed. In conclusion, we found a higher prevalence of poor glucose control than that reported in the United States and this poor control maybe associated with higher incidence ACS as a complication.

R-100 Abdominal Compartment Syndrome caused by Meig's Syndrome. S Schwarz, ME Fernández

Abdominal compartment syndrome secondary to a very large benign ovarian tumor has been rarely reported in gynecology. With the increase in intraabdominal pressure in the abdomen, there is multi organ system failure that can be fatal. Meig's syndrome is the presentation of a rare benign ovarian tumor, a Thecoma, accompanied by ascites and hydrothorax. Thecomas represent less than 1% of all ovarian tumors. When associated with Meig's syndrome the clinical picture is similar to that of ovarian carcinoma. This is a case report of a 25 y/o G-2 P-2, that presented with severe intraabdominal compartment syndrome associated with Meig's syndrome. The patient had upper respiratory difficulty and gastrointestinal symptoms one week before admission. Three days before admission she began to exhibit food intolerance and abdominal distention. When brought to the ER in Fajardo she was found with a complex ovarian mass, ascites and hydrothorax. An assesment of ovarian neoplasia was made and she was referred to UDH. Due to respiratory failure she was intubated shortly after admission. Renal failure was diagnosed and she was transferred to MICU. The patient's condition continued to deteriorate requiring surgical intervention to relieve the immense intraabdominal pressure. At surgery, over 3 liters of intraabdominal liquid was removed and respiratory parameters showed immediate improvement during surgery. Organ perfusion was restored and renal filtration improved. The removal of two large ovarian masses as well as a hysterectomy were required. Ascitis and hydrothorax disappeared. The patient was discharged home.

R-101 Effect of Medical Nutrition Therapy Rendered by a Licensed Dietitian on Clinical Outcomes on Hispanic Female Patients with Type 2 Diabetes Mellitus Living in Puerto Rico. I Angleró, L Byham-Gray

Background: Little information is published regarding the effect of medical nutrition therapy (MNT) provided by licensed dietitians for females with Type 2 Diabetes Mellitus (T2DM) living in Puerto Rico (PR). Objectives: The goal was to evaluate the impact of nutrition intervention in females with T2DM living in PR. Methods: The retrospective study of 140 medical records compared the demographic characteristics, disease severity characteristics, treatment characteristics and comorbidities of both participatory and non participatory group at baseline and 12 weeks post intervention. Results: The participatory group had a statistical differences overtime for FPG (p=0.000), A1C (p=0.000), Total Cholesterol (p=0.001), LDL cholesterol (p=0.008) Triglycerides (p=0.022), weight (p=0.003) and for BMI (p=0.003). After adjusting for diabetes medications, the interaction effect between time and group assignment was significant for FPG (F=8.235, p=0.005) and for A1C (F=16.489, p=0.000). The interaction effect between time and group assignment was significant for weight (F=9.772, p=0.002) and BMI (F=10.509, p=0.001). There was a significant between group main effect in the Framingham Risk Scores (F=5.729, p=0.210). Conclusion: The study supported the value of MNT rendered by licensed dietitians in achieving treatment goals for females with T2DM living in PR.

R-102 Prevalence of Metabolic Syndrome in a Health Care Center in Loiza, PR. October 2007-March 2008. M González-Vives, N Iglesias, N González, A Morales-Ralat

The importance of diagnosing and treating patients with Metabolic Syndrome (MS) to prevent cardiovascular disease has been highlighted in the scientific literature in the last few years. MS is defined as any three or more of the following clinical traits: waist circumference >102cm in men or 88cm in women; triglycerides >150; blood pressure >130/85; fasting glucose >100mg/dl. Limited information is available about the prevalence of MS in PR, and since cardiovascular disease is the first cause of death for both males and females in PR, the purpose of our study was to estimate the prevalence of MS in a community health care center in Loiza, PR. A convenience sample consisting of 282 adult subjects (18 years and over) recruited between October 2007 to March 2008 was studied. A modified validated questionnaire was administered by the researchers, and the laboratory results

were obtained from the patient's medical record. Results showed a MS prevalence of 48.2%. Stratification of data by age and gender also showed an increase in prevalence with age ($p=0.000$), but not statistically significant differences by gender (females 49.8% vs males 44.3%, $p=0.411$). The prevalence of MS in this community is extremely high when compared to the prevalence in the U.S. which has been reported from 22 to 35% in different studies. These results prompt the development of educational programs and new public health guidelines, aiming to reduce the morbidity and mortality associated with this syndrome and to make the necessary interventions to reduce its prevalence.

R-103 Congenital Leukemias - Two Cases Report. Vélez R MD, Arce V MD

Congenital leukemia is a rare, but well-documented disease in which a leukemic process is detected at birth or very shortly thereafter. There are two types of congenital leukemias: one associated with Down Syndrome and the other, not associated with Down syndrome (DS). Children with Down syndrome have a 10- to 20- fold increased risk of developing acute leukemias by comparison with normal children. Most of the leukemias associated with DS are acute lymphoblastic leukemias, specially in children older than 4 years. The myeloid type of transient leukemia, also called Transient Myeloproliferative Disorder is seen in children under 4 years of age. Most infants have a benign clinical course. Congenital leukemia not associated with Down Syndrome implies that the process begins in utero with an exposure to an oncogenic insult. Acute leukemias in infants without Down Syndrome under one month of age are rare, occurring in 1 per 5 million births. These infants has a poorer prognosis than infants with Down Syndrome. We present two cases, the first case is a congenital leukemia (B-cell lymphoblastic leukemia) without Down Syndrome diagnosed in a male patient who died shortly after birth and the second is congenital leukemia (Transient leukemia) in a male patient with Down Syndrome who is currently doing well.

R-104 Depressive Symptoms in Adolescents with Epilepsy Attending the Epilepsy Clinic of the University Pediatric Hospital in Puerto Rico During May 2008 - November 2008. M Salcedo MD, M Rios MD, E Nieves MD

Extensive literature exists indicating that depression is a frequent psychiatric comorbidity of epilepsy, often unrecognized in children. The objective of our study is to determine the prevalence of depressive symptoms in ado-

lescents with epilepsy. The Beck Depression Inventory-Second Edition (BDI-II) is a 21-item self report instrument for the assessment of symptoms corresponding to criteria for diagnosing depressive disorders listed in the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV). This instrument has been validated among the adolescent population in Puerto Rico. The BDI-II was administered to 33 adolescents aged 13-18 years old with diagnosis of epilepsy attending to the epilepsy clinic of University Pediatric Hospital in Puerto Rico. Information was obtained from the medical records and parents interview, regarding to duration of epilepsy; frequency of seizures; and age at onset of epilepsy. Mean age was 15 ± 2 years (61% female and 39% male). Mean BDI-II score was 12 ± 13 (median value: 6). Twenty (60.6%) patients did not presented depressive symptoms and 13 (39.4%) patients were positive for symptoms of depression, according to the BDI-II. Of the 13 patients with symptoms of depression, 46.1% presented symptoms of mild depression, 15.4% symptoms of moderate depression, and 38.5% symptoms of severe depression. Our data shows a higher prevalence of depressive symptoms in our sample than in the general pediatric population of Puerto Rico. A positive association was found between depressive symptoms and onset of epilepsy during adolescence; seizures frequency; and duration of epilepsy.

R-105 Maestros de nivel elemental: Conocimiento sobre aspectos básicos de abuso sexual en menores. Sandra Alvarado Negrón MPHE, Silvia E. Rabionet Ed D, René R. Dávila Torres BS, MS, Ph Dc, DBAc

Este estudio identifica los conocimientos básicos de abuso sexual en menores que poseen 156 maestr@s de las onces escuelas elementales del distrito escolar de Villalba. El estudio fue uno exploratorio, utilizando un cuestionario autoadministrable para identificar: a) conocimiento sobre aspectos básicos en abuso sexual en menores; b) las experiencias previas en el manejo de casos de abuso sexual a menores; c) la fuente de preparación sobre abuso sexual a menores; d) la percepción que poseen l@s maestr@s sobre su conocimiento en abuso sexual a menores. Se utilizó como modelo teórico la Teoría de Cognición Social. Estadísticas descriptivas, Correlación-Pearson y pruebas t fueron usadas para el análisis de los datos. Entre los hallazgos más sobresalientes se observaron: a) los participantes carecen de conocimiento sobre la Ley #177 del Estado Libre Asociado de PR, sobre indicadores de abuso sexual, sobre protocolo para reportar y la documentación necesaria para referir casos de abuso sexual. De igual forma, no habían tomado adiestramien-

tos sobre el tema ni en su trabajo ni en su años de formación universitaria. En conclusión es necesario crear estrategias educativas que ayuden a atender la falta de conocimiento encontrada entre los participantes del estudio ya que la ley en Puerto Rico obliga a los maestros a reportar los casos de abuso sexual identificados entre sus estudiantes. La falta de conocimiento podría afectar directamente el manejo del menor así como, los aspectos legales del mismo.

R-106 Creencias de los adolescentes con respecto a la abstinencia sexual como método de prevención de ITS. Olga Alvendaño MD, MPH; René R. Dávila Torres BS, MS, PhD, DBAc; José J. Gorrín Peralta MD, MPH

Objetivo: Identificar las creencias de los adolescentes con respecto a la abstinencia sexual como método de prevención de ITS. Método: Cinco grupos focales fueron realizados entre adolescentes para un total de 32 participantes. Se utilizó una guía de preguntas sobre: a) inicio de las relaciones sexuales; b) conocimiento de ITS y riesgo de contraer la infección; y c) abstinencia sexual y educación sexual. Análisis de contenido fue llevado a cabo de grabaciones transcritas al verbatim. Resultados: La mayoría de los participantes indican que su educación sexual proviene de la escuela, amigos o medios de comunicación. Consideran que la mejor edad para iniciar relaciones sexuales es cuando se sienten mental, física y psicológicamente preparados. Por otro lado, los participantes indicaron que postergarían las relaciones sexuales por temores sobre como contraer una ITS o un embarazo no deseado. De igual forma señalan que inician las relaciones sexuales por curiosidad, presión de grupo o poca educación recibida de sus padres. Sobre abstinencia, aunque entienden es la mejor forma de prevenir una ITS estos indican que es bien poca la información que se les brinda. Sin embargo, los participantes señalan que educar sobre abstinencia solamente no es la mejor forma de protegerlos, pues consideran necesario otras herramientas que los ayude a tomar decisiones responsables con respecto a su sexualidad. Conclusión: Promover el programa de "abstinencia solamente" del Departamento de Educación en nuestro participantes no parece ayudar a que estos decidan utilizar esta alternativa como medida de prevención para evitar contraer una ITS.

R-107 Prevención Materno Infantil de Condiciones Orales. Dra. Elaine M. Pagán

El Centro de Salud Oral Materno Infantil (CSOMI) del Programa Graduado en Odontología Pediátrica de la Escuela de Medicina Dental responde a unas metas educativas extensas. Somos la única entidad existente en Puerto

Rico que se dedica a diseminar información integrada de la salud oral de madre y niño con énfasis de intervención de la madre gestante una vez sabe que está embarazada. Integramos los componentes de educación, servicio clínico e investigación capacitando a profesionales, pacientes, familiares y población en general en este tema. Somos los responsables de lograr cambios en la política pública de tratamiento dental de madres y niños de Puerto Rico. Diseñamos modelos educativos adaptados a los diferentes segmentos de la población: nos hemos integrado al currículo del programa de subgrado y programas de postgrado de la Escuela de Medicina Dental, otorgamos conferencias y cursos de Educación Continuada a profesionales de la salud y de profesiones relacionadas a la población de madre y el niño (incluyendo experiencias clínicas), hemos diseñado material promocional escrito y audiovisual que es expuesto en centros educativos y de servicio a madres y niños de toda la isla, ofrecemos talleres de entrenamiento a personal de entidades gubernamentales del área de infantes y embarazadas, escribimos artículos en revistas profesionales, generales y educativas sobre temas relacionados. Trabajamos en ofrecer educación masiva por medio de la prensa, televisión y radio por medio de acuerdos colaborativos para programas educativos regulares educando a la comunidad.

R-108 Experiencias de los estudiantes universitarios con impedimentos: proceso de transición y adaptación. Annie Alonso-Amador PsyD, MSW; Mario H. Rodríguez-Sánchez Ph D, MPH; Aimar E. Cajigas-Altreche BA, Iliá M. Torres-Avillán MS

La transición de escuela superior a la universidad requiere de los jóvenes ajustes personales y de las instituciones educativas. Las universidades tienen la responsabilidad de proporcionar recursos que faciliten esta transición. Este estudio examinó las necesidades personales y educativas, relacionadas con el proceso de transición de los estudiantes con impedimentos a la universidad. Mediante un cuestionario autoadministrado se exploraron las necesidades de los estudiantes con impedimentos. El instrumento estaba compuesto de una parte sociodemográfica y una de necesidades personales, organizacionales y de servicio. La muestra por conveniencia estuvo constituida de 202 estudiantes con impedimentos entre 18 y 25 años de las universidades públicas y privadas en Puerto Rico. La mayoría de los jóvenes eran mujeres (60%) y la media de edad fue de 20.6 (SD 1.98). Las necesidades más urgentes identificadas por los estudiantes fueron: mayor tiempo para hablar con sus profesores y consejeros (56.5%), económicas (88.5%), transportación (51.5%), y la falta de orientación

de servicios disponibles para ellos (80.5%). La mayor parte (53.3%) de los estudiantes mayores (> 21 años) presentan una preocupación acerca de su futura transición, de la universidad al mundo laboral ($p < .01$). La familia fue identificada (92.9%) como el recurso más importante en el proceso de transición a la Universidad y solo 39% identificaron a los consejeros de las escuelas secundarias como un recurso valioso en el proceso de transición. La transición a la universidad requiere una atención especial para mejorar la calidad de vida de los jóvenes con impedimentos.

R-109 Day care centers personnel knowledge about drowning prevention. V Moraza MD, M Martin MD

Drowning is a leading cause of injury-related death in children. About two-thirds of drowning deaths ages 0-5 occur every year in swimming pools; however, young children can drown in less than two inches of water. A number of strategies are available to prevent these tragedies. Objective: To assess personnel at Metropolitan area day care centers' knowledge about drowning prevention among children 0-5 years. Methods: Personnel from randomly selected day care centers from the metropolitan area completed a self-administered questionnaire regarding AAP drowning prevention policies. The study was approved by the Institutional Review Board. Results: Two hundred thirty-eight subjects participated in the study (11% from public centers, 85% private, and 4% other). Ninety seven percent had taken the CPR course (84% less than one year before). Seventy-four percent felt prepared to manage a drowning emergency. Floaters (43%), arm flotation devices (44%), and swimming lessons (71%) were incorrectly identified as adequate preventive measures against drowning. Only 9% chose 4 years as the correct age for swimming lessons. 28% percent could not identify arms length (touch supervision) distance as the accepted method for drowning prevention. Conclusions: Although this group of caretakers felt prepared for a drowning emergency, they showed lack of knowledge about adequate preventive measures. It is necessary to create community educational programs about drowning prevention among children 0-5 years. Pediatricians are encouraged to play a role in the prevention of drowning as educators and advocates.

R-110 Analisis de los patrones fecundidad y factores (sociales y médicos) relacionados a los nacimientos en las adolescentes en Puerto Rico 1990 al 2004. Rafael R. Cordero, Heidy Colón Lugo, Dr. Ana Luisa Dávila

El objetivo de esta investigación fue estudiar los patrones de fecundidad de las madres adolescentes en Puerto Rico

desde 1990 a 2004. Los datos provienen de los archivos de nacimientos vivos del Departamento de Salud de Puerto Rico. Estos fueron tratados mediante el análisis estadístico descriptivo e inferencial. Además se presenta un análisis de la distribución geográfica de estos eventos. Entre los hallazgos se pudo observar que en 1990 el 44% de los nacimientos provenían de adolescentes casadas. Esta proporción se redujo a 19% en 2004. Por otra parte, en el 1990 el 13% de las mujeres no vivían junto a sus parejas, proporción que alcanzó 30% en 2004. El riesgo del embarazo más importante fue la hipertensión asociada al embarazo fenómeno que osciló alrededor de 3% en el período estudiado. La desproporción céfalo pélvica ocupa el primer lugar entre las complicaciones del parto, proporción que casi se duplicó entre los tres lustros cuando pasó de 4.6% en 1990 a 9.1% en el 2004. A principios de 1990, el 19% de los partos fueron por cesárea lo que contrasta con 41.2% en 2004. Junto al aumento de las cesáreas se observa un incremento en los nacimientos de 37 a 39 semanas. Esta proporción pasó de 44% en 1990 a 63% en 2004. Los resultados de este estudio son de utilidad para comprender la realidad del embarazo de las más jóvenes y sus consecuencias en el contexto socio económico y de salud de la Isla.

R-111 Investigaciones del Programa Graduado de Educación para la Salud Pública y su contribución a las metas de Gente Saludable 2010. María del Carmen Santos-Ortiz Ph D, MPHE; Ana J. Hernández-Rivera BS, MT; Yiselly M. Vázquez-Guzmán BA

El Programa de Maestría en Educación en Salud aporta al conocimiento y las ciencias en el campo de la salud pública, a través de los proyectos de investigación que los estudiantes desarrollan. Este estudio tiene como propósito: identificar las áreas de prioridad de Gente Saludable 2010 del Departamento de Salud de Puerto Rico y las investigaciones realizadas en el Programa de Maestría en Educación en Salud Pública, desde el año 2000 hasta el presente. El 81.5% de estos proyectos de investigación, reflejan las áreas focales de Healthy People 2010 identificadas por el Departamento de Salud de Estados Unidos. El 61% aporta información sobre las áreas focales establecidas por el Departamento de Salud de Puerto Rico. Las áreas identificadas son: VIH/SIDA (33%), prevención de lesiones y violencia (15%), desórdenes mentales (11%), tabaco (11%), nutrición (7%), abuso de sustancias (7%), planificación familiar (4%), salud maternal e infantil (4%), enfermedades respiratorias (4%) y actividad y bienestar físico (4%). No se encontró estudios relacionados a las otras áreas identificadas por Salud: enfermedades de transmisión sexual, dia-

betes, enfermedades cardiovasculares y cáncer, pero estos temas han sido incluidos en proyectos de investigación en décadas anteriores. Es necesario, enfatizar estas áreas de prioridad para futuros proyectos de investigación dentro del programa. Estos datos han sido utilizados por profesionales de la salud y agencias en el diseño de programas y estrategias que contribuyen a las metas de salud pública y poblaciones saludables en Puerto Rico.

R-112 The Emerging of Xylazine as a New Drug of Abuse and Its Health Consequences among Hispanic Drug Injectors in Puerto Rico. Juan Negrón Ayala Ph D, Juan C. Reyes Ed D, Rafaela Robles Ed D

Sentinel drug forecasting systems often fail to adequately identify emerging trends in the use of illegal drugs. The spread of animal tranquilizers as drug adulterants or recreational drugs in Puerto Rico is an example of this trend. Xylazine has been recently reported in the drug scene in Puerto Rico. The study population included drug users, residing in the San Juan. A total of 87 drug users were recruited from 12 communities. Ethnographic mapping strategies were used to identify drug markets to conduct recruitment. The sample was predominantly male (66.7%) with a mean age of 37.7 years. The mean number of years of drug use was 14.5, with a mean frequency of drug use of 6.1 times daily. The majority (65.2%) reported speedball (mixture of heroin and cocaine) as the principal drug of use. The prevalence of Xylazine use was 73.8%, with a mean number of years of use of 2.9. More than 56% of the sample use Xylazine in a mixture with speedball. The main route of administration of Xylazine was injection but 14% reported the use of Xylazine by inhalation. In terms of the health consequences, 36% of the sample reported more skin lesions and 26% reported at least an overdose episode. Results of the focus groups reveal that drug users tend to recognize that Xylazine is present in a mixture of speedball based on its effects, taste, the color of the drug and odor. The use of Xylazine among injection drug users in Puerto Rico seems to be an emerging trend with devastating health consequences. More research is needed to understand under what circumstances the drug users are more likely to use this drug and its risk factors.

R-113 Seasonal Variations in the incidence of Congenital Anomalies in Puerto Rico Based on the Timing of Conception. Ronald López-Cepero BS, MS; Alberto de la Vega MD, FACOG, RDMS

Methods: We identified all cases of open neural tube defects, cardiac anomalies, cleft lip and palate, and gastro-

schisis born in Puerto Rico and reported to the Health's Department Birth Registry Program between January 1995 and December 2005. Their conception dates were determined by estimation based on the reported last menstrual period. All deliveries during this same period were recorded and their conception dates estimated in the same manner. The data for each anomaly was separated into 4 groups for each year studied corresponding to the four seasons. The sample was stratified based on the type of anomaly detected and the season when conception took place. Results: There is a seasonal pattern in the rate of conceptions in Puerto Rico with the highest incidence during the winter and lowest during the summer months. We detected a statistically significant increase in the incidence and relative risk during the summer months (using winter as a reference) of conceiving a child with open neural tube defects (1.03/1000, RR:1.33), cardiac anomalies (5.22/1000, RR:1.39), or cleft lip and palate (1.68/1000, RR:1.89). Gastroschisis did not show a statistically significant difference in the rate of conceptions but there was a tendency towards a higher incidence during spring (0.39/1000, RR:1.67). Conclusions: The reported seasonal variation in the incidence of open neural tube defects, cardiac anomalies, and cleft lip and palate may be secondary to the effect of yet to be identified teratogens acting on the population at large, or, more likely, to changes in activity and dietary patterns of the population.

R-114 Calcium intake and colorectal cancer in Puerto Ricans. Palacios C, López ME, Collazo X, Ortiz AP, Cruz-Correa M

Cancer is the third leading cause of death worldwide, with Colón cancer death accounting for 8% of deaths from cancer. Epidemiological studies and clinical trials show that a high calcium intake, from calcium rich foods and supplements, reduces the risk of Colón cancer incidence and recurrence. Objective: our main goal was to study the association of calcium and dairy products intake on Colón cancer in adults by a cross-sectional secondary analysis of an ongoing study in the MSC-UPR. Methods: Calcium intake was estimated using a self-reported Food Frequency Questionnaire (FFQ) of foods rich in calcium. The FFQ included a list of 24 foods and open ended questions for supplements use. Subjects were asked to estimate consumption of the previous month. The FFQ was mailed, in pre-paid envelopes, to all subjects participating in this on-going study. Socio-demographics and Colónoscopy results were obtained from the primary study. Results: The study population consisted of a total sample of 451 men and women. Only 260 participants returned the

completed FFQ (58%). Mean age was 58.4 y and 71% were women. Calcium intake from foods was 917 ± 544 mg/d, from supplements was 242 ± 360 mg/d and total calcium intake was 1160 ± 687 mg/d. Only 102 (39%) subjects had a diagnosis from the Colónoscopy. After adjusting for age, there were no associations between total calcium intake and diagnosed colorectal cancer (OR: 0.946, C.I. 0.478, 1.873) by logistic regression. Conclusions: No association was observed between calcium intake and colorectal cancer in this group of subjects. A greater sample may be required to observe such associations.

R-115 Spatial Distribution of Suicidal Ideation and Suicide Attempts among Adolescent Students, Puerto Rico, 2002-04. Linnette Rodríguez-Figueroa MSc, Ph D; Siobán D. Harlow Ph D; MaryFran R. Sowers Ph D; Brisa N. Sánchez Ph D; Kathleen B. Welch, MPH, MS; Margarita R. Moscoso Ph D

Suicidal behavior among teens has been increasingly identified as an important public health problem. Little is known about the magnitude of the problem in Puerto Rico. The objective of this study was to determine if there are spatial clusters in the prevalence of suicidal ideation and attempts among students, and to evaluate which municipality-level characteristics are associated with these clusters. This study is a secondary analysis of the "Consulta Juvenil VI" survey, an island-wide cross-sectional survey among adolescents. The sample ($n=55,227$) was selected using a multi-stage stratified cluster sampling design, and is representative of all 7th-12th grade public school students. Moran's I Spatial Autocorrelation Statistic was used to detect spatial clustering in the prevalences of each suicidal behavior by municipality. Multiple linear regression models adjusted for spatial dependence were evaluated to determine which municipality-level characteristics were associated with the prevalences. There was significant spatial clustering of the prevalences of both suicidal behaviors; the highest prevalences were present in the southeastern and eastern municipalities. Presence of depressive symptoms was the only characteristic in the teen's environment associated with the spatial clustering of both behaviors. Attempts were also associated with the number of MD visits, and ideation was associated with alcohol use. Finding geographic clusters suggests that we should look for suicidal behavior determinants in the teens' environment. Effective suicide prevention strategies should target these high-risk geographic areas identified.

R-116 HER2/neu overexpression and its effect in disease relapse and mortality among breast cancer cases in two hospitals in Puerto Rico. Ortiz-Martínez AP, Suárez-Pérez E, González-Keelan C, Cabanillas, F, Frias-Belen O, Valle Y, Ortiz-Bachier P, Santana A, Díaz-Rodríguez J, Capo D, Mora E.

Background: Breast cancer cases with HER2/neu oncoprotein overamplification are consistently associated with poor prognosis, poor response to endocrine treatment, and an increased likelihood of recurrence. Objectives: To determine the prevalence of HER2/neu overexpression among a hospital-based female population of breast cancer cases in Puerto Rico, and to determine its association with other clinical characteristics. Methods: The study population consisted of invasive breast cancer cases seen between 2000-2005 at the I. González Martínez Hospital and the Auxilio Mutuo Hospital ($n=1,705$), from which 1,094 (64%) patient's records and pathology reports have already been reviewed. Reviewed information included age at diagnosis, ER/PR status, disease relapse and vital status. Confidence intervals were used to estimate the prevalence. This study was approved by the IRB's of all participating institutions. Results: Among the patients analyzed ($n=1,094$), the average age was 58.4 ± 13.7 years. At this point, the prevalence of Her-2/neu overexpression is 18.9% (95% CI: 16.6%-21.2%), whereas 71.7% (95% CI: 69.0%-74.4%) of the cases were ER positive and 58.5% (95% CI: 55.6%-61.4%) were PR positive. Meanwhile, 5.8% (95% CI: 4.4%-7.2%) of the cases have had a recurrence and 15.9% (95% CI: 13.7%-18.1%) have died. Conclusions: Preliminary results suggest that the prevalence of Her-2/neu overexpression in this sample is somewhat comparable to that observed in US populations. Results from this study will be useful for the development of future breast cancer prevention and control strategies in Puerto Rico.

R-117 Metabolic syndrome and its relation to menstrual and reproductive history among women living in the San Juan Metropolitan Area of Puerto Rico. AP Ortiz, G Beauchamp, J Romaguera, E Suárez, CM Pérez

The metabolic syndrome (MS) is an interaction of risk factors that may lead to cardiovascular disease and diabetes. We aimed to determine the association between reproductive factors and the MS among women aged 21-79 years in Puerto Rico (PR). Women who participated in a population-based cross-sectional study of the MS in the San Juan metropolitan area were used for this analysis ($n=563$). The MS was defined based on the updated

NCEP-ATP criteria. Logistic regression models were used to estimate the prevalence of MS and the strength of association between reproductive factors and the MS. Overall, 42.2% (37.9%-46.6%) of women had the MS. History of gestational diabetes was significantly associated to the MS (est. OR=2.34, 95% CI=1.21-4.52, p=0.012). Whereas, women who had a baby who weighted over 8.8 pounds were more likely to have MS as compared to women whose babies did not achieve this weight (est. OR=1.45, 95% CI=0.96-2.18, p=0.08). No significant association was observed between MS and the history of polycystic ovarian syndrome, ever use of birth control pills or parity (p>0.10). In conclusion, the prevalence of the MS in women in this study was high, highlighting the relevance of this condition in PR. Consistent with previous studies, history of gestational diabetes was associated with the MS. This information is relevant for the development of preventive interventions for the MS that could be used by primary care providers and OBGYN specialists. This study was approved by the IRB, MSC. Supported by Merck Sharp & Dohme Co. and the NCCR (grant numbers G12RR03051 and P20RR011126).

R-118 Health status and risk behaviors of homeless people in San Juan, Puerto Rico.
Sheyla Garced, Cynthia M. Pérez Ph D,
Juan C. Reyes Ed D, Erick Suárez Ph D

Public health faces the tremendous challenge of homelessness. Not only is this situation alone complex, but very likely to interconnect with other problems like physical and mental health conditions, drug use and other negative health-related outcomes. This study aimed to describe the health status of individuals attending institutions that offer services for the homeless in San Juan, Puerto Rico. We performed a cross-sectional survey and face-to-face interviews of individuals aged 21-73 years enrolled in two entities (Las Duchas and La Fondita de Jesús) that offer services for the homeless in San Juan, PR. Descriptive statistics were generated for variables of interest. The sample consisted of 65 adults with a mean age of 43.9±11.3 years; 95.4% were males, and 58.5% had completed 12 or more years of education. The distribution of the residential status was as follows: 64.6% on-the-street homeless, 10.8% transitionally housed and 24.6% housed. 49.2% of the sample reported fair or poor physical health. The most prevalent self-reported health conditions were depression (44.6%), anxiety disorder (30.8%) and HCV infection (15.4%). Access-to-care factors revealed that 63.1% had received drug or alcohol treatment, 38.5% were unable to access health care services, and 27.7% were uninsured. More than

65% of the homeless were polydrug users. Marihuana (60.5%), crack (51.2%) and speedball (25.6%) were the most widely used substances. Findings suggest that there is a need for greater access to health care and for more aggressive prevention and treatment programs targeting homeless adults in San Juan, PR.

R-119 Type 2 diabetes mellitus and colorectal cancer risk in Hispanics: A pilot case-control study.
Yaritza Díaz-Algorri MS,
Cynthia M. Pérez-Cardona Ph D, Erick L.
Suárez-Pérez Ph D, Marcia R

Epidemiological studies have provided inconsistent evidence regarding the potential link between type 2 diabetes mellitus (DM) and colorectal cancer (CRC). This association has not been well characterized in Hispanics, an ethnic minority at high risk for type 2 DM. To evaluate the association between type 2 DM and CRC in Hispanic adults participating in a cohort study of imprinting in CRC. Pilot case-control study included patients with incident CRC and controls with negative Colónoscopy and without previous history of CRC or adenomatous polyps, evaluated from January 1, 2005 to June 30, 2007. Diagnosis of type 2 DM was established by previous medical diagnosis and/or anti-diabetic medications use. Unconditional logistic regression was employed to estimate the odds ratio (OR) between type 2 DM and CRC. 42 patients with CRC (mean age 60.4 ±11.1 yrs., 54.8% females), and 51 controls (mean age 55.8 ±10.9 yrs., 72.5% females) were evaluated. Colorectal tumors were mostly adenocarcinomas (95.2%), located in the distal Colón (42.9%), and with TNM stage III (28.6%). CRC cases experienced a higher odds of type 2 DM (OR=1.48; 95% CI: 0.49-4.48) compared to controls. Cases with a first degree family history of DM had a three-fold increased odds of CRC (OR=3.11; 95% CI: 1.22-7.97) compared with controls with such a history. Future studies should consider the inclusion of a larger sample size to confirm the excess odds of CRC among Hispanics and understand the contribution of a family history of DM in this association.

R-120 Percepción de raza y color de piel entre personas de edad mayor en Puerto Rico.
Ana Luisa Dávila, María Aranda, Alberto
García, María Larriuz

El Censo de Población y Vivienda de 2000 recogió información sobre raza después de varias décadas sin hacerlo. Alrededor de 84% de los residentes en Puerto Rico se declararon de raza blanca. Este trabajo tiene como propósito comparar los resultados obtenidos en el Censo de

2000 con los datos referentes a la raza recopilados por el proyecto Condiciones de salud de las personas de edad mayor. PREHCO (Puerto Rican Elderly Health Conditions) es un estudio longitudinal representativo de la población de 60 años o más llevado a cabo en Puerto Rico entre 2002 y 2008. En PREHCO cerca de la mitad de las personas de edad mayor se consideraban blancas y menos de 5% dijeron ser negros o negras. También 13.3% de los que declararon que su color de piel era negro se identificaron con razas distintas a la negra en la pregunta de raza, mientras que 7% de los de piel blanca hicieron lo propio. 94% de los blancos de piel persistieron en ser de raza blanca. Se analizaron las características de las personas según la raza y se contrastó la metodología y el lenguaje utilizados. La ambivalencia entre raza y color de piel puede quizás ser explicada en la dificultad que presenta el encajonar en definiciones contestables el constructo social de la raza, sin negar que la raza repercute en el color de la piel. Por medio siglo los puertorriqueños se desvincularon del concepto raza tantas veces utilizado para marcar aun más las diferencias de clases. Esto no implica negar que estos contrastes y formas de oprimir existan en la nuestra sociedad aunque no sean percibidos. Tampoco es menos cierto que la raza es solo parte del discrimen imperante.

R-121 Struma Ovarii with Macrocytic Changes: A case report and review of the literature. María J. Bertoli-Avella MD; Román Vélez MD, Elsie Diez MD

Abstract: Struma ovarii is a highly specialized form of mature teratoma characterized by the presence of entirely or predominantly of mature thyroid tissue. It is the most common type of monodermal teratoma and accounts for 2.7 % of all ovarian teratomas. The most important complications, although rare, are malignant transformation and thyrotoxicosis. We report a case of a 52 year old woman who presented with a left ovarian multiloculated cystic mass measuring 28 cm in main dimension that mimicked a serous cystadenoma. Histopathologic evaluation revealed thyroid microfollicles in the walls of the cysts which was confirmed by immunostains (positive for Thyroid Transcription Factor-1 and Thyroglobulin Glycoprotein) which also confirmed that the large cysts were thyroid macrofollicles.

R-122 Smith-Magenis syndrome in Puerto Rico: Case Report. Javier Jardon, Natalio J. Izquierdo MD

Smith-Magenis syndrome (SMS) is characterized by deletions in the short arm of chromosome 17. Systemic findings

in patients with the syndrome include: dysmorphic facies; and skeletal deformities. Ophthalmic findings in patients with the SMS include: strabismus, refractive errors, microcornea, iris anomalies, microphthalmos, and coloboma. A 14-year-old boy with cytogenetic studies confirming the SMS underwent a comprehensive ophthalmologic examination. The patient has a history of strabismus surgery. Clinical findings in this patient include: developmental delay, facial dysmorphism, enamel hypoplasia, short broad hands, clinodactyly, and scoliosis. Ocular findings in our patient include: myopia, iris nodules, loose zonules, and ectopia lentis. To our knowledge this is the first reported case of SMS in the Caribbean basin and the first case that report ectopia lentis in SMS. There is a possibility that lens subluxation in our patient is due to self inflicted trauma.

II. Oral Presentations

R-123 Autoeficacia de las y los Adolescentes para la Negociación de Prácticas Sexuales más Seguras: Uso del Condón. Kenja Correa-Nivar MPHE, María C. Santos-Ortiz Ph D, René Dávila-Torres Ph Dc

En Puerto Rico, desde la década de los 90's las Infecciones de Transmisión Sexual (ITS) fueron identificadas como la causa más común de morbilidad entre la población de adolescentes. El objetivo de nuestro estudio es el de identificar el nivel de autoeficacia de los adolescentes para la negociación del uso del condón al momento de realizar prácticas sexuales de alto riesgo de adquirir una ITS. Se utilizó un cuestionario auto administrable en una muestra de adolescentes, de ambos géneros, en una escuela pública del área metropolitana de San Juan. Éstos fueron elegidos aleatoriamente por medio de una selección probabilística simple y estratificada. Luego de realizado este estudio, se observó que más de la mitad de los jóvenes (77.9%) demostraron poseer un alto nivel de autoeficacia para negociar conductas sexuales de menor riesgo frente a la posibilidad de adquirir una ITS. Las mujeres (64.2%; n=52) en comparación con los hombres (35.8%; n=29) mostraron una mayor autoeficacia para la negociación de prácticas sexuales más seguras. Al mismo tiempo, se comprobó una relación significativa entre el grado de escolaridad y la autoeficacia percibida de los participantes, para negociar practicas sexuales de protección y reducción de riesgos de las ITS. Nuestros datos demostraron que mientras mayor sea la autoeficacia percibida por este grupo de jóvenes, en la negociación de prácticas sexuales de menor riesgo, mayores podrían ser sus logros de ejecución en la prevención de las Infecciones de Transmisión Sexual.

R-124 Valeriana officinalis vs. Valerenic Acid: selectivity toward mGluR? L Del Valle-Mojica, Y Ayala-Marín, B Torres-Hernández, JG Ortiz

Valeriana officinalis extracts are used for sedative and anxiolytic. Valerian extracts are believed to stimulate inhibitory neurotransmission. Alternatively, relaxation and sleepiness can be produced if Valerian reduces the activation of glutamatergic receptors. Our study examines the effects of Valerian extracts and valerenic acid on metabotropic (mGluR) and ionotropic (iGluR) receptors through [3H]Glutamate binding ([3H]Glu). Freshly prepared valerian extract or valerenic acid were incubated with rat cortical membranes in presence of [3H]Glu. Aqueous valerian extracts increase binding from 1×10^{-7} - 1×10^{-3} mg/ml. In the presence of LCCG and DCG-IV, Valerian markedly decrease binding, but is increased in presence of QA. At 0.05mg/ml aqueous Valerian specifically interact with KA but not NMDA and AMPA. Valerenic acid is one of the active compound present in Valerian and some articles attribute the anxiolytic properties of the plant. Valerenic acid increases the [3H]Glu binding after 1×10^{-1} mg/ml. At 0.008mg/ml valerenic acid specifically interacts with QA demonstrating its high selectivity for mGluRI interaction. The selective interaction of Valerian and valerenic acid with mGluRI and mGluRI may represent an alternative explanation for the anxiolytic properties of this plant since recent scientific literature correlate mGluRI and mGluRII with anxiety. Further studies are being conducted to determine Valerian and Valerenic interaction specificity with mGlu and iGlu glutamate receptors. Partially supported by Grant No. 2 R25 GM061838-05 and 1 R25 GM 075348-01A1.

R-125 Characterization Of HIV-1 Inhibition In Placental Macrophages. García K, García V, Pérez J, Duan F, Meléndez LM

It is well documented that Placental Macrophages (PM) show lower levels of HIV-1 infection than Monocyte Derived Macrophages (MDM) and that soluble factors secreted in the placenta can inhibit viral replication. To characterize the inhibition occurring in PM we performed ALU-LTR PCR to detect differences in viral integration between PM and MDM and also Western blots to detect differences in viral protein expression. Cells were cultured, infected with HIV-1 and harvested after 24 hrs. for DNA extraction. For Western blot infected cells were lysed at 6 and 12 days p.i.. We found no difference in viral integration between PM and MDM, but found the viral protein gp120 to be produced in higher levels in MDM over PM. We also tested the hypothesis that HIV

inhibitory factors are secreted by PM and differentially expressed in PM and MDM. PM were cultured for 12 days and supernatant was collected. To characterize PM supernatants, their protein profiles were compared to MDM using a protein chip assay. Significant differences were found in 7 protein peaks between PM and MDM supernatants. Subsequently, proteins were separated by 1D SDS-PAGE and identified by LC-MS/MS. After sequencing and identification, five proteins were validated for differential expression in PM and MDM by Western blot analyses and ELISA. Peroxiredoxin 5 was found to be more abundant in PM supernatants, Cystatin B was less abundant in PM and MIP-4 was found to be more abundant in MDM. This study advances our understanding of HIV-1 infection in the placenta and the protection it offers the fetus against HIV and other viral infections.

R-126 Acquired immunity to Fasciola hepatica in mice vaccinated with the SAP protein. Adelaida Morales, Bonnibel Delgado, Francheska Rivera, Olgarys Figueroa, Ana M. Espino Ph D

Fascioliasis caused by Fasciola hepatica is a disease that affects primarily sheep and cattle producing economical losses and is also a major human pathogen, with about 17 million people infected. Control of fascioliasis is based mainly on the chemotherapeutic treatment, but treatment does not affect the transmission. The development of an effective vaccine would represent a long-term solution. We recently reported the biochemical characterization of a F. hepatica antigen termed FhSAP2, which has shown to be a molecule highly immunogenic. The purpose of this work was to ascertain if FhSAP2 delivered as DNA vaccine can induce protection in a mouse model of fascioliasis. A group of 10 BALB/c mice was vaccinated with the DNA vaccine and another group was vaccinated with FhSAP2. After vaccination animals were challenge with 5 metacercariae and necropsied 45-days after challenge. A non-vaccinated, infected group was used as control. Vaccination with the DNA constructs resulted in higher levels of protection (85.7%) than with the recombinant FhSAP2 (78.5%). All mice of this study developed more IgG1 than IgG2a, IgG2b or IgG3 but the relative IgG1 to IgG2a ratio was significantly lower in the animals vaccinated with the DNA vaccine, which indicate that DNA-vaccinated animals developed higher levels of IgG2a than controls. Because IgG2a is the antibody isotype associated with the Th1 response our results suggest that the high levels of protection observed in these animals could be associated to a mechanism driven by the CD4+Th1 cells.

R-127 Antioxidant Treatment Ameliorates the Neurological Phenotype in a Transgenic Mouse Model of Huntington's Disease. Acevedo-Torres K, Ayala-Colón A, Fonseca-Williams S, Rosario N, Castro MR, Torres-Ramos CA, Ayala-Torres S

The contribution of oxidative stress and mtDNA damage in the onset and progression of HD is not known. We hypothesize that an increased generation of radical oxygen species (ROS) leads to mtDNA damage in HD and contributes to the neurological phenotype associated with HD. To test our hypothesis we treated R6/2 mice, a transgenic mouse model of HD, with the antioxidant idebenone, a coenzyme Q synthetic analog. We measured mtDNA damage in brain, motor performance, body weight, and lifespan. To determine levels of mtDNA damage in cerebral cortex (cc) and striatum (st), we applied a quantitative PCR assay. Our results show protection from mtDNA damage in idebenone-treated mice as compared with vehicle-treated mice (lesion frequencies: 0.07 and 0.49 per 10 kb in st from 12 week (wk) old mice, respectively). MtDNA damage in the cc of 12 wk old mice treated with idebenone and vehicle showed 0.15 and 0.26 lesions/10 kb, respectively. These data show that antioxidant treatment protects the mtDNA from ROS-induced damage. Idebenone-treated mice significantly improved motor performance starting at 7 wks of age as compared to vehicle-treated mice. Mice treated with idebenone decreased loss of body weight and resulted in a 6.2% increase in maximum lifespan. These data support our hypothesis that an age-associated increase in oxidative stress results in mtDNA damage and may contribute to the neurodegeneration observed in HD. Targeting oxidative mtDNA damage may prevent the progression of the HD. (Supported by U54-NS039408, R25-GM061838 and G12RR03051).

R-128 Mitochondrial DNA Variation at Position 16189 and Diabetes: Frequency Amongst South Eastern Kenyan Populations. JP Arroyo, K Batai, SR Williams

Mitochondrial mutations have been reported to be a cause of maternally inherited diabetes and metabolic syndrome. A substitution of thymidine for cytosine (T→C) at nucleotide position 16189C of the mitochondrial DNA (mtDNA) may be associated with insulin resistance and type 2 Diabetes Mellitus. Analysis from five Asian countries confirmed association. However, meta-analysis on Europeans did not show association. Due to inconsistency of results between previous studies; other ethnic

populations were investigated. DNA was extracted from the Mijikenda and Taita from southeast Kenya. Hyper-variable Region I of the mtDNA, was sequenced. The mutation was found at low frequencies in the Kenyan populations, 8.61% Taita and 9.62% Mijikenda. In contrast, previous studies indicated frequencies of 31.0% in Asian and 9.2% in European samples. Ethnic differences may underlie risk association in diabetes, because the genetic/environmental interaction, influences many aspects of the phenotype. It is not clear if the 16189C variant is associated with diabetes risk, specifically in Asian populations. It may be a risk factor for diabetes among Asians, and perhaps in other populations, but specific metabolic effects of this mutation must be identified before definitive conclusions can be reached. However; it appears that mutation at position 16189C is not a risk factor for the development of diabetes in the Kenyan groups. Urban lifestyle patterns seem to be more influential in the development of diabetes in Kenyan populations. Association studies between diabetes and 16189C mutation in other ethnic groups are needed as well.

R-129 Predicting Factors for the Need of Laser in the Premature Neonatal Population with Retinopathy of Prematurity. Melissa Figueroa, Dra. Gloria Reyes, Dr. Raúl Pérez

Retinopathy of prematurity (ROP) is a retinal disorder of LBW infants which may lead to blindness. We report the experience with VLBW infants who were screened for ROP since we implemented the ETROP guidelines in our institution at UPH in 2003. Patients were divided in two groups; those who required laser treatment and those who did not. Each group was subdivided into in-born, infants born in UPH and outborn, infants who were referred. All charts of patients screened for ROP were analyzed regarding Sex, Gestational Age (GA), Birth Weight (BW), Post Menstrual Age (PMA) at 1st evaluation, and PMA at 1st laser treatment. Preliminary results of 540 from 923 charts show that the mean GA in the laser treated group (total of 163) was 27wks, mean BW was 905g, mean PMA 1st eval was 35wks, mean PMA 1st laser was 37wks, and male to female ratio was 3:2. The mean GA in the no-laser group (total of 377) was 29wks, mean BW was 1115g, mean PMA 1st evaluation was 35wks, and sex ratio was 1:1. Preliminary statistical analysis suggests significant difference in GA and BW in the two groups and between the number of inborn and outborn patients in each group. In both the laser and no laser groups there was significant difference in the PMA at 1st eval when comparing the 2 subgroups (inborn and outborn). We conclude that ETROP guidelines are ad-

equate for screening premature infants. However, results show that there is a population of patients with lower GA and BW that are at higher risk of needing laser treatment. Other referring institutions should be notified about the importance of sending the outborn patients on time for ROP screening.

R-130 Environmental, Hereditary Factors and Clinical Characteristics of Cleft Lip and/or Palate Patients: Pilot Study. Ilse Salcedo DDS, Antonio Rivera Luna DMD, MSc; Natalio Debbs MD

Cleft lip and/ or palate (CL/P) can be classified as syndromic or not syndromic congenital conditions. In Puerto Rico the incidence reported is 1/600 (2007). Early detection and treatment of the deformity are important in order to achieve adequate psycho-social, functional and esthetic results. Newborns with CL/P may often have other associated congenital defects. CL/P increases the risk of hospitalization for psychiatric disorders in adults. Objectives: To assess the hereditary, environmental factors and clinical characteristics associated with CL/P in a group of patients treated at the Craniofacial Clinic from February 2007 to November 2008. Results: 190 CL/P patients participated in the study: 4 refused to participate, 17% presented associated malformations, 59% were female, 42 % presented a family history and 11% reported they were not aware of family history. Forty seven percent (47 %) of patient's mothers completed a college degree, 34 % presented a medical condition during pregnancy, and 41% of the patient's father worked in agricultural, mechanical and pharmaceutical jobs (odds ratio 2.8; CI 1.3, 6.2). The findings of this study suggest that parents exposed to high risk jobs may affect the incidence of CL/P in children.

R-131 Resultados en Infantes Prematuros con Retraso en Habla/Language que Presentan tanto Audición Normal como Pérdida Auditiva. Flor Osorio, Gloria Reyes MD, FAAP

Introducción: No existe información suficiente sobre los resultados de habla y lenguaje en niños con pérdida auditiva y niños oyentes prematuros menores de dos años. Mientras más temprano se atienden los niños con pérdida auditiva mejor es su desempeño. Objetivo: Evaluar si existe una asociación entre la pérdida auditiva y el retraso en habla/lenguaje entre infantes prematuros. Métodos: Este estudio contempló una población con desempeño bajo en habla lenguaje (< 80%). Todos fueron evaluados al menos en dos ocasiones con la escala Receptive Expressive Emergent Language Scale 2. Resultados: En la

puntuación de lenguaje inicial no hubo diferencia entre los infantes con pérdida auditiva y los infantes con audición normal. En la puntuación de lenguaje final se encontró una puntuación promedio de 77.2 +/- 24.7 en el grupo de infantes con audición normal y 58.1 +/- 26.1 en el grupo de los de pérdida auditiva (P=0.0018). Al comparar la variación en el desarrollo del habla/lenguaje, los infantes con audición normal tuvieron un promedio de 30.2 +/- 27.3 y los de pérdida auditiva tuvieron un promedio de 10.6 +/- 23.4 (P=0.0010). Conclusiones: No identificamos una asociación entre la edad de la puntuación inicial y final de lenguaje. Aunque no se observó un efecto de la edad del paciente al momento de realizar los procedimientos, si se identificó un efecto significativo sobre la puntuación final de lenguaje (P=0.0016). Estos hallazgos refuerzan la necesidad de seguimiento longitudinal del paciente prematuro que presenta pérdida auditiva. (Este estudio fue subvencionado por el Consejo Estatal de Deficiencias en el Desarrollo).

R-132 The Impact of Fibromyalgia on the Quality of life in a Sample of Puerto Rican Woman. M Rohena EdD, MS, OTR/L; L Martínez MSOT, I Quintero MSOT, M Lebrón MSOT

There is no research concerning fibromyalgia (FM) and occupational therapy in Puerto Rico. Therefore, this study will establish initiatives to develop intervention programs based on the women's needs to improve their quality of life (QOL). The purpose of this study was to describe the impact of FM on the QOL and occupational participation in a sample of thirty Puerto Rican women with FM. The study design was a descriptive-quantitative and methodological. The Spanish Fibromyalgia Impact Questionnaire(S-FIQ) was culturally adapted to create the Cuestionario de Impacto de la Fibromialgia de Puerto Rico (CIF-PR). The CIF-PR and the Checklist of Occupational Areas Affect by Fibromyalgia, developed by the authors, were administered to meet the study aims. Quantitative data analysis using descriptive and analytical statistic were used. The data analysis suggests the morning tiredness (80.0%), fatigue (66.7%), stiffness (63.4%) and pain (56.7 %) as the factors that affect the most the QOL. In addition, the participants indicated that the symptom of FM limits their participation in the basic daily activities, instrumental daily life activities, education, work, leisure and social participation. Additionally, it was found a significant correlation between CIF-PR and the activities of daily living($r=.460, p < .05$), and CIF-PR and work activities ($r=.380, p < .05$) of the Checklist of Occupational Areas Affected by Fi-

bromyalgia. The study results show that FM impacts the functional capacity, women's occupations and consequently the QOL. Approved by IRB, 9/12/2007.

R-133 Global DNA methylation in oral cancer.
Rafael Guerrero Preston, Adriana Báez,
María Berdasco, Arturo Blanco, Mario
Fraga, Augusto Elías, Manel Esteller

Two separate molecular pathways have been proposed for the early carcinogenic events observed in the oral cavity and pharynx (OCP). A proof-of-principle study was performed to ascertain if global DNA methylation could be a useful tool in distinguishing early molecular changes in OCP. Personal histories of tobacco and alcohol use were ascertained by questionnaire. HPV insertion in tumor tissue was detected by polymerase chain reaction (PCR). Global DNA methylation levels were obtained using HPLC for fraction separation and Mass Spectrometry for quantification. Predictive simulations were performed to explore associations between etiological factors and global DNA methylation. The global methylation index was found to be 4.28 (95% CI, 4.1, 4.4) in an oral cancer case series. Pearson's chi squared test showed no statistically significant difference between cases that had smoking ($p=0.21$), drinking ($p=0.31$) or HPV insertion ($p=0.34$) as etiologic risk factors when compared to cases that did not. An inverse association between smoking and DNA methylation and no associations between the probability of DNA methylation and drinking or HPV insertion were observed after simulations. Tissue specific global methylation was shown for oral cancer cases with different etiologies. Smoking was correlated to DNA methylation levels when generalized linear model simulations were performed. Future studies should look at global epigenetic alterations associated to the progression from normal to premalignant tissue of oral cancer patients with different etiologies in a case control study.

R-134 From protein profiling to functional proteomics in HIV Associated Neurological Disorders. Meléndez LM, Plaud M, Velázquez I, Toro-Nieves D, Pérez Laspiur J, Rodríguez Y, Ciborowski P, Kraft-Terry S, Rodríguez E, Skolasky R, Duan F, Wojna V, Gendelman HE.

HIV-associated neurocognitive disorders (HAND) occur frequently during advanced viral infection despite anti-retroviral therapies. HAND is characterized by immune activation of monocytes, macrophages and microglia with subsequent release of neurotoxic secretory products. We applied proteomics approaches (SELDI-TOF, 1 and

2-D gel electrophoresis, HPLC, protein sequencing by LC MS MS, and validation by ELISA or Western blots) to determine the differences in expression of proteins associated with HAND in monocytes and CSF from a cohort of 139 HIV seropositive Hispanic women characterized for cognitive function. Our studies demonstrate that antioxidants expression (SOD, catalase, glutathione peroxidase, thioredoxin, peroxiredoxin, NADPH) is suppressed in monocytes with parallel dysregulation in the CSF from women with HAND. Enzymatic activity of SOD, catalase, glutathione peroxidase demonstrated dysfunction of monocytes and CSF of Hispanic women with HAND. To determine the role of viral infection in monocyte dysfunction, In vitro experiments of HIV-infected monocytes demonstrated that viral infection affect macrophage proteome and secretome. Oxidative stress and apoptosis markers are affected by HIV infection and may play neuroregulatory roles in disease. Our data demonstrate that HIV variants from patients with HAND can suppress of antioxidant function and could contribute to apoptosis. Current studies will determine the mechanisms of HIV-induced antioxidant dysfunction in monocytes and validation of antioxidant enzymes as disease biomarkers for progression to HAND.

R-135 La Perspectiva de los Adultos de Mediana Edad sobre el Balance en las Ocupaciones. C Méndez MSOT, M Rohena Ed D, MS, OTR/L; M Benítez MSOT

El balance ocupacional es la distribución individualizada de aquellas actividades que una persona y están relacionadas con el trabajo, educación, cuidado propio, ocio, y la participación social. Posee impacto en la salud. El adulto de mediana edad es un grupo generacional a alto riesgo. El propósito del estudio fue documentar la perspectiva de los adultos de mediana edad sobre el balance ocupacional y cómo las actividades que realizan facilitan o limitan su balance. La metodología descriptiva cualitativa fue seleccionada. El grupo focal fue el instrumento para recopilar los datos del estudio. Cada grupo focal se constituyó de veinte adultos entre cuarenta y sesenta años para formar dos grupos. El análisis cualitativo respondió a las discusiones generadas en los dos grupos focales y consistió en el cotejo de las transcripciones de las grabaciones de los grupos focales, para crear categorías las cuales fueron codificadas basándose en similitudes y diferencias y asignando a cada una un significado. Se realizó un análisis comparativo de los grupos focales. El balance ocupacional es sin dudas una experiencia subjetiva que está compuesta por multiplicidad de elementos. La presencia de factores del ambiente como el apoyo familiar, los factores del cliente

como la espiritualidad, las experiencias previamente vividas y las condiciones de salud son variables que le confieren la subjetividad al concepto de balance ocupacional. Los adultos de mediana edad deben involucrarse en las diferentes actividades que les provea satisfacción para que les proporcione un sentido de balance ocupacional.

R-136 Hospital-based case-control study of the association between body mass index and endometrial cancer in Puerto Rican women. Eileen Y. Charneco MS, Ana P. Ortiz Ph D, Heidi Venegas MS, Josefina Romaguera MD, MPH; Sharee Umpierre MD

Obesity is an established risk factor for endometrial cancer (EC). However, this association has not been studied in Puerto Rico (PR), where overweight (33%) and obesity (27%) have achieved epidemic levels. A hospital based case-control study was designed to evaluate the association between body mass index (BMI) and EC. Seventy-four prevalent EC cases diagnosed from January 2004-August 2007 and a random sample of 88 healthy controls were recruited from the Medical Center of San Juan, PR. Demographic, lifestyle, anthropometric and clinical information was obtained via structured telephone interviews and medical record review. Logistic regression models were used to estimate odds ratios (ORs) and 95% confidence intervals (CI). Mean age at diagnosis for cases was 56.3 ± 12.1 years. Cases were most likely than controls to be diabetic, hypertensive and less likely to be physically active; yet, none of the reproductive characteristics were associated with endometrial cancer. Increasing BMI was associated with increased odds of EC in bivariate analysis (p -for trend < 0.0001). Women with a BMI ≥ 30 kg/m² had 4-fold greater possibility of EC (OR=4.1; 95% CI: 1.8-8.6) than non-obese women (BMI < 30 kg/m²), after adjusting for age, education, employment status, hypertension diagnosis, use of oral contraceptives and consumption of turkey/chicken. Consistent with previous studies worldwide, adult obesity was a strong predictor for EC in this sample of Puerto Rican women. Primary prevention programs to avoid obesity and promote healthy life styles are warranted to reduce EC risk in this population.

R-137 La Asociación entre Intrusiones de la Nube del Polvo del Desierto de Sahara y la Proteína C-Reactiva Durante la Primavera del 2008. Omar García Rodríguez

En Puerto Rico, la contaminación en el aire se relaciona a las emisiones de las industrias y los vehículos de motor. Los incrementos en los niveles de partículas como la intrusión de la nube de polvo del Desierto de Sahara han

sido vinculados a un aumento en los signos y síntomas, las visitas a sala de emergencia y hospitales e inclusive la muerte por enfermedad respiratoria y cardiovascular. La proteína C reactiva se asocia a eventos cardiovasculares. En este estudio de panel se seleccionaron 55 participantes. Se esperaba que los niveles del marcador biológico de inflamación CRP aumentarían durante la intrusión de la nube de polvo del Desierto de Sahara. Se observó asociación significativa en el grupo de participantes con obesidad y sobrepeso (IMC ≥ 25 kg/m²) y niveles de CRP ≥ 2.85 mg/L (POR=2.91; IC 95%: 1.03, 8.20). Se encontró asociación significativa en el grupo de participantes que informaron el consumo de alcohol (5 o más tragos) y niveles de CRP ≥ 2.85 mg/L (POR= 0.27; IC95%: 0.07, 0.97). 27 participantes disminuyeron los niveles de CRP durante la intrusión de polvo del Desierto de Sahara, mientras que 26 de participantes aumentaron los niveles de CRP. Se observó incremento en los niveles de CRP durante la intrusión de la nube de polvo de Desierto de Sahara en el grupo de participantes con peso normal (IMC < 25 kg/m²) y que informaron que ingerían alcohol. La tendencia en general fue a disminuir los niveles de CRP durante el período a riesgo. En futuros estudios se podría establecer medidas para recomendar alertas cuando ocurran estas intrusiones en Puerto Rico.

R-138 Association of nutritional deficiencies with the metabolic syndrome in Puerto Rico. Cathia Méndez MD, Ivonne Jiménez MD, Juan González MD, Cristina Ramos MD, Felix Carillo MD, Litzia Camuñas, MD, Maritza González

The prevalence of the metabolic syndrome in men and women living in San Juan, Puerto is 45.3% and 42.2% respectively and increase with age. Few studies have examined the association between nutritional deficiencies and the metabolic syndrome, yet certain dietary habits have been found to influence the risk of developing it. Objectives: To determine if there is a relationship between dietary patterns and nutritional deficiencies and prevalence of the metabolic syndrome or its components, in adults 50 and older living in Puerto Rico. Methods: 165 patients of Internal Medicine/Geriatrics and Ob-Gyn clinics were evaluated. A Food Frequency Questionnaire, MMSE, biochemical and anthropometric measurements were analyzed. Levenes test for Equality of Variances and T-test for Equality of Means were done. Results: 100/165 had statistical analysis regarding nutritional deficiencies and metabolic syndrome parameters. Age range: 50-75 y/o, 22% male and 78% female. Of these, 34.7% presented the metabolic syndrome. 35/100 participants showed a

correlation between B12 deficiency and metabolic syndrome parameters. Folate deficiency did not show statistically significant correlation. Lower scores in mental tests were found in patients with the metabolic syndrome. Conclusion: Our results are consistent with previous studies showing a higher prevalence of the metabolic syndrome in Hispanics. The possibility of a relationship between nutritional deficiencies, cognitive impairment and the metabolic syndrome merits further investigation.

R-139 Síntomas Disociativos y del Trastorno de Estrés Postraumático en Niños/as Abusados/as Sexualmente. Dr. Joel Manzano Mojica Ph D, Dr. José Cabiya Morales, Dr. Alfonso Martínez Taboas, Sr. Larry EA

En Puerto Rico son pocos los estudios que se han realizado para examinar los efectos del abuso sexual dentro de la población de niños/as y adolescentes. El desarrollo emocional, físico y social durante el periodo de la niñez y la adolescencia sugieren que el abuso sexual durante estas etapas pueden afectar el funcionamiento psicológico en comparación con otros/as niños/as que no han pasado por algún evento traumático. El objetivo principal de este estudio era evaluar si el abuso sexual es lo suficientemente significativo para crear diferencias en cuanto a la manifestación de síntomas disociativos y del trastorno de estrés postraumático. Participaron de este estudio ciento veinte (n=120) niños/as y cuidadores principales en un diseño de tres grupos: experimental, control 1 y control 2 y se establecieron criterios de inclusión y exclusión para cada grupo. Los resultados demostraron que la variable de abuso sexual era un factor importante que media las reacciones hacia la sintomatología disociativa y del trastorno de estrés postraumático en niños/as abusados / as sexualmente al ser comparados con niños/as que no poseen esta condición. Se realizó un perfil sociodemográficos de cada grupo y se encontraron diferencias significativas cuando se compararon los promedios de los grupos a través de un análisis de varianza y una evaluación de los promedios con la técnica de Tuckey Post-Hoc. Estos resultados tienen implicaciones a nivel de prevención y tratamiento, ya que los profesionales de la salud mental deben tener consideraciones especiales cuando se trabaja con este tipo de población.

R-140 Second Primary Neoplasms Following Female Breast Cancer in Puerto Rico, 1987-2003. Javier Pérez-Irizarry MPH, CTR; Taina De La Torre MS, CTR; Nayda R. Figueroa-Vallés MD, MPH

Background: Female breast cancer is the most commonly diagnosed cancer among women in Puerto Rico. The in-

vestigation of the occurrence of second primary cancers holds important implications for cancer etiology and preventive actions. Objectives: To assess the risk of second primary cancers among women with a previous breast cancer malignancy. Methods: A retrospective population based cohort study is currently being conducted by the Puerto Rico Central Cancer Registry. Standardized incidence ratios (SIR) were calculated to determine the risk of second primary cancers after the occurrence of the first primary breast cancer. A total of 1,020 second primary neoplasms were observed during 1987 to 2003. Results: Our preliminary results showed that women with a first breast cancer have a significantly higher risk of second cancer (SIR= 2.0). Significantly higher risks were found for second primary of the breast (SIR=3.9), corpus and uterus (SIR=3.0), and ovary (SIR=2.1), possibly linked with shared reproductive or factors such as nulliparity or late age at menopause or genetic factors. An elevated risk for all second malignancies analyzed together (excluding breast cancer) was also found (SIR=1.2). Conclusion: Our data suggests that women with a previous breast cancer have an elevated risk of developing a second cancer compared to the general population.

R-141 Teaching Medical Ethics. Casillas PB, Reyes G, Pérez R

Since 2002 an elective course on medical ethics, was added to the curriculum of our institution, laying the groundwork for compliance with educational objective ED-23: "A medical school must teach medical ethics and human values, and require its students to exhibit scrupulous ethical principles in caring for patients, and in relating to patients' families and to others involved in patient care". The course has two levels of engagement: attendance for a semester of a weekly ethics conference, and an optional 20 minute audiovisual presentation on the participants' topic of choice. This study evaluates the participants' level of engagement and, topic selection as predictors of gender, actual clinical experience, information accessibility, and personal preferences. Using Veatches' system (modified by PBC) provided 11 salient features of the ethics landscape in which to sort the presentations by topic. Preliminary review of the Medical students' demographic data and a sample of the presentations yielded the following: since its inception (2002 to 2008), the global number of persons eligible to take the course was 832; 395 (47%) males and 437 (53%) females. Persons who took the course: 319 (38%), of which 143 (45%) males and 176 (55%) females. Persons who presented were 190; 94 (49.5%) males, and 96 (50.5%) females. From a 25% subsample

(47 participants) that opted to present, 24 (51%) were males and 23 (49%) females. Most popular topic: Social Ethics of Medicine; in males: Social Ethics of Medicine; in females: Social Ethics of Medicine and The Human Control of Life. Topic selection varies with gender, and year of presentation.

R-142 Estudio para la Identificación de Competencias en Genómica para su Integración en el Currículo de Maestría en Educación en Salud Pública (MPHE). Wilfredo Ortiz-Pérez MPHEc, Silvia E. Rabionet, EdD, José A. Capriles-Quirós MD, MPH, MHSA

Los nuevos conocimientos adquiridos al terminar el Proyecto del Genoma Humano han generado la necesidad de literacia genómica en los profesionales de la salud. El reto que se presenta es la dificultad de incorporar los conocimientos científicos en genómica en los currículos para la formación de profesionales de la salud. La finalidad de esta investigación cualitativa y cuantitativa fue identificar las necesidades de conocimientos que tiene la facultad del Programa Graduado en Educación en Salud Pública para integrar las competencias en el currículo vigente. La población bajo estudio consistió del universo de profesores del Programa Graduado (N=10). Este estudio transversal utilizó dos instrumentos validados por expertos para establecer el estado de conocimientos de las competencias e identificar factores que impactan la integración de las competencias en el currículo. Las competencias fueron elaboradas a partir del modelo propuesto por el Centro de Control y Prevención de Enfermedades. Solo el 40% de la facultad tenía conocimientos del modelo de competencias. El 70% estima son necesarias para la profesión. Ninguna de las experiencias en genómica de la facultad se obtuvo a nivel de maestría. El 80% de la facultad prefiere la educación continua para la construcción de nuevos conocimientos. La falta de conocimientos en genómica limitan la integración de las competencias en el currículo. Es necesario utilizar el Modelo de Integración Curricular propuesto que ofrece un proceso de análisis sistemático del estado de situación de conocimientos para la integración de áreas emergentes en educación superior.

R-143 Prácticas de Prevención y Percepción sobre Obesidad de Padres de Niños de 1 a 5 años. Marlyn Báez López

La literatura sugiere que la obesidad en niños es un factor determinante asociado a enfermedades como diabetes, hipertensión y problemas emocionales de autoestima, que se reflejarán en la adolescencia (Jackson, 2005). El

problema de investigación formulado es: ¿Que relación existe entre las prácticas de prevención y percepción de los padres sobre la obesidad en niños de 1 a 5 años? Los objetivos son: identificar las prácticas de prevención que realizan los padres, examinar la percepción que poseen los padres sobre la obesidad infantil en niños de 1-5 años y determinar la relación que existe entre la percepción de los padres sobre la obesidad y las prácticas de prevención que realizan en sus hijos. El diseño utilizado fue descriptivo correlacional. La población de 94 madres, padres o tutor legal de la oficina del programa W.I.C de Juncos durante febrero y marzo de 2008. El instrumento de medición es: Prácticas de prevención y percepción sobre obesidad. Los hallazgos fueron: el pasatiempo más realizado por los niños que fueron ver televisión (52.1%) y jugar video juegos diariamente (10.6%). Prácticas realizadas se encontraron: ingerir bebidas carbonatadas (53.2%), ingerir bebidas carbonatadas (53.2%) y consumir comidas fuera del hogar (67%). Por otro lado un (97.8%) de los participantes indicaron que evitar el sobrepeso en los niños necesita del apoyo de los padres. Se encontró que en todos los grupos de edades de uno a cinco años tenían un por ciento de sobrepeso aunque (94.7%) los padres entendían que el problema de la obesidad era uno de salud en Puerto Rico y (93.6 %) conocían las consecuencias de la obesidad.

R-144 Improving student learning outcomes through the extension of online library services, resources, and the integration of information literacy in the teaching/learning process at Medical Sciences Campus and University of Puerto Rico at Carolina. F Corrada, N Dominguez, M Toral, R García

Information literacy is defined as “an intellectual framework for identifying, finding, understanding, evaluating and using information” for which today it is important to emphasize the lifelong learning and to overcome the challenges of the Information Age. Objectives: provide the technological infrastructure; enhance students’ information skills, increase the number of faculty members integrating information literacy; and increase the availability of online services and digital library resources. Activities: enhancement of the technological infrastructure; training of faculty members on information literacy and to create on-line materials; the development of the virtual reference; the digitization of reserve and audiovisual resources; the acquisition of new full-text databases and new computers for student use. Outcomes: the establishment of a virtual reference service and the

attendance of 1064 requests; the digitalization of 100% of the references: the acquisition of 2 data bases or tools (Refworks and Sportdiscuss) and the uses of 16,759 and 79,568 respectively; the creation of 6 on-line tutorials in information literacy; the development of both libraries' web pages; the acquisition of 18 desktops for students' uses at the MSC library; and the acquisition of 30 laptops and 2 desktops for the two new classrooms at the MSC library. Projections: The integration of information skills at both campuses; the offering of 24/7 virtual reference service and the digitalization and access of audiovisual resources and special library collections. Support by U.S. Department of Education's Grants PO31SO055 and PO31SO60003.

R-145 *Diseminación de Intervenciones Basadas en Evidencia: Iniciativa para la Prevención del Maltrato de Menores en Puerto Rico.* B Santiago-Rodríguez Ph D, M Sánchez-Cesáreo Ph D, JI Toro-Torres Ph D, KM Kelly Ph D

Puerto Rico se encuentra ante un reto para poder desarrollar prácticas de prevención exitosas para el maltrato de menores. En la Isla existen muy pocos estudios empíricos que sugieran cuáles prácticas han sido exitosas para prevenir el maltrato. Se entiende que en Puerto Rico muchos esfuerzos investigativos y aplicados no se publican. Éstos tampoco llegan a medios masivos de comunicación limitando así la diseminación de sus hallazgos. Por consiguiente, la meta de este estudio es guiar a los profesionales y a la comunidad en sus esfuerzos por desarrollar prácticas de prevención exitosas en nuestro país. Esto mediante la identificación de aquellas intervenciones que han demostrado ser efectivas basadas en la evidencia y el desarrollo de una herramienta para diseminar y mantener accesible esta información. Para este estudio se realizó una extensa revisión de la literatura científica internacional y local. Además, se contactaron agencias locales que proveen servicios de prevención de maltrato de menores. Como resultado se identificaron 193 intervenciones. Éstas se incluyeron en un archivo digital que se diseminará a través del portal electrónico del Departamento de la Familia. Este archivo digital se desarrolló como una herramienta para la transferencia y difusión de tecnologías para la prevención del maltrato de menores en Puerto Rico. Las lecciones aprendidas y las implicaciones de este esfuerzo pueden ser aplicadas a la transferencia y difusión de tecnologías en otras áreas de prevención. (Auspiciado por el Departamento de la Familia de Puerto Rico, y el Centro de Investigación y Evaluación Sociomédica, RCM-UPR.)

R-146 *Association between Socioeconomic Disparities and Cancer Mortality in Puerto Rico.* Mariela Torres-Cintrón, MS, Nayda R. Figueroa-Vallés MD, MPH, Karen J. Ortiz-Ortiz MA, MPH

Background: Cancer mortality rates vary by socioeconomic characteristics of the population. Evaluation of the extent of socioeconomic inequalities in cancer mortality is essential for the generation of hypotheses in population health research and provides evidence for population-based strategies for comprehensive cancer control. Objective: To analyze socioeconomic disparities in mortality rates for the most frequent cancers in Puerto Rico (PR). Methods: Puerto Rico socioeconomic data were obtained from the US Census Bureau 2000. An area socioeconomic index was constructed (education level, median family income, unemployment, poverty level, and median value housing) and linked to PR cancer mortality data from 1990 to 2004. Age-adjusted mortality rates were calculated for each socioeconomic area, and differences were tested for statistical significance at the 0.05 level. Joinpoint regression analysis was used to model and identify statistically significant changes in the mortality trends. Conclusions: Cancer mortality in PR varied by area socioeconomic index for the entire study period. Stomach, esophagus, and larynx cancer mortality rates were higher for areas with the lowest area socioeconomic index ($p < 0.05$). In contrast, breast, colorectal, non Hodgkins lymphoma, lung and bronchus, and ovarian cancer mortality rates were higher in areas with the highest area socioeconomic indices ($p < 0.05$). Area socioeconomic indices could serve as a surveillance tool for monitoring health disparities in cancer outcomes.

R-147 *Productivity Loss due to Cancer Mortality in Puerto Rico.* Karen J Ortiz MA, MPH; Juan Lara Ph D; M Torres MS, Nayda R Figueroa-Vallés MD, MPH; Taína De La Torre MS

Background: Cancer is the second leading cause of death in Puerto Rico (PR) inducing a substantial burden to the society. It accounts for more than 12% of all premature mortality in PR for the year 2005. Accurate measuring of cancer opportunity cost is important for efficiently allocating limited resources that aim to reduce the impact of cancer in PR. Objective: To estimate the productivity loss in PR due to premature overall and cause-specific cancer mortality in 2006. Methods: The human capital approach was used to estimate mortality costs. Economic data were obtained from different sources including databases from the Census Bureau 2000, the PR Planning Board, and

the PR Department of Labor. Mortality data were linked to economic data to obtain the estimates of productivity cost due to cancer mortality in 2006. Results: There were 1,353 preretirement deaths reported attributed to cancer in 2006. The productivity costs of all cancer deaths were estimated to be around \$140 million. The cancer deaths that contributed the most to productivity loss were lung and bronchus, colorectal, breast, and liver. Conclusions: Although the analysis must be interpreted with caution, it contributes to show a broader picture that includes the economic dimension of health problems in a society. These estimates imply that productivity cost due to cancer mortality have a great burden in PR. The leading cancer sites that generate most productivity losses are highly preventable or can be diagnosed early. This study should be considered within the framework of future cost analysis for health and cancer control policies.

R-148 Trends in Esophageal Cancer Incidence by Histology, Puerto Rico, 1987-2003.
Taína De La Torre MS, Nayda Figueroa-Vallés MD MPH, Karen Ortiz MPH

Historically, Puerto Rico had one of the highest incidence rates of esophageal cancer in the world, with approximately 90% percent being squamous cell carcinoma (Martínez, 1964). However, in the last decades esophageal cancer incidence has been decreasing in Puerto Rico. In the Western world, an increase in adenocarcinoma of the esophagus has been observed since the 1980's. The objective of this study is to evaluate the changes in the incidence of esophageal cancer in Puerto Rico in recent years by histological type. The incidence data from the Puerto Rico Central Cancer Registry were used to calculate age-adjusted rates by histologic type. Annual percent changes were estimated to evaluate the incidence trends between 1987-2003. Squamous cell carcinoma accounted for 68.2% and 70.4% of esophageal cancers in men and women, respectively, while adenocarcinoma accounted for 11.8% among men and 9.4% among women. Men had higher rates than women for both squamous cell carcinoma (M/F=3.0) and adenocarcinoma (M/F=4.0). Esophageal squamous cell carcinoma incidence decreased by 6.1% per year, whereas esophageal adenocarcinoma increased by 3.7% per year, both changes were statistically significant. The decrease in squamous cell carcinoma incidence was significant for both men and women while the increase for adenocarcinoma was significant for males only. Further analysis by subsite will be presented. The trends in incidence rates by histological type and subsite presented here suggest important changes in the risk factors associated

with esophageal cancer have occurred in Puerto Rico and provide the basis for further research.

R-149 Markers of pro-inflammatory and pro-thrombotic states correlate with the metabolic syndrome in Puerto Rican adults. CM Pérez, AP Ortiz, M Guzmán, M Estrella, Y Valle, E Suárez

Various factors may contribute to the metabolic syndrome (MS), including body fat distribution, insulin resistance, physical inactivity, aging, hormonal imbalance, and genetics. This study evaluated selected pro-inflammatory and pro-thrombotic correlates of the MS in Puerto Rican adults. A cross-sectional study using a probability cluster design was used to select a sample of households of the San Juan Metropolitan Area. Individuals aged 21-79 years completed a face-to-face interview, blood pressure and waist circumference measurements, and blood sampling (n=859). Multiple logistic regression was used to assess the association between fibrinogen, PAI-1 and hs-CRP and the MS, as defined by the updated NCEP-ATP criteria. After adjusting for potential confounders, subjects in the top quartile of fibrinogen were more likely to have the MS (POR=1.82; 95% CI: 1.02-3.26) compared with those in the lowest quartile. People classified in the third (POR=2.41; 95% CI: 1.44-4.04) and fourth (POR=4.67; 95% CI: 2.65-8.2342) quartiles of PAI-1 levels had a higher odds of the MS compared with those in the lowest quartile. Subjects in the third (POR=1.65; 95% CI: 0.94-2.90) and fourth (POR=2.45; 95% CI: 1.33-4.52) quartiles of hs-CRP were more likely to have the MS compared to those in the lowest quartile. Elevated levels of fibrinogen, PAI-1 and hs-CRP were independently associated to the MS in this population even after adjustment for obesity. Supported by an unrestricted grant from Merck Sharp & Dohme Corporation with additional support from the NCRR grant awards G12RR03051 and P20RR011126 (Approved by the IRB).

R-150 Polydrug Use as a Risk Factor for Attempted Suicide among Secondary School Students in a Nationally Representative Sample in Puerto Rico. JC Reyes, MR Moscoso, L Rodríguez, HM Colón

Suicide is a tragic and potentially preventable public health problem. Suicide attempts are more common than completed suicide; as many as 150 youths attempt suicide for every completed suicide in the United States. The objective of this study was to determine the association between suicidal attempts and polydrug use in a nationally representative sample of secondary school students

in Puerto Rico. Consulta Juvenil has been designed as a monitoring program of the prevalence of substance use and violence and the risk factors associated with these problem behaviors in the student population. The survey was conducted during the 2005-07 academic year. The study utilizes a self-administered questionnaire. Participants included 7,028 (52.4%) females and 6,389 (47.6%) males. From a total of 13,672 students, 18.1% were classified as polydrug users. The overall suicide attempt prevalence was 12%. Multiple logistic regression analysis revealed that females (OR=2.7, $p<0.001$), those who reported depression symptoms (OR=4.2, $p<0.001$) and those who were suspended from the school during the last year (OR=1.7, $p<0.001$) were more likely to be suicidal attempters. Polydrug use was the most important factor associated with suicidal attempt (OR=8.7, $p<0.001$). This study shows a positive association between polydrug use and suicidal attempts among Puerto Rican adolescents, suggesting that Hispanic youth who use multiple substances may be at higher risk for a suicidal attempt independently of their depression condition.

R-151 Puerto Rico Heart Attack Pilot Study.
Juan Carlos Zevallos, Jorge Yarzebski,
Robert Goldberg, Héctor Banchs, Juan
González, Iris Ramos

Puerto Rico carece de un sistema de vigilancia de enfermedades cardiovasculares (ECV), a pesar de que éstas constituyen la causa líder de muerte. Este estudio evalúa la factibilidad de implementar un sistema de vigilancia de infarto agudo del miocardio (IAM) basado en la recolección de información de récords médicos. Se seleccionaron al azar récords médicos de pacientes egresados con diagnóstico de IAM en los años 2001-2003-2005, adaptando el cuestionario del Worcester Heart Attack Study (WHAS). Se obtuvo información demográfica, características del IAM, tipo de transportación a emergencias, conformidad con guías terapéuticas y complicaciones durante hospitalización. Los 5 hospitales aceptaron participar y los 121 récords médicos seleccionados estuvieron accesibles. La proporción de hombres con IAM por año fue 71%, 73% y 72%. Un 25% de los IAM fueron recidivantes. La mitad de pacientes no arriba a emergencia en ambulancia. A las 24 h de admisión, un 88.6% de pacientes recibió aspirina, un 84% de bloqueadores y en 72% IECA. La mayor complicación fue fallo cardíaco (30.4%). En conclusión, es posible implementar un sistema de vigilancia basado en información del récord médico. La proporción de hombres con IAM fue consistente en los 3 años de estudio; la proporción de fallo cardíaco post-IAM es similar que en USA (30.4% vs. 23%); el

tipo de infarto recidivante fue menor al encontrado en el WHAS (24.7% vs. 55.8%). El escaso uso de ambulancia por pacientes con IAM ofrece una oportunidad de mejorar este servicio. El uso de medicinas beneficiosas para el tratamiento del IAM es más bajo que en USA.

R-152 Cuidadores primarios informales de pacientes con Demencia por Alzheimer: Un perfil desde la perspectiva de Terapia Ocupacional. Arelis Santiago, Saraf Rivera,
Jonathan Rodríguez, Carmen Rodríguez

El cuidado de la mayoría de los pacientes con Demencia por Alzheimer es provisto por familiares o por cuidadores primarios informales (CPI) en sus hogares. La depresión, la ansiedad y otras condiciones físicas que ocurren en los CPI como resultado de este cuidado, han sido identificadas. El describir el impacto positivo y negativo de este cuidado en el desempeño de las ocupaciones y la carga que los CPI experimentan, fueron los objetivos de este estudio que se llevó a cabo con una muestra de CPI de Puerto Rico (n=77). Se administraron varios instrumentos: la Zarit Burden Interview, la Disability Assessment for Dementia y la Lista de Roles y se identificó como se afectan sus ocupaciones, sueño y descanso. Como parte de este estudio, se elaboraron versiones de los instrumentos adaptadas culturalmente para PR. De un 72 a un 76% de la muestra indicó estar muy afectado en el sueño/ descanso y en el ocio/recreación. De los que trabajan, más del 50% expresan que su desempeño se ha afectado por su rol de CPI. El nivel de carga promedio obtenido de la ZBI fue de 36.84, que se clasifica como severa. Entre otras, se encontró una correlación producto momento de Pearson de .93 entre el nivel de dependencia sentida y el nivel de incapacidad en actividades del diario vivir básicas e instrumentales de los familiares. Se identificaron los roles perdidos y ganados por ser CPI, además de aquellos más valorados por ellos. Los aspectos positivos de su rol de cuidadores fueron identificados. Se concluye sobre las múltiples necesidades de salud y atención que tienen los CPI y se aporta evidencia para la creación de programas.

R-153 Identification of Streptococcus sanguis Collagen-Binding and Collagen-Like Proteins. Fuertes J, Zhang Y, Herzberg MC,
Elias A

Streptococcus sanguis is an oral commensal bacterium and binds to the oral surfaces, enabling other bacteria to adhere to promote oral biofilm formation. When entering into the blood stream, *S. sanguis* is the leading cause of bacterial endocarditis since it lodges on the exposed collagen of damaged heart valves. Purpose: To identify and

clone the *S. sanguis* gene encoding a collagen-like protein and determine its function in platelet aggregation. Methods: We will attempt to clone the gene that encodes a collagen-like and/or collagen-binding protein (55 kDa) using phage display technique; the vectors and the phagemid libraries were constructed and provided by Dr. Lin Tao, University of Illinois (Chicago). First, a collagen-like surface protein of *S. sanguis* was identified by Western Blotting using an anti-collagen antibody. Then, during the panning procedure the collagen antibody-binding clones were isolated and positive clones were selected. Results: Dot blot demonstrated the presence of collagen-binding proteins in the library. Up to 1.8×10^{14} cfu/ml of phage bound to collagen was successfully recovered. Additional propagation and/or amplification procedures to further increase the bound phage concentration are recommended, after which more rounds of selection will be performed for improved specificity. Then, nucleotide sequencing will help determine if the gene that encodes for the specific collagen-like protein was isolated. Finally, a series of tests, such as deletion mutations, will be performed to verify the protein's role in the interaction with platelets. Supported in part by NIH Grant No. S21MD001830.

R-154 Proteomics: differential expression of myocardial mitochondria in ischemic preconditioned rats. H Serrano, E Bonzón Kulichenko, I Jorge, PJ Navarro, E Nuñez, P Martínez, D Pérez-Hernández, M. Ramírez-Boo, A Radfar, E Miró-Casas, D García-Dorado, J Vázquez

In this study, differential protein expression in myocardial mitochondria was assessed during rat ischemic preconditioning by high-throughput proteomics. 300 μ g of SDS-solubilized mitochondria from the hearts of normoxic and preconditioned rats were separated on SDS-PAGE. The gel was cut into several fractions, which were subjected to trypsin digestion, followed by stable isotope labeling with O16/O18 and RP-HPLC-LIT analysis. In-house developed programs pRatio and QuiXoT were used for high-throughput peptide identification and quantification, respectively. This analysis resulted in confident identification of more than 400 mitochondrial proteins, from which a large proportion could be quantified. The abundance of several mitochondrial membrane proteins was statistically increased or decreased, being most of them involved in energy metabolism and mitochondrial dysfunction. The set of differentially expressed proteins is consistent with a protective role in myocardium of preconditioned rats. Connexin 43 plays an important role in cardiac preconditioning. Here we verified the presence of Cx43 in purified

mitochondrial preparations from mouse myocardium by a mass-spectrometry-based proteomic approach, we demonstrate the absence of Cx32 in cardiac mitochondria and its presence in hepatic mitochondria in preconditioning-resistant Cx43KICx32 mice. Our results may help understanding the molecular mechanisms involved in ischemia preconditioning. Grant Support: RECAVA, Spain; Presidential Scholarship of University of Puerto Rico & University of Puerto Rico, Arecibo Campus.

R-155 Estudio Piloto para la Traducción y la Adaptación de la Prueba School Function Assessment en Puerto Rico. Migdalia Morales, Carmen Rodríguez

En Puerto Rico son muy limitados los instrumentos evaluativos válidos, confiables y culturalmente apropiados para ser administrados a nuestra población. Esta situación afecta el proceso de evaluación que llevan a cabo diversos profesionales de la salud y la educación. El propósito de esta investigación es aplicar una versión adaptada culturalmente de la prueba School Function Assessment (SFA) a una muestra de estudiantes de escuela elemental típicos ($n=30$) y con impedimentos ($n=10$). La SFA es un instrumento de criterio estandarizado que mide destrezas funcionales necesarias para que niños con impedimentos puedan lograr éxito en su rol de estudiante en un ambiente de inclusión. Los resultados del proyecto arrojan luz sobre la validez y confiabilidad de la versión adaptada culturalmente. La opinión de un panel de expertos facilitó la modificación de la prueba original para lograr una versión pertinente culturalmente, que pueda ser usada en las escuelas elementales en P.R. Los estimados de consistencia interna Alpha Cronbach obtenidos fluctuaron entre .66 a .98. Un análisis de los puntos de corte de la puntuación criterio revela diferencias entre los resultados obtenidos por la muestra del proyecto piloto y los de la muestra de estandarización original. Los estudiantes con impedimentos obtuvieron puntuaciones criterio menores que los estudiantes típicos, permitiendo establecer diferencias entre ambos grupos. Los resultados confirman el valor de la versión adaptada de la SFA como herramienta para facilitar una evaluación funcional en el contexto escolar en P.R.

R-156 Validation of New Technologies for Research: The Reliability of an Electronic Self-administered Questionnaire. Pedro L Hernández-Cott DMD MS, Lumarie Cuadrado, Eilyn de Jesús MD, Robert Hunter MD, Carmen D. Zorrilla MD

The purpose of this study is to assess the reliability of a TabletPC as a data collection device instead of the

traditional paper forms as part of the validation of new technologies to compare electronic vs. paper instruments. The PR Comprehensive Center for the study of HIV Disparities developed a baseline questionnaire (BQ) to assess the socio demographic and risk profile of patients enrolled in their studies at 3 sites. The study will compare the responses to the BQ as administered in two forms: electronic or paper. We are reporting the analysis of the validation of the electronic instrument at the Bayamon site. A 5 category (demographics, lifestyle, drug use, sexuality, violence), 47 question, 105 variable electronic version of the BQ in Access® on a Tablet-PC was given twice to consenting adults of both genders, with a 7-day minimum washout period. Data was analyzed with SPSS 16. Twenty-four participants completed both visits 62.5% between 41-50 y/o, 50% unemployed, 92% earn <\$900/mo. 23 have government health plan. Only 33.3% have completed HS. More than one-third are first time computer users, none have computers at home. Mean completion time was 9.85min. Test re-test correlation (Kappa) was 0.726 for the BQ; 0.594 to 0.808 for each of the 5 categories. Individual scores ranged from 0.515 to 0.944. Our software required adjustments and higher kappa values are seen with later participants. The group under study showed an overall kappa of 0.726, a moderate to excellent, strength of agreement. A comparison with the paper version is recommended to determine the agreement between methods. GrantNCRR5-U54RR19507-05.

R-157 Communication between Hispanic HIV+ mothers and their adolescent daughters.
JA Capriles-Quirós MD, MPH, MHSA;
W Figueroa-Cosme MD; Nanet López-Córdova PsyD

Communication patterns among HIV+ mothers and adolescent daughters in Puerto Rico have been understudied. Parents are in unique position to help socialize adolescents into healthy sexuality. The purpose of this study is to explore factors that impact communication between mother-daughters regarding sexuality. Twenty-two HIV+ mothers were recruited from Immunology Clinics at Bayamón, Ponce and San Juan. Three-separated focus groups were conducted using Krueger methodology. Ten structured questions were developed from the literature on sexual communication. Sessions were tape recorded and transcribed ad-verbatim. These conversations were coded for specific topics. All qualitative analysis was conducted in Atlas Ti. SPSS v15.0 was used for descriptive statistics. Mean age of participants was 41 years. Only 12.5% were legally married. Around 45.8% experience illicit drugs, 87.5% used alcohol, and had first sexual intercourse at

mean age of 16 years. Factors that impact communication in this group were: family structure, self-esteem, previous sexual abuse and disclosure of HIV status to daughters and family members. Parenting and communication skills can be affected among HIV+ mothers and their daughters due in part to demographics characteristics. The emerging factors identified support the value of tailored interventions to facilitate sexual communication between mothers-daughters. This study was supported by NCRR 1-U54RR019507.

R-158 Transformation of clinical assessment system: including all faculty as stakeholders.
José Matos DMD, Nilda Sánchez DMD,
María Gely DMD, Wilda Guzmán DMD

The purpose of this project is to achieve a transformation of the clinical assessment system of the University of Puerto Rico School of Dental Medicine which will involve the faculty in the process. We expect to develop a system that will be fully understood and thoroughly used by both faculty and students to improve student performance throughout the curriculum. The project will help answer if involving the faculty as stakeholders in the revision of a clinical assessment system will result in: an improved perception of effectiveness, an increased and appropriate use by faculty, and increased satisfaction of students with the system. The transformation process has been organized according to Kotter's Eight Steps Change Model. Some of the findings to date are: 87% of current daily clinical evaluations are scored at the highest level of the scale, 33% of faculty lack knowledge of the evaluation system, and 60% of students report that faculty are sometimes or almost never calibrated. The conclusions to date are: the Kotter model is useful for organizing the process, and both training, and support of faculty and administration are essential. A pilot clinical assessment project based on daily feedback, trimester evaluations, an electronic portfolio, and competency examinations, is being implemented in the senior year Comprehensive Care Course.

R-159 CaRIBE: Public Health Preparedness: Un modelo de evaluacion para adiestramientosdiseñado por IIPESAG. L Soto de Laurido, Z Olivieri, M García

El Proyecto CaRIBE Public Health Preparedness, desarrollo un modelo de evaluación de proceso y evaluación de producto aplicada a todos los adiestramientos ofrecidos a personal de primera respuesta, profesionales de la salud, personal administrativo, hospitales en una emergencia tanto en su fase I (2006-2007) como en su fase II (2007-2008). El modelo definió las variables que constituirían el perfil de los participantes y los instrumentos

que se deberían construir para la medición del éxito del proyecto. Los informes de evaluación realizados fueron: evaluación general, evaluación de los conferenciantes y evaluación de conocimiento. A través de análisis estadísticos y de pruebas t se determinó que el proyecto CaRIBE cumplió con su encomienda de aumentar el conocimiento de los participantes en manejo de emergencias. CaRIBE unió grupos del Departamento de Salud, la Administración de Veteranos, el Recinto de Ciencias Médicas, entre otras agencias de manejo de emergencias en Puerto Rico.

R-160 Student's perception of exposure to the Procedural Skills Curriculum at the end of the 4th year of medicine. Michael Vélez MSD, Ginel Rodríguez MD, Zilka Ríos MS

The curriculum on procedural skills is not standardized, and therefore training varies widely among medical schools. The purpose of an organized procedural curriculum is to ensure that students in training have appropriate exposure, both cognitively and experientially. Studies show that residents are more likely to perform procedures in their residency practices if they receive some type of training for procedures during their medical school. The objective of our study was to survey graduating 2007-08 students on how they were exposed to the procedures curriculum during the fourth year of school, either using real patients, standardized patients, or anatomic simulators. They were also asked to report the level of competency as defined by Miller's Taxonomy. A self-administered anonymous written survey included questions on how they practiced the listed procedures and their opinion regarding the necessity to practice them. A total of 47 students completed the survey (response rate 92%). Students reported that the most frequent procedures were the otoscopic exam, the ophthalmologic exam, and topical anesthesia. The method most often used was with real patients. On the other hand they reported that the less frequently practiced were the tracheotomy and the bone marrow aspiration. Our finding supports the need for a uniform procedural competence curriculum in order to meet student and faculty expectations. Certification of competence in procedures needs to move beyond experience-based criteria to standards based on proficiency and outcomes.

R-161 Comunidad y Academia en simbiosis: beneficios derivados de las experiencias prácticas de una estudiante de Educación en Salud Comunal. Chévez-Rodríguez N, Tabora-Tirado W, Vázquez K

Las comunidades que respaldan las intervenciones de la Academia reciben beneficios de los expertos sin ningún

o a muy bajo coste. Así mismo, cuando la Academia se involucra en el servicio a la comunidad, se beneficia del conocimiento derivado de la interacción de primera mano con el pueblo y abre las puertas a experiencias únicas y enriquecedoras, tanto para los estudiantes y facultativos como para la comunidad. A través del Proyecto Dental Home de la Escuela de Medicina Dental, una estudiante de bachillerato en Educación en Salud diseñó un plan educativo sobre salud oral para padres/madres o cuidadores de niños/as menores de seis años de la comunidad de Cantera. Este fue basado en las necesidades identificadas previamente a través de la técnica de grupos focales. Este plan fue implantado por la estudiante durante un semestre, a manera de piloto, con un grupo de madres/padres de 5 a 10 participantes. A través de la implantación de éstas y de otras actividades en las que se intervino con más de 200 niños/as pre-escolares en diversos Head Starts de la comunidad, se logró impactar positivamente la salud oral de los niños/as y derivó en un plan similar que ha seguido implantándose con éxito en otros sectores de la comunidad. Los resultados de este esfuerzo demuestran que la Universidad puede hacer variadas y valiosas aportaciones a las comunidades a través de la colaboración efectiva de sus diversos Programas.

R-162 Effectiveness of an Educational Intervention in Metabolic Control of Children and Adolescents with Type 2 Diabetes. Luz A. Ruiz Sánchez MHSN, RD, LND

During the last two decades, there has been a considerable increase in the prevalence and incidence of Type 2 Diabetes (T2D) in children and adolescents, probably related to obesity, physical inactivity, and inadequate dietary intake. The goal of the treatment of children and adolescents with T2D is the normalization of glucose and glycosylated hemoglobin (HbA1c) levels. The success of the treatment requires a big effort that needs to focus on the family as well as the child. The purpose of this study is to evaluate the patterns of food intake and physical activity of children and adolescents between the ages of 10 to 16 years diagnosed with T2D and its relation to metabolic control. The study design consists of a randomized intervention study. The study population includes children and adolescents with T2D referred by the Pediatric Endocrinologists of Puerto Rico. A convenience sample of the first 70 individuals that accepts voluntarily to participate in the study will be evaluated. Each participant will be randomized to one of the two study groups: control group or experimental group. Those participants in the control group will receive only a nutritional counseling. Conversely, par-

ticipants included in the experimental group will receive an educational intervention in addition to the nutritional counseling. The study aims to evaluate the efficacy of the educational intervention in the control of HbA1c levels and changes in body composition. Statistical analysis will include analysis of variance to detect between mean group differences in HbA1c levels and body composition (BMI and waist circumference).

R-163 Protein Profile in the Sera of Prostate Cancer Patients. L Guerrios, S White, J Salgado, M Irizarry-Ramírez

Prostate cancer (PCa) is the second leading cause of cancer related death among males. In Puerto Rico in 2003 the mortality rate per 100,000 is higher (35.3), than for Hispanics (21.2) and white non Hispanics (26.4) in the United States, although lower than for the African American population (68.1)(Puerto Rico Cancer Registry, SEER/NIH 2007). Current screening techniques are a digital rectal exam and determination of levels of Prostate Specific Antigen (PSA) followed by biopsies. Our laboratory has demonstrated that PSA in overweight Hispanic men is not a good marker. Statistics from the Puerto Rico's (PR) Department of Health indicate that 68% of PR's population is overweight. Our working hypothesis is that the disparity in deaths may be caused a need for better early detection. The objective of this study is to evaluate protein patterns in the sera of PCa patients in our Hispanic population that may serve as a better marker of the disease, in all patients regardless of their weight. Sera extracted from whole blood samples from 48 patients and normal subjects were analyzed by protein chip assay in Ciphergen's SELDI TOF. Results show peaks of interest which are decreased in cancer in a statistically significant manner ($p < 0.05$) are: M/Z 4950, 6411, 6607, 8110, 8732, 8889, 9095, 9379, 9596, 12399, 12556, 13708. The most definitive marker is M/Z 4950, which is the best potential indicator. These results suggest that this protein profile could become useful in the diagnosis of the disease. This work is IRB approved. Funding was received from NIH S06 GM 008224 and the UPR School of Health Professions.

R-164 Risk factors for STI's and HIV in Dominican Women in Puerto Rico. Marta Rivero-Méndez RN, DNS; Solymar S. Solis-Báez BA, Ph D (c); Dharma Freytes RN, MSN; Mónica Paz MSN (s), David Quiñónez, BSN (s), Romelinda Grullón BS, MSW; Noelia Delgado BS, MSW

Dominican women are currently the largest migrant group in Puerto Rico. The impact of migration has the potential

to lead to an increased risk and vulnerability for Sexually Transmitted Infections (STI's) and infection with the Human Immunodeficiency Virus (HIV) because many of these women have fewer economic opportunities and therefore are subject to exploitation, domestic violence, and coerced sex. The aims of this descriptive cross-sectional study were to: 1) Describe the sociodemographics and risk factors for STIs and HIV infection among migrant women, and 2) to measure the prevalence of STIs (chlamydia, syphilis, gonorrhea, and HIV). Sample consisted of 99 dominican migrant women of 21-64 years of age. Prevalence for STI's and HIV was 9.1%. Prevalence was greater in those 50 years of age or older (13.3%) and those who were married or living with partner (10.5%). Fifty-two percent of the women reported physical abuse and 40.8% revealed coerced sex. The STI's prevalence was greater in women who reported physical (9.8% vs. 8.5%) and sexual abuse (25.0% vs. 8.5%). STI's prevalence was higher in women who reported gynecological symptoms between 3 and 8 gynecological symptoms (10.5%) when compared to those who reported only one or two symptoms (5.0%). These findings highlight the need for expanding community-based research with Dominican migrant women to design ethnically tailored STI's and HIV prevention, educational interventions, as well as to assure treatment, and advocacy for this population who also are experiencing domestic violence "Approved by IRB".

R-165 Health Service Utilization by the Homeless Population of Puerto Rico. Javier Toro Torres Ph D, Jhon J Sanabria-Rodríguez Ph D, Kathleen M. Kelly Ph Dc, Marizaida Sánchez Cesáreo Ph D, Betzaida Santiago-Rodríguez Ph D, Laura I. Ayala

Approximately 8,500 homeless persons currently inhabit Puerto Rico; 5,000 meet federal criteria for chronic homelessness. Reasons for homelessness on the Island include: addiction, domestic violence, economic incapacity, sickness and physical incapacity. This population presents a variety of health conditions in addition to those illnesses associated with high risk behaviors such as prostitution and drug use. In vulnerable populations, efforts to improve health outcomes must comprehend an examination of access to services as well as social issues which impede good health. The objectives of this study were to obtain information regarding health conditions, use of health services, and use of public medical plan in order to inform public policy. The study was designed in consonance with the suppositions that the majority of the homeless seek health care in the emergency room although many of their health conditions could be prevent-

ed or treated in private doctor's offices thus lowering the costs of health care. The study utilized a mixed-methods design consisting of questionnaires administered to an intentional sample of homeless individuals and structured interviews with health service administrators as key informants. The results concurred with suppositions regarding health care utilization. Fifty-six percent of respondents report seeking services in emergency care while 26% visit private offices, 26% of respondents sought routine care, and 85% use public medical insurance to pay for services. Informants suggest prevention and provision of multiple services in a single site as potential solutions to current conditions.

R-166 Aldosterone and Eplerenone Regulates the Expression and Activity of Intracellular Renin in the Failing Heart of Cardiomyopathic Hamsters. Y Gerena, WC De Mello

Although the expression of intracellular renin in cardiomyocytes has been identified, its role in the failing heart remains unclear. In this study we investigated the influence of aldosterone and eplerenone on the expression, activity and secretion of renin in the failing heart of cardiomyopathic (CM) and normal (N) ham-

sters. For this, myocytes were isolated from the failing ventricle of CM and N hamsters and then exposed to aldosterone(100nM) and eplerenone(1 μ M) for 48 hours. Cells were permeabilized, incubated with a specific primary renin and FITC-secondary antibody and quantified by flow cytometry. Renin activity was determined using a specific activity renin kit. For analysis of renin secretion we developed a fluorescence immunoassay to quantify the secreted renin. The results indicated that aldosterone incremented the expression of renin in CM cells(15,499 \pm 1,550MESF) compared with untreated cells(12,800 \pm 1,301MESF). A similar response was observed in normal hamster cells. The renin activity was also increased in aldosterone-treated CM cells(14,171 \pm 625MFI) compared to untreated cells(12,382 \pm 350MESF). In contrast, eplerenone significantly decreased the levels(10,997 \pm 467MESF) and activity(12,052 \pm 467MFI) of renin in CM cells. Renin was not significantly secreted ($p>0.05$) after treatment with eplerenone. In conclusion: a) aldosterone regulates the expression and activity of renin and eplerenone is able to revert these effects; b) the effects of eplerenone are not related to the secretion of renin; c) the mineralocorticoid receptor is an essential component of the renin expression. Supported by NIH-RCMI G12-RR-03012.